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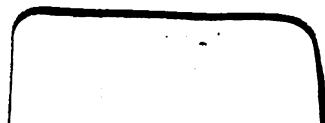
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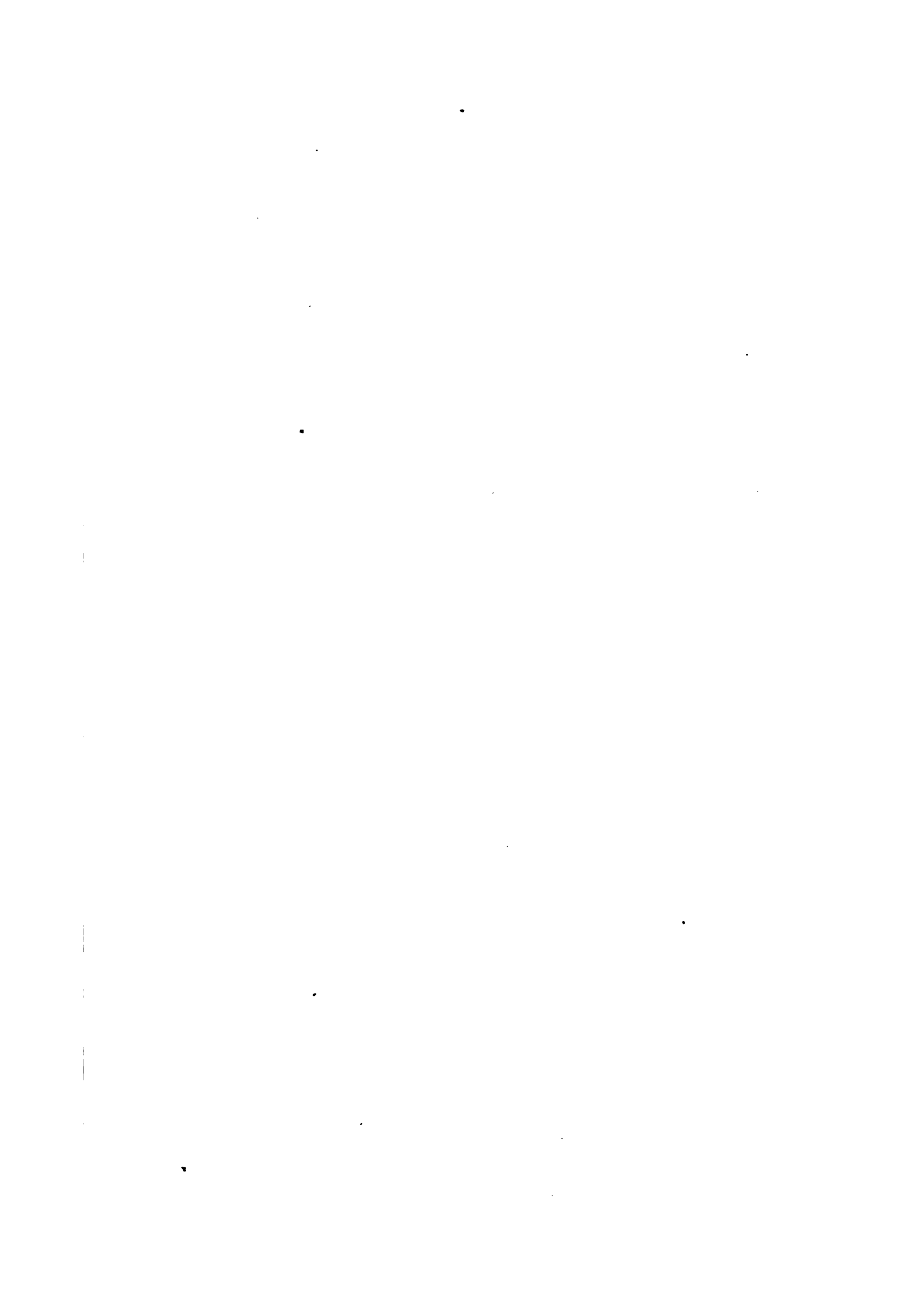
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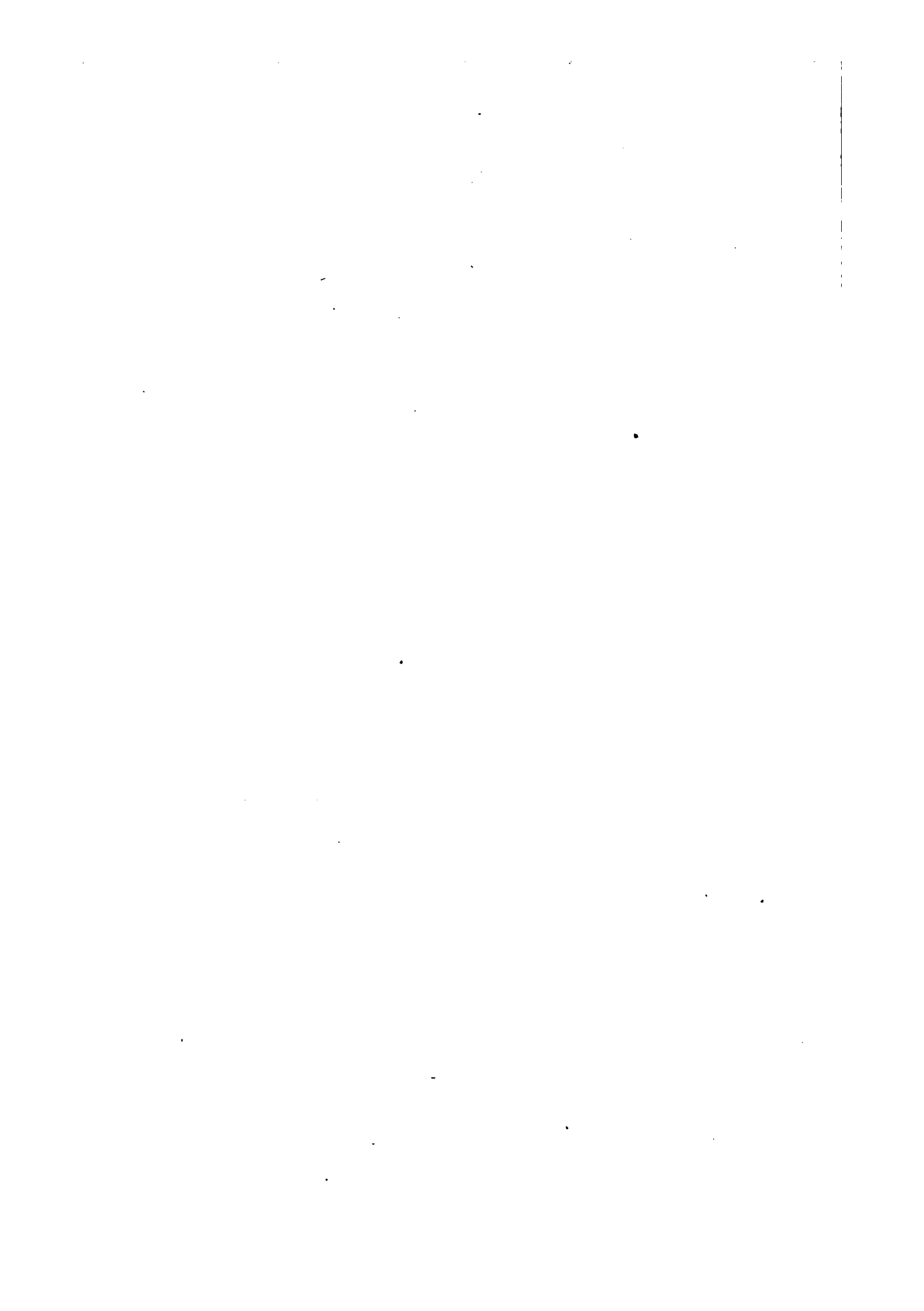
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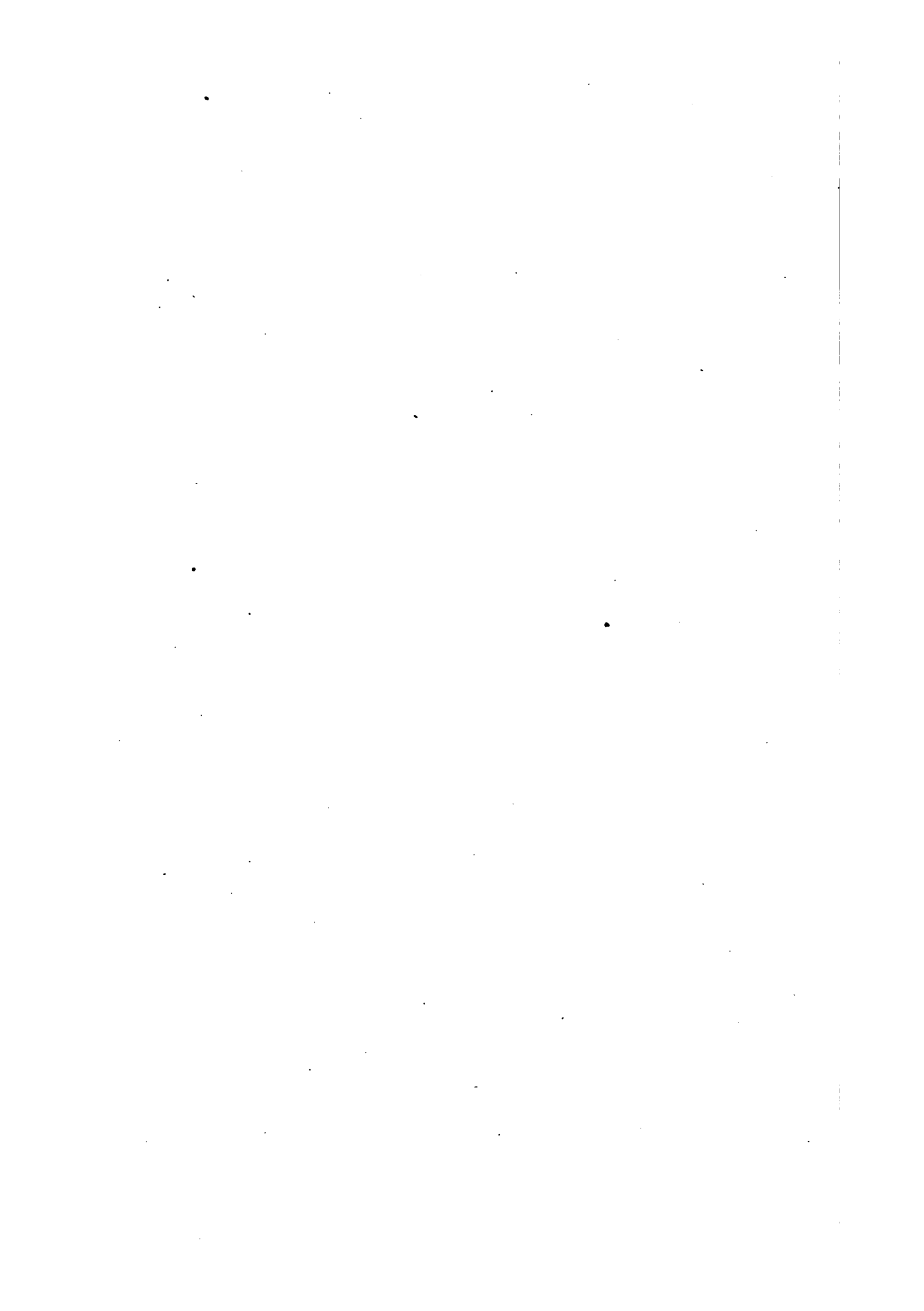
TO JUNE.

M.DCCC.XLI.



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INDEX

TO THE

NAMES AND SUBJECTS IN THE EIGHTEENTH VOLUME.

ABACUS, the ancient, 11
 Advantages, balance of, in different conditions of life, 102
 — of bodily labour, 228
 Adversity, 3
 — uses of, 192
 Advice to ill-natured people, 100
 Affections, cultivation of the, 21
 — the, heightened by religion, 79
 Affliction, 3, 131
 Amicable Ceremonies, I., 156—II., 125
 Analogy of vegetable and human life, 144
 Ancient crypts, 9
 — Egyptian custom, 38
 — philosophers, maxims of the, 93
 Anecdote of Sir Ralph Abercrombie, 8
 Animal food, 91
 Animals, effects of music upon, 99
 Aristippus, remark of, 150
 Art of story-telling, 232, 235
 Artificial flowers, manufacture of, 244
 Automaton Figures, I., 62—II., 69
 Avoidance of vicious society, 21
 Balance of advantages in different conditions of life, 102
 Bank-notes, invention of, by the Chinese, 114
 Banks of the Thames, I., 201—II., 225—III., 223—IV., 241
 Bejapoor, in Hindoostan, 140
 Belief in supernatural appearances, 38
 Benevolence, 30
 — spirit of, 60
 Birds, song of, 103
 Boat launch, the, 24
 Bodily labour, its advantages, 228
 Bones, Napier's, 11
 British Guyana, I., 177—II., 185—III., 193—IV., 205—V., 217
 Brocade, 54
 Burnt pillar at Constantinople, 12
 Calculating Machines:—
 I. Napier's bones; the Abacus, 11
 II. The apparatus of Sanderson, Gersten, and Pascal, 98
 III. Babbage's calculating engine, 52
 Cædus, or Spring, 223
 Casova and his Works, I., 18—II., 50, 111, 66
 Ceremonies, Amicable, I., 156—II., 126
 Chains of vice, 248
 Chamomile, 27
 Chess:—
 I., II. Origin and antiquity of the game, 7, 20
 III., IV. Ancient chess-men discovered in the Isle of Lewis, 27, 60
 V., VI. Origin of the names of chess-men, 78, 101
 VII., VIII., IX., X., XI., Chess-writers and players, 132, 148, 171, 183, 220
 XII. Biographical sketch of Philidor, 227
 Child, the, 155
 — an extraordinary, 68
 Children, proper encouragement of, 144
 China, use of tea in, 26
 Chinese, the inventors of bank-notes, 114
 — dinners, 104
 — feast of lanterns, 96
 — funerals, 112
 Christian consolation on the death of friends, 190
 — fear and faith, 68
 Christianity, precision and definiteness of, 118
 — reasonableness of, 11
 Churches in London, 149
 Circumstances, 21
 Cleanliness and moral feeling, connection between, 147
 Coins, ancient and modern, Some Account of:—
 Introduction, 81
 Sect. I. Medals and Coins distinguished—metals of which they are made—peculiarities of coinings—size—parts of a medal—subjects of medals—portraits—reverses of medals—remarkable coins—titles on coins and medals, 82
 Sect. II. Coins and medals in a cabinet—Greek medals—their characteristics—civil and monarchical—Greek imperial coins—Roman medals—consular and imperial—colonial coins—coins of other nations—bracteates, 84
 Sect. III. Modern coins—foreign coins—Anglo-Gallic coins, 161
 Sect. IV. Anglo-Saxon coins—ecclesiastical coins—Norman coins—Peter's pence—coins used in England till the reign of Charles II.—coins once used for legal fees—coinage of Charles II.—bad state of the coinage at the Revolution—Thomas Simon—introduction of the mill and screw—copper money—alloy of metals—Scotch and Irish money, 162
 Sect. V. Modern medals—Papal medals—Spanish and French medals—comparison of ancient and modern medals—English medals—coronation medals, 166
 Sect. VI. Study of coins and medals—Pembroke collection—utility of medals—counterfeit medals—cabinets—medallions and medalets—preservation of coins and medals, 167
 Conduct of life determined by slight circumstances, 157
 Conscience, 69
 — misapplication of the term, 248
 Constantinople, burnt pillar at, 12
 Convallaria majalis, 173
 Counters, origin and use of, 239
 Cowries, 20
 Credulity, 22
 Crypts, ancient, 9
 Cuckoo, the, 112
 Cultivation of the affections, 21
 — of plants and flowers, 179
 Custom of the ancient Egyptians, 22
 — of the Maunday, 128
 Death of friends, Christian consolation on the, 190
 Delity, considerations on the, 150
 Development of truth, 64
 Diseases, Imaginary, 26
 Discontented people, 96
 Do stoves grow? 219
 Dog, the, 21
 Domestic remedies, 24
 Druidical remains in England, 187
 Early rising, 64
 Effects of music upon animals, 99
 Eloquence, advantages of, 229
 Encaustic painting, 230
 England, Druidical remains in, 187
 — overland journey from India to, 41, 121, 201
 English and Indian landscapes, 150
 Enjoyment, the true test of possession, 226
 Euler, the mathematician, 207
 Evening, 160
 Evil, suffering, 247
 Examination of the evidences of Revelation, 152
 Excellence, foundation of, 63
 Extraordinary child, an, 68
 Faith and Hope, 79
 Fashion, 55
 Fetish, the, 96
 Flaxman and his Works, I., 106—II., 146—III., 170
 Flies, poisonous, 152
 Flowers, manufacture of artificial, 244
 Fly, the Spring, 223
 Forest, considerations on a, 131
 Forget-me-not, the, 224
 Fresh-water Fish:—
 Introduction, 119
 I., II. The Salmon, 137, 174
 III. The Trout, 191
 IV. The Jack, or Pike, 199
 V. The Perch, 247
 Frivolousness, 16
 Friends, Christian consolation on the death of, 190

Frugality the daughter of prudence, 196
 Fruit, waxes, 227
 Funerals in China, 112
 Gamester, the, 226
 Garden Herbs:—
 I. Chamomile, 27
 II. Rue, 117
 III. Wormwood, 122
 IV. Savory—Horehound, 241
 Generosity and justice, 16
 Gingerbread, 159
 Glass, soluble, 123
 Gloves, a brief history of, 151
 Glue, on the manufacture of, 71
 Government of the universe, 7
 Grounds untilled and wits unrestrained, 196
 Guyana, British, I., 177—II., 185—III., 193—IV., 205—V., 217
 Habit, 126
 Hanseatic League, brief Account of the:—
 I. Historical introduction, 249
 II. Formation of the Hanseatic League, 250
 III. Commercial advantages of the League, 251
 IV. Extent and internal government of the League, 252
 V. Monopolizing spirit of the Hanse merchants, and its consequences, 253
 VI. Decline and fall of the Hanseatic League, 254
 Happiness, temporal or eternal, choice of, 186
 — and misery, 226
 Have hope, 155
 Home, love of, 7, 115
 Honey, poisonous, 108
 Hope, 159
 Horehound, 241
 Hornbeam, the, 221
 Hot cross buns, 144
 Human and vegetable life, analogy of, 144
 Hungarian water, 2
 Hypochondriacism, 121
 Icebergs, 75
 Ichneumon, the, 109
 Ill-natured people, advice to, 100
 Illusions, Optical, I., 203—II., 228—III., 235
 Imaginary diseases, 26
 Imitation from I. Kings, xix, 11, 12—23
 India, overland journey from, to England, 41, 121, 201
 Indian and English landscapes, 150
 Infante poem, 56
 Infallible speculations, 60
 Ischil, salt mountains of, 26
 Jerboa, the
 Joannina, Pachaie of, 5
 Journey, overland, from India to England, 41, 121, 201
 Justice and generosity, 16
 Knole, in Kent, 90
 Knowledge and virtue, 27
 Landscapes, English and Indian, 150
 Lanterns, Chinese feast of, 96
 League, Hanseatic, account of the, 249
 Leibnitz, life of, 97
 Lily of the valley, 173
 Littlecoates, in Wiltshire, 129
 London, churches in, 149
 Love, a mother's, 110
 — of God the true foundation of philanthropy, 60
 — of home, 7
 — in the poor, 115
 Lynn, town of, 25
 Machines, calculating, 11, 22, 69
 Mapple, the, 31
 Malignous wit, 123
 Maunson, Old English:—
 I. Wroxton Abbey, 2
 II. Knole, 90
 III. Littlecoates, 129
 Manufacture of artificial flowers, 244
 — of glue, 71

Maunday, on the custom of the, 128
 Maxims of the ancients, 93
 Memory, 181
 Mind of man, perverseness of the, 78
 Misapplication of the term "Conscience," 248
 Mississippi scheme, the, 13
 Moderation in argument, 40
 Moldavia and the Moldavians, 153
 Months, Rural Sports for the:—
 I. January, 38
 II. February, 76
 III. March, 116
 IV. April, 155
 V. May, 197
 VI. June, 245
 Moral feeling and cleanliness, connection between, 147
 Mother's love, 110
 Mount Ossa, description of, 73
 Mouse-ear scorpiion-grass, 224
 M. Remusat and his children, 21
 Mushrooms, 55
 Music, effects of, upon animals, 99
 Obstinate man, the, 232
 Old English Mansions:—
 I. Wroxton Abbey, 2
 II. Knole, 90
 III. Littlecoates, 129
 Optical Illusions, I., 203—II., 228—III., 235
 Overland Journey from India to England:—
 First Route.—By way of the Persian Gulf, through Persia and Russia, to St. Petersburg, 41
 Second Route.—By way of the Persian Gulf, Persia, Armenia, Asia Minor, and Constantinople, to Europe, 121
 Third Route.—By way of Lahore, Caubul, Bokhara, Foorkmania, Khorasan, and Persia, to the Black Sea, 201
 Owybee, volcano of, 4
 Pachaie of Joannina, 5
 Painting, encaustic, 230
 Parental tenderness, 248
 Pedants, various kinds of, 129
 Persian amusements, 104
 Perverseness of the mind of man, 78
 Pest, Spring fair at, 20
 Philosophy not opposed to Revelation, 26
 Physic, 27
 Physical powers, necessity for their cultivation, 110
 — and moral life, 76
 Plants and flowers, cultivation of, 179
 Pleasures, 208
 Poisonous Articles of Food:—
 I. Mushrooms, 55
 II. Animal food, 91
 III. Poisonous honey, poisonous grain, spurred rye, 108
 Poisonous flies, 152
 Porcupine, the, 68
 Possession, enjoyment the true test of, 226
 Power of truth, 141
 Prayer, 26
 Prejudice, 30
 Present and the future, 129
 Preservation of timber, 221
 Production of designs by stamping, 59
 Proud man, the, 124
 Prudence the mother of frugality, 196
 Prudent advice, 3
 Rainbow, the, 115
 Real knowledge, 8
 Reasonableness of Christianity, 11
 Religion, 79, 126
 Resurrection, 22
 Resurrection, the, 150
 Revenge, pleasure of forbearing, 225
 — unjustifiableness of, 150
 Rome under the emperors, 19
 Rue, 117
 Rural Sports for the Months:—
 I. January, 38
 II. February, 76
 III. March, 116
 IV. April, 155

Maunday, on the custom of the, 128
 Maxims of the ancients, 93
 Memory, 181
 Mind of man, perverseness of the, 78
 Misapplication of the term "Conscience," 248
 Mississippi scheme, the, 13
 Moderation in argument, 40
 Moldavia and the Moldavians, 153
 Months, Rural Sports for the:—
 I. January, 38
 II. February, 76
 III. March, 116
 IV. April, 155
 V. May, 197
 VI. June, 245
 Moral feeling and cleanliness, connection between, 147
 Mother's love, 110
 Mount Ossa, description of, 73
 Mouse-ear scorpiion-grass, 224
 M. Remusat and his children, 21
 Mushrooms, 55
 Music, effects of, upon animals, 99
 Obstinate man, the, 232
 Old English Mansions:—
 I. Wroxton Abbey, 2
 II. Knole, 90
 III. Littlecoates, 129
 Optical Illusions, I., 203—II., 228—III., 235
 Overland Journey from India to England:—
 First Route.—By way of the Persian Gulf, through Persia and Russia, to St. Petersburg, 41
 Second Route.—By way of the Persian Gulf, Persia, Armenia, Asia Minor, and Constantinople, to Europe, 121
 Third Route.—By way of Lahore, Caubul, Bokhara, Foorkmania, Khorasan, and Persia, to the Black Sea, 201
 Owybee, volcano of, 4
 Pachaie of Joannina, 5
 Painting, encaustic, 230
 Parental tenderness, 248
 Pedants, various kinds of, 129
 Persian amusements, 104
 Perverseness of the mind of man, 78
 Pest, Spring fair at, 20
 Philosophy not opposed to Revelation, 26
 Physic, 27
 Physical powers, necessity for their cultivation, 110
 — and moral life, 76
 Plants and flowers, cultivation of, 179
 Pleasures, 208
 Poisonous Articles of Food:—
 I. Mushrooms, 55
 II. Animal food, 91
 III. Poisonous honey, poisonous grain, spurred rye, 108
 Poisonous flies, 152
 Porcupine, the, 68
 Possession, enjoyment the true test of, 226
 Power of truth, 141
 Prayer, 26
 Prejudice, 30
 Present and the future, 129
 Preservation of timber, 221
 Production of designs by stamping, 59
 Proud man, the, 124
 Prudence the mother of frugality, 196
 Prudent advice, 3
 Rainbow, the, 115
 Real knowledge, 8
 Reasonableness of Christianity, 11
 Religion, 79, 126
 Resurrection, 22
 Resurrection, the, 150
 Revenge, pleasure of forbearing, 225
 — unjustifiableness of, 150
 Rome under the emperors, 19
 Rue, 117
 Rural Sports for the Months:—
 I. January, 38
 II. February, 76
 III. March, 116
 IV. April, 155

INDEX TO THE EIGHTEENTH VOLUME.

Rural Sports for the Months—
V. May, 197
VI. June, 245

Salmon, the, 137, 174
Salt mountains of Ischia, 85
Savory, 241
Self-government, 23
— improvement, 60
— knowledge, 179
Seven wonders of the world, the, 94
Shark, character of a, 240
Shell-fish, silk from, 135
Shoe buckles, 141
Silk from shell-fish, 135
— from spiders, 99
Silphium, 102
Small-pox, History of, and of the means for its Prevention:—
I. Origin and progress; introduction of inoculation, 15
II. Discovery of vaccination; its progress on the Continent; re-vaccination, 21

Soluble glass, 183
Sonnambulism, singular cases of, 61
Song of birds, 103
Sorrow, 3
Spiders, silk from, 99
Spirit of benevolence, 60
Spring fair at Pest, 30
Spring-fly, the, 225
Stamping, production of designs by, 59
Stones, their asserted growth, 219
Story telling, the art of, 232, 235
Sturgeon, the, 92
Suffering evil, 247
Suliot hills, the, 33
Suliot and Ali Pacha, 57
Supernatural appearances, belief in, 38
Tattooing, 107
Tea, use of, in China, 35
— in various countries, 110
Temporal or eternal happiness, choice of, 186

Thames, Banks of the, I., 201—II., 225
— III., 233—IV., 241
Thank-offering, 92
This earth not our rest, 99
Timber, preservation of, 221
Trifles, 102
Trout, the, 191
True devotion, 34
— patriotism, 131
— philosophy not opposed to Revelation, 126
Truth, development of, 64
— immortality of, 97
— power of, 141
Turkey and the Turkish provinces—
I. Pacha of Juanina, 5
II. The Suliot hills, Albania, 33
III. Ali Pacha and the Suliot, 57
IV. Mount Ossa, &c., in the province of Trikala, 73
V. Moldavia and the Moldavians, 157
Universe, government of the, 7

Unkindness, 64
Use of tea in China, 85
— in various countries, 110
Vaccination, 149
Valley, lily of the, 173
Vegetable kingdom, principle of reproduction in the, 160
— and human life, analogy of, 144
Velvet, 24
Vic, chains of, 248
Volcanus of Owyhee, 4
Waxed fruit, 227
Wire-drawing, I., 142—II., 180
Wit, malicious, 183
Wits unrestrained and grounds untilled, 196
Woman, 118
Wonders of the world, the seven, 94
Wormwood, 182
Wroxton Abbey, 2

INDEX TO THE ENGRAVINGS.

AFGHAN national dance, 213
Alfred, coin of, 162
Altars on Roman coins, 84
Amphipolis, coin of, 85
Ancient chess-men, 37, 60
Antioch, coin of, 84
— in Pisidia, coin of, 86
Antiochus V., coin of, 85
— VI., coin of, 83
— VII., coin of, 85
Apamean medal, 167
Apollo, head of, on coin of Amphipolis, 85
Asia Minor, Tokat, in, 121
Atrarpu, mountains of, 185
Augustus, head of, on coin of Antioch, 84
Babbage's calculating engine, portion of, 31
Bank-note, Chinese, 113
Baptism of Constantine the Great, medal commemorating, 88
B. Jannoo, in Hindostan, 140
— great gun at, 141
Benevolence, from Canova, 17
Bishop, cross, as designed by Flaxman, 173
Bray, village of, 233
Breakfast, a Persian, 125
British coins, 88
— Guyana, views in, 177, 185, 196, 205, 217
Caddis or Spring fly, the, 224
Calculating machine, Babbage's, 53
— Professor Saunders's, 23
Camo, Toorkman, 216
Canova, groups by, 17, 49, 65
Canute, coin of, 162
Charity, by Canova, 65
Chess-men, ancient, 37, 60
— designed by Flaxman, 120, 148, 173, 188, 220, 237
Chess-rooks, in heraldry, 101
Chinese bank-note, 113
Coins:—
Alfred, 162
Amphipolis, 85
Ancient British, 88
Anglo-Saxon, earliest, 162
Antioch, 84
— of Pisidia, 86
Antiochus V., 85
— VI., 83
— VII., 85
Canute, 162
Commonwealth, 165
Cunobeline, 88
Edward the Confessor, 162
Egbert, 162
Elizabeth, 163, 164
Ephesus, 85
Ethelbert, 162
Ethelred of Kent, 162
— of Northumberland, 162
Ethelstan, 162
Gadara, 87

Coins:—
Harold, 162
Henry I., 163
— II., 163
Jewish, 83, 87
Macedonian, 84
Offa, king of Mercia, 162
Persian, 87
Phoenician, 88
Roman, 84, 86
Simon's Trial piece, 161
William II., 163
— college, Eton, 241
Columbus, medal in honour of, 167
"Comfort ye the fatherless and the widow," group by Flaxman, 169
Common fox, the, 76
Commonwealth, coin of, the, 165
Constantine the Great, medal commemorating the baptism of, 88
Constantinople, burnt pillar at, 13
Cowies, 80
Crypt in Lastingham church, 9
Cunobeline, coins of, 88
Dance, national, of the Afghans, 213
Doric, a Persian coin, 87
Deer, red, 156
Draught players, from an Egyptian painting, 20
Eastern dormitory on the house-top, 48
Edward the Confessor, coin of, 162
Egbert, coin of, 162
Elizabeth, coin of, 163, 164
Ephesus, coin of, 85
Essequibo river, William IV.'s Cataract, 205
Ethelbert, coin of, 162
Ethelred of Kent, coin of, 162
— of Northumberland, styes of, 162
Ethelstan, coin of, 162
Eton college, 241
Flaxman, sculptures by, 105, 145, 169, 148, 173, 188, 220, 237
Gadara, coin of, 87
Gallery over the hall at Knoles, 89
Glue, diagram illustrating the manufacture of, 72
Gold angel of Elizabeth, 162
— spur royal of Elizabeth, 164
— ten-shilling piece of the Commonwealth, 165
Great gun at Hejapoor, 141
Group of Suliot, 57
Guyana, British, views in, 177, 185, 193, 205, 217
Hadrian, medal commemorating his victory over the Jews, 88
Hall at Knoles, gallery over the, 89
— at Littlecoates, interior of the, 129
Hanover, Leibnitz's house in, 97
Hanseatic rath-house, Lubeck, 249

Hare, the, 116
— in her form, 117
Harold, coin of, 162
Harpies, victory of Hercules over the, medallion commemorating the, 81
Henry I., coin of, 163
— II., coin of, 163
Hercules' victory over the Harpies, medallion commemorating the, 81
Hornbeam, leaf and catkins of the, 228
House-top, Eastern dormitory on the, 48
Hut and canoes, of the natives of British Guyana, 217
Ichneumon, the, 109
Illusions, optical, illustrations of, 203, 228, 235, 236
Instruction, from Canova, 49
Jassy, public promenade at, 153
Jerboa, the, 64
Jewish coins and medals, 83, 87
Juanina, 5
King, chess, designed by Flaxman, 182
King William the Fourth's Cataract, Essequebo, 205
Knights, chess, designed by Flaxman, 188
Knoles, gallery over the hall at, 89
Koords exercising, 128
Lastingham church, crypt in, 9
Leibnitz's house in Hanover, 97
Littlecoates, interior of the hall at, 129
Lubeck, view of, 256
— Hanseatic rath-house, 249
Lynn, St. Nicholas chapel, 25
Macedonian coins, 84
Machinery for wire-drawing, 180
Magpie, the, 32
Mallard, the, 111
Massroony, view on the, 193
Medals:—
Apamean, 168
Baptism of Constantine the Great, 88
Columbus, 167
French, issued by Napoleon, 167
Hadrian, 88
Hercules and the Harpies, 81
Jewish, 87
Nero, 83
Vespucci, 167
Mercia, coin of Offa, king of, 162
Months, rural sports of the, illustrations of, 40, 76, 116, 117, 156, 197
Mount Ararat, 45
Mountains of Atrarpu, 185
— Abaina, 177
Napier's rods, or bones, 11
Napoleon, medal issued by, 167
National dance of the Afghans, 213
Nero, medal of, 83
Offa, king of Mercia, coin of, 7

Old English mansions, I., 89, 159
Optical illusions, illustrations of, 203, 228, 235, 236
Otter, the, 197
Pawns, chess, designed by Flaxman, 220, 237
Pen y Graig, salmon-leap at, 137
Perch, the, 248
Persian breakfast, 125
— coins, 87
Phoenician coin, 88
Pike, the, 200
Porcupine, the, 68
Public promenade at Jassy, 153
Queen, chess, designed by Flaxman, 148
Rajah and his vassals, 209
Rath-house, Hanseatic, at Lubeck, 249
Red deer, 156
Resignation, by Flaxman, 105
Roman mountains, ranges of the, 177
Roman coins, altars on, 84
— and medals, 81, 83, 85, 86
Rooks, chess, 161
Rural sports of the months, illustrations of, 40, 76, 116, 117, 156, 197
St. Nicholas chapel, Lynn, 25
Salmon, the, 176
Salmon leap at Pen y Graig, 137
Saunderson's calculating machine, 228
Section exhibiting the structure of velvet, 24
Shekel, the Jewish, 87
Simon's trial piece, 161
Source of the Thames, 201
Sports, rural, of the months, illustrations of, 40, 76, 116, 117, 156, 197
Spring-fly, the, 224
Sturgeon, the, 92
Styes of Ethelred of Northumberland, 162
Suliot hills, the, 33
Suliot, group of, 57
Sultanieh, in Northern Persia, 41
Thames, source of the, 201
— views on the banks of the, 201, 225, 223
Tokat, in Asia Minor, 121
Toorkman camp, 216
Trout, the, 191
Velvet, section exhibiting the structure of, 24
Vespucci, medal in honour of, 167
Victory of Hercules over the Harpies, medallion commemorating the, 81
View on the Massroony, 193
William II., coin of, 162
William the Fourth's cataract, Essequebo, 205
Wire-drawing machinery, 180
Wroxton Abbey, 1

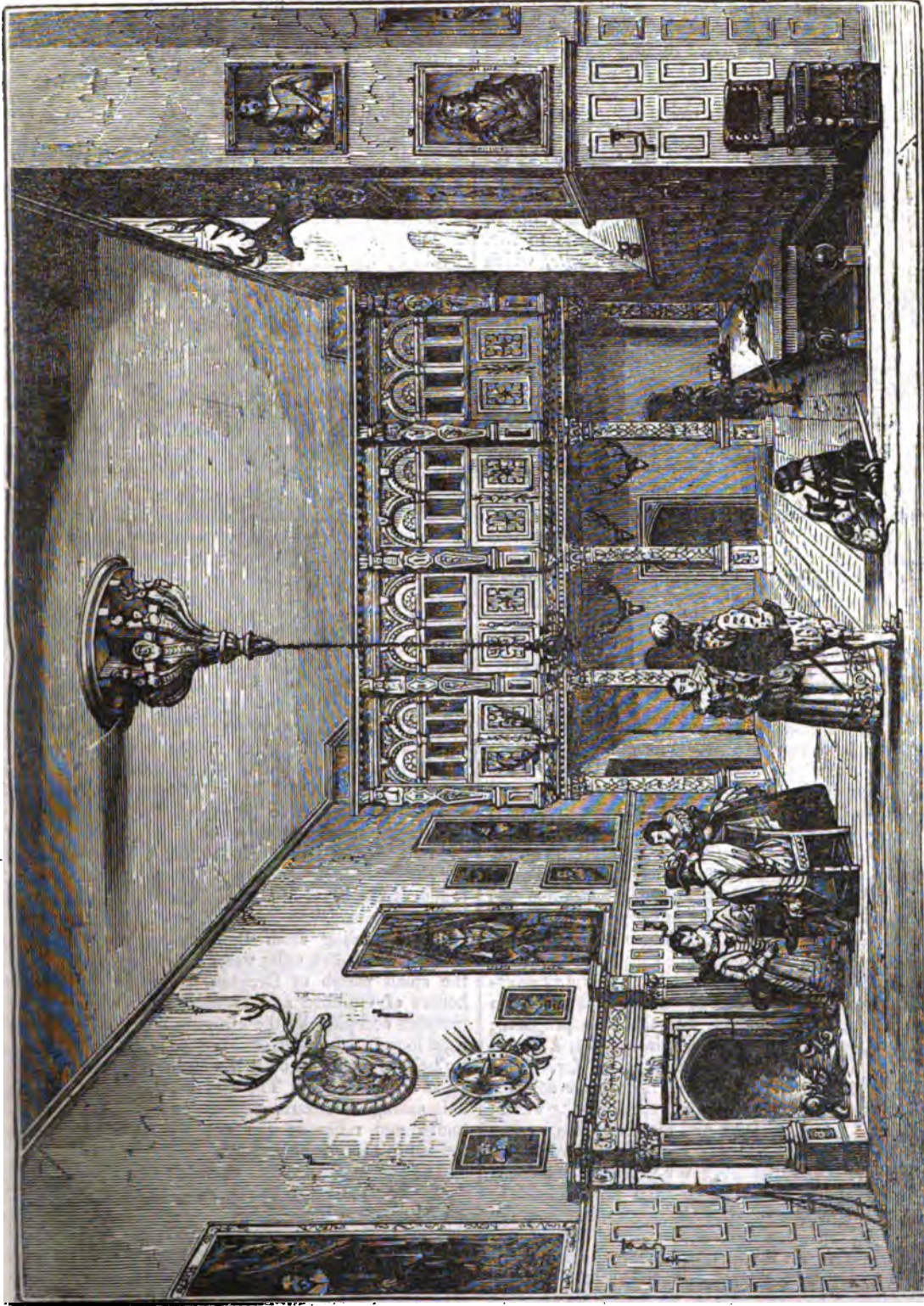
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HALL IN WROXTON ABBEY.
From Nash's *Mansions of the Nobility in the Olden Time.*

WROXTON ABBEY, OXFORDSHIRE.

The stately homes of England,
How beautiful they stand!
Amidst their tall ancestral trees,
O'er all the pleasant land,
The deer across their greensward bound
Through shade and sunny gleam,
And the swan glides past them with the sound
Of some rejoicing stream.—HEMANS.

We have, on one or two occasions, presented the reader with copies of some of the admirable engravings contained in Mr. Nash's *Mansions of England in the Olden Time*. The appearance of a second series of that work, and the permission of the publisher to present a view from it in our present Number, offers an opportunity for our again expressing the opinion which we have formed of it.

The idea of presenting views of the mansions of the nobility and gentry in various parts of England, is by no means a new one; for many of our artists and engravers have, at different times, and to different extent, followed up such a plan. We may particularly allude to Mr. Neale's elegant work, entitled *Views of Seats*, which extends to ten or twelve volumes, and contains representations and descriptions of a very large number of mansions. But still something else was wanted; some other feature was looked for, which might carry the imagination back to old times, when, from the peculiar usages and customs of the age, the English gentry were wont to dwell more in the midst of their tenantry and dependents than they are enabled to do at the present day. This is not the place to discuss why it is that such changes occur, during the lapse of time; but certain it is, that the home of an English country gentleman, in the reign of "good Queen Bess," of the Jameses, and the Charleses, presented marked and characteristic features: our authors may describe these characteristic features, and do all that the pen can effect in presenting them to the mind; but the aid of the painter is wanting to produce the full effect.

Now this brings us to the nature and object of Mr. Nash's work. He does not merely represent cold exteriors of large mansions; he carries the spectator within doors, and peoples the halls, the saloons, the libraries, with inmates, habited as they were wont to be in the times of which we have spoken. His plan has been, to visit such old mansions as present the most striking examples of the "Elizabethan" style of architecture, and as have suffered the smallest degree of change by repair; to select some portion of each building, of the most picturesque kind; to furnish it (if, as is usual, it be an interior) with such decorations, furniture, and implements, as were likely to be found in it in times long gone by; to give vividness to the scene by introducing imaginary figures, habited strictly in accordance with the era chosen; and to represent those figures as being employed in such avocations as will illustrate the domestic arrangements and the domestic sports of "merry England," two or three centuries ago. Such was the plan proposed; and the mode of execution is so admirable, that a second series of similar views was speedily called for. This second series is now before us; and from it we select a view of Wroxton Abbey, Oxfordshire, respecting which, we will give a few descriptive and historical details.

Wroxton Abbey is situated in the parish of Wroxton, near Banbury, in Oxfordshire. We will say a few words respecting Banbury, before we visit the Abbey itself.

If we look at a map of Oxfordshire, we find that the northern portion is very narrow, not above eight or ten miles in breadth. At the eastern border of this narrow district, is the town of Banbury, on the river Charwell; and proceeding westward from Banbury, we come to Wroxton Abbey, at a distance of about two miles.

Banbury is a considerable market town, twenty-two

miles from Oxford, and seventy-three from London, and contains between five and six thousand inhabitants. This place is supposed to have been occupied by the Romans, from the discovery of some Roman coins and a Roman altar there. About the year 1153, a castle was built here by Alexander, bishop of Lincoln, which continued an episcopal residence till the first year of the reign of Edward the Sixth; and is said to have contained a dreary dungeon for convicts. During the wars of the Roses, the neighbourhood of Banbury was the scene of frequent conflicts, of which the most disastrous was the battle of Banbury, fought in 1469, on a plain called Danesmore, near Edgecote, a village about three miles distant, between the Earl of Warwick on the one side, and the Earls of Pembroke and Stafford on the other; which ended in the defeat of the Yorkists. The town was again the seat of contention, during the civil wars of the Commonwealth. The inhabitants espoused the cause of the Parliament; but the town was taken by the Royalists after the battle of Edgehill, and defended by Sir William Compton, against Colonel Fiennes, for thirteen weeks, till the garrison was relieved by the Earl of Northampton. It was afterwards besieged for several weeks by Colonel Whalley, and surrendered on honourable terms.

The town of Banbury is pleasantly situated in a fertile valley, on the banks of the small river Charwell. The houses are well built, and the streets are lighted with gas. The chief manufactures of the town are cheese, of which a large quantity of superior quality is made, and the celebrated "Banbury eakes;" formerly there was an extensive manufacture of plush, shag, and girth webbing; but this has greatly declined. The church, dedicated to St. Mary, is a spacious structure, erected under the authority of an act of Parliament, obtained in 1790. The living is a discharged vicarage, in the archdeaconry and diocese of Oxford, rated in the king's books at 22*l.* 0*s.* 2*d.*, endowed with 200*l.* private benefaction, 400*l.* royal bounty, and 600*l.* parliamentary grant. Among the places for education are a blue-coat school, established by subscription in 1705, and endowed with property to the amount of 80*l.* per annum: this school was, in 1807, incorporated with a national school, to which a Sunday-school has been since attached. Formerly, there was a free grammar-school here, which was held in such high estimation, that the statutes of Saint Paul's School, London, are said to have been drawn up on the model of those of Banbury School. One of the masters, Mr. Stanbridge, was tutor to the celebrated Sir Thomas Pope; and so great was the reputation which this institution had acquired, that the statutes of the free grammar-school at Manchester, dated 1524, ordain that the grammar be there taught "after the manner of the school at Banbury, in Oxfordshire, which is called Stanbridge grammar."

In proceeding from Banbury to Wroxton Abbey, which is about two miles westward of it, we pass through the small parish of Drayton, possessed by the noble houses of Guilford and Dorset. It once contained a mansion occupied by the Greville family, but this has been long in an uninhabitable state as a mansion, though we believe a portion of it has been repaired and fitted up as a poor-house. The church of Drayton is a simple unimposing structure, principally remarkable for the tombs and relics of the noble personages who once resided in the neighbourhood.

The parish of Wroxton, in which the abbey is situated, contains only about eight hundred inhabitants. The living is a vicarage in the archdeaconry and diocese of Oxford, and in the patronage of the Marquis of Butc. The church is dedicated to All Saints, and contains monuments to two or three of the Earls of Guilford, to several other members of that family, to the first Earl of Donne, and to other distinguished personages.

Wroxton Abbey would seem, from its name, to be

rather an ecclesiastical structure than a private mansion; but the truth is that an abbey formerly occupied the spot, and a portion of it has been built into or included in the present mansion, which retains the old name. A priory of canons regular of St. Augustin was founded here in the reign of Henry the Third, and valued at 78*l.* 13*s.* 4*d.* The buildings of this priory were destroyed by fire, and the present mansion was built on its site.

The estate came into the family of the Norths by the marriage of Francis, Lord Keeper Guilford, with Lady Frances Pope, sister of fourth and last Earl of Donne. The greater part of the present structure was erected by Sir William Pope, afterwards Earl of Donne, in the year 1618. The building is of an ornamental and interesting character, though it was not completed according to the original design, as an intended wing on the south side was never commenced. The Lord Keeper made some additions, and the late Earl of Guilford erected an elegant library, after a plan by Smirke. The chapel is a fine room, beautified by the first Earl of Guilford. Among the pictures deposited in this mansion are many ancient portraits of the families of North and Pope. Among the latter is an original of Sir Thomas Pope, founder of Trinity College, Oxford, and uncle of the first Earl of Donne. Of the Norths there is a complete series of portraits, from Edward, the first lord, created in the reign of Philip and Mary, to the present Earl of Guilford. "The whole of Wroxton Priory," says Mr. Brewer, "is creditable to the taste of the noble owner. Every improvement introduced (and many have been effected) is rendered subservient to the ancient baronial character of the edifice. The gardens and pleasure-grounds will be viewed with particular interest, as no innovating hand has robbed them of their monastic features."

The only remains of the original abbey (or priory, as it would seem to be more correctly called) are an arch, which was probably a door of entrance, and a small portion of the passages, communicating with offices in the lower division of the building.

Mr. Nash has, in one picture, represented the porch of Wroxton Abbey, which is an elegant specimen of the Italian decorated entrances, so frequently attached to buildings of this date. Another plate is devoted to the hall. This hall is handsome, though plain, and is remarkable for the screen, which is richly carved and supported on columns, leaving the space beneath the music-gallery open. The pendant in the centre of the ceiling is likewise a curious feature, and has a light and elegant effect. The stags' heads introduced into the wall are also peculiar and striking ornaments.

JEOPARD not the loss of many things for the gain of one thing; neither adventure the loss of one thing certain for many things doubtful.—SIR THOMAS SMITH.

THE heart may be sad, without the eye being wet.—LOVER.

ADVERSITY is like the period of the former and of the latter rain,—cold, comfortless, unfriendly to man and to animal; yet from that season have their birth, the flower, and the fruit, the date, the rose, and the pomegranate.—SIR WALTER SCOTT.

AFFLICTION appears to be the guide to reflection; the teacher of humility; the parent of repentance; the nurse of faith; the strengthener of patience, and the promoter of charity: while of those upon whom affliction is thus sanctified to the purifying of the soul, and its improvement in Christian graces; of those, who study to convert it with the blessing of their merciful Father, to their spiritual and eternal welfare, that they "may become partakers of his holiness;" of those who welcome it as the means whereby they may "learn the statutes" of the Lord: of such persons it may be truly affirmed, as the royal Psalmist acknowledged of himself, that "it is good for them to be afflicted."—BISHOP MANT.

HUNGARY WATER.

Doctors or Teachers they of Physick are,
(Whether by pen they do it, or in chair
With lively voyce,) that teach the way to know
Man's nature, health, and sickness, and do show
Diseases, cause, and cure: but they who spend
Their life in visits, and whose labours end
In taking fees and giving paper scrolls,
Factors of physick are, and none but owls
I'o court such doctors, that no Latin know,
From whence that name did to our language flow.

Thus wrote William Rowland, the coadjutor of Culpeper in some of his numerous works on medical subjects; and from the tone of satire in which the lines are written, the reader would naturally suppose that this Rowland was a genuine "doctor," and not a mere "factor of physick." Yet we are tempted to smile when we see what were the ideas of such men respecting the effects of medicines on the human body, and how strangely they mixed up astrology with the medical art. If we select almost any simple herb,—*rosemary* for instance,—we shall find that they attribute to it virtues which would very much gladden the hearts of invalids, could we only believe them to be true. Rosemary, Culpeper tells us; will cure, or at least "help" cold diseases, rheum, swimming of the head, drowsiness, stupidity, dumb palsy, lethargy, falling sickness, tooth-ache, bad breath, weak memory, dim sight, yellow jaundice, pestilence, cough, ptisick, consumption, benumbed joints, and a host of other personal evils, both internal and external. He also informs us that "the sun claims privilege to it, and it is under the celestial Ram."

These whimsicalities would be calculated merely to amuse, were it not that uneducated persons are often disposed, by the perusal of the works, or the popular dissemination of the opinions, of such men as Culpeper and Rowland, to form a very erroneous estimate of the comparative state of medical knowledge in past and present times. The reputed properties of any particular herb or medicament, however astounding they may be, are laid down by our old herbalists in such positive and undoubted terms, that many readers fear it would be a kind of presumption to doubt the truth of what is asserted. This is an evil, since it is difficult, and often impossible, to bring the mind into a fit state for the reception of truths recently discovered, if it is pre-occupied by doctrines which partake of the marvellous, and which are, principally on that account, eagerly caught up by the multitude.

We could easily collect numerous examples of medicinal herbs, which are now used for the most simple purposes only, but which were once lauded for curative properties almost innumerable. Some preparations, formerly much vaunted, are now utterly unknown, while others, although still admitted into the healing art, occupy a far humbler station than that which they once filled. There is a curious history respecting the subject of HUNGARY WATER, a preparation from Rosemary, which will illustrate some of the remarks offered above, and will show that persons moving even in the highest circles were once not exempt from the belief in medicines and remedies of a marvellous character.

Hungary water is spirit of wine distilled upon rosemary, and therefore imbued with its oily and strongly-scented essence. It used to be brought principally from France, particularly from Beaucaire, Montpellier, and other places in Languedoc, where rosemary grew in great abundance. The name by which it is known,—*l'Eau de la reine d'Hongrie*;—seems to imply that it was first known or used in Hungary, and such appears on investigation to have been the case. Several books have been written on the subject, in which it is stated that the receipt for making this medicine was given to the queen of Hungary by a hermit, (some say by an angel) who appeared to her in a garden, all entrance to which was shut. One writer says that this queen was Queen

St. Isabella, but another states it to have been Elizabeth, wife of Charles Robert, king of Hungary, daughter of Uladislaus II., king of Poland, and he goes on to say, that by often washing with this spirit of rosemary, she was cured of gout and lameness, at the age of seventy years; that she lived to the age of eighty, and became again so renovated in youth and beauty, through the effects of this wonderful preparation, that she was admired by the king of Poland at that time, who was then a widower, and who wished to make her his second wife.

Many indistinct allusions were made by different writers to a book, or breviary, containing a receipt, written by the queen of Hungary, in letters of gold, for the preparation of this famous medicine. But the first clear account of it was given by John Prevot, in a medical work published about two centuries ago. The substance of his information on this point was as follows:—In the year 1606, Prevot happened to see, among the books of Francis Podacather,—a man of noble family with whom he was intimate,—a very old breviary, which Podacather held in high veneration. This breviary had been given by Elizabeth, queen of Hungary, to one of the ancestors of Podacather, as a testimony of the friendship that existed between them; and at the beginning of it is the following entry, in the queen's own hand:—

I, Elizabeth, queen of Hungary, being very infirm, and much troubled with the gout, in the seventy-second year of my age, used for a year this receipt, given to me by an ancient hermit, whom I never saw before nor since, and was not only cured, but recovered my strength, and appeared to all so remarkably beautiful, that the king of Poland asked me in marriage, he being a widower and I a widow. I, however, refused him for the love of my Lord Jesus Christ, from one of whose angels I believe I received the remedy. The receipt is as follows:—

Take of aqua vite, four times distilled, three parts, and of the tops and flowers of rosemary two parts: put these together in a close vessel: let them stand in a gentle heat fifty hours, and then distil them. Take one dram of this in the morning, either in your food or drink, and let your face and the diseased limb be washed with it every morning.

It renovates the strength, brightens the spirits, purifies the marrow and nerves, restores and preserves the sight, and prolongs life.

If we were to judge of this strange document, taking the tone of modern opinion as a standard, we should be inclined to doubt its authenticity; but when we consider the character of the times (about the year 1380), and the allusions made to it by so many writers, we may admit its truth, by supposing the queen to have been a woman of a vain and rather weak mind.

An account of the mode of preparing Hungary water was published by Zapata, in 1586, in his *Mirabilia, seu Secreta Medico-Chirurgica* *. The writer commences by alluding to the wonderful cures performed on one Anaxagoras by the use of this Hungary water, and then describes the mode in which it was prepared by Arnold of Villa Nova:—"Take some good must, such as yields a ley of his own accord, before the grapes are bruised. Put it into a vessel, and add the sprouts and leaves of rosemary, of each ten parts; and when it has steeped in spirit, let it be shut up in a perforated vessel, in order that it may effervesce, and extract the virtues of the rosemary. When the process has been thus far conducted, let some more must and rosemary be put into a glass cucurbit, and distilled five times: when it boils let the result of the fifth distillation be drawn out; and after it shall have been distilled in the other vessel of must and rosemary, (in which fermentation has been going on,) both are to be added together. Then add a small quantity of the fifth distillation, or *quintessence*, so that the must may be developed from it more frequently and efficaciously. . . ." It must be confessed that a modern practitioner would be somewhat perplexed to have to produce Hungary water by such a description as this.

* This was a book which treated of "the wonders or secrets of the medical and surgical profession."

The time has now gone by when Hungary water was deemed a specific against severe diseases; and it has taken its rank among the simpler preparations from vegetable bodies. In preparing this liquid, the leaves and tops of the rosemary yield their fragrance, in a great degree, to the ardent spirit, leaving behind the greatest share both of their flavour and pungency. The mode of preparing it usually adopted is, by distilling one gallon of proof spirit of wine, in which a pound and a half of fresh rosemary-tops have been placed. In order to make it in perfection, the spirit must be very pure, and the leaves at their full growth, gathered without bruising. If the flowers are suspended in the retort, and a gentle heat applied, just sufficient to raise the spirit in the form of vapour, this vapour, by lightly percolating through them, is said thereby to increase the fragrance. The custom used to be, in order to produce Hungary water of the finest kind, to distil the spirit several times with the rosemary; but the commoner sorts were often nothing more than cheap brandy, with a little of the essence or the oil of rosemary added to it.

Hungary water is now regarded as nothing more than an agreeable perfume, possessing nearly the same qualities as the simple herb from which it is produced. The wondrous properties attributed to this liquid by the queen of Hungary, as well as the equally marvellous virtues attributed to rosemary itself by the herbalists, are now known to have had their chief foundation in the operation of the human mind. The gradual development of truth makes sad havoc in glowing and highly-coloured descriptions, whether of medicinal cures or of any other subject in which the public is deeply interested.

An article has appeared in some of the daily journals, in which the volcano of Kiraueh, (there called Kireca,) in the island of Hawaii, or Owhyhee, is spoken of as a newly formed crater. It was, however, visited many years since by Mr. Ellis; and the following account given by Mr. Douglas, corresponds so closely with its present state, as recently laid before the Geographical Society, that it may not be uninteresting to our readers.

THE VOLCANO OF OWHYHEE.

THE late Mr. Douglas, who visited Kiraueh in 1833, has described the scene presented by the interior of its crater as singularly awful and magnificent. He descended to a ledge at the depth of 1062 feet in this fearful pit; where a space about five miles in diameter, was covered with lava, the whole of which had apparently been recently in a state of fusion, though some portion was at that period hardened. This igneous mass appeared, in the process of cooling, to have been rent into pieces of every form and size, from gigantic rolls, like enormous cables, to the finest threads. Over this part of the pit were dispersed numerous small cones, or chimneys, which continually emitted smoke; and besides these little cones there were three remarkable pyramidal masses, measuring about 900 feet at the base, and being from 20 to 25 feet in height. These cones had lateral openings, like the doors of a baker's oven, to which they altogether bore a close resemblance. By kneeling down on the ledge it was possible to peep into these openings, and to witness "a terrific vacuity, a red-hot atmosphere," varied only by the occasional ejection of volcanic matter through a lateral opening. The remaining portion of this pit consisted of two lakes of liquid lava: one about 900 feet in diameter, and the other above 3000 feet in length, and nearly 2000 feet in width. Both these lakes of fire flowed in a continued stream towards the south end of the pit, at which point was exhibited one of the most appalling and magnificent spectacles in nature,—a vast cauldron of lava, in furious ebullition, rolling and tumbling in fiery waves, sometimes spouting up to the height of 60 or 70 feet, and rapidly hurrying along, until it precipitated itself through an arch about 400 feet in width, and 40 feet in height, into a yawning chasm of unknown depth. From this tremendous, but unseen, laboratory of nature, immense masses were thrown back with great violence, and literally spun into minute glass-like filaments, which were carried by the wind in all directions. The sound issuing from this archway baffles all description: "that of the whole steam-engines in the world," says Mr. Douglas, "would be a whisper to it."—MISS ZORNLIN'S *Recreations in Physical Geography*.

TURKEY AND THE TURKISH PROVINCES



THE TOWN OF JOANNINA.

THE Turkish government has many peculiarities that distinguish it from European states, and foremost of these is the administration of its provinces by means of Pachas. This institution, though in its principle perhaps not very different from that of the suzerainties of the feudal system, presents such a systematic course of extortion, bribery, and rebellion, and is, as a whole, so little like anything that the history of Christendom offers to our notice, that it is of itself sufficient to impress upon the country a distinct character, and without some acquaintance with the system, any account of Turkey must be but imperfectly comprehended. We accordingly furnish a sketch of the career of a Turkish pacha, the substance of which we borrow from Colonel Napier.

The Sultan, seldom removing from Constantinople, is there surrounded by a cabinet, termed the Divan, which appoints as the governor of a distant province, that one among the numerous class of the Sultan's personal attendants, who either bribes, or promises to bribe, them most largely. The government is sometimes not even vacant when the post is sold, but should the pacha have become obnoxious to the sultan or his government, a messenger is despatched to bowstring him and bring his head to Constantinople; this, if the governor be weak or taken by surprise, is often accomplished without difficulty: but in other cases, the messenger is waylaid and murdered, and the event only serves to wring a bribe from the intended victim. The purchaser then has to wait an indefinite time till further steps are taken, which he very patiently does, well-knowing that the bowstring would be the reward of any other conduct.

When he at length gains possession, his first measure is to solve what is said to be the grand problem of Turkish government, namely, how far he may plunder his subjects without occasioning a rebellion too formidable for him to put down. This point settled, his tribute remitted, and his promised bribes to the Divan punctually paid, with a handsome additional sum as a retaining fee, the new pacha is generally allowed to go on peaceably, as far as regards the Porte, for a few years. Then similar

means to those that procured his rise are employed to work his downfall. His subjects have from the first preferred complaints against him, and now that he is presumed to be rich, these are regarded. His government is in the market, and he, aware of the fact, endeavours to meet the danger by bribing more largely than before. At length, having reached the point of endurance, he attempts to conciliate his people by relaxing somewhat of his extortions; and these, knowing that the arrival of a new governor is invariably followed by greater oppression than ever, are sometimes induced to make common cause with him. His bribes now become less than before; his government is sold, and a messenger despatched for his head, who, however, not unfrequently loses his own. Next comes the new pacha, with an army, if he can raise one; and then follows a war, which usually ends by one party outwitting the other, and putting him to death, with circumstances of treachery and cruelty of which European readers can form no adequate conception.

This matter premised, we may now proceed to the description of Joannina, once the capital of Ali Pacha, whose eventful life, of which we may one day give a sketch, well exhibits the blood-stained and checkered career of a Turkish governor.

THE PASHALIC OF JOANNINA.

JOANNINA is the chief town in a pashalic of the same name, situated in Albania, a province near the north-west boundary of European Turkey. It owes nearly all the celebrity which it has attained, to the power and influence of Ali Pacha, who made it his residence. The town is not far from the eastern shore of the Adriatic, and is in the immediate vicinity of some of the Ionian Islands.

At a distance of about sixty miles north-west of the Morea, a small gulf branches out from the Adriatic, called the Gulf of Arta; at the entrance of which is a commercial town of some importance, called Prevesa. Forty miles northward of Prevesa stands the town of Joannina, the approach to which, from the south, is

described by travellers as being very beautiful. Dr. Holland thus describes the scene which presents itself, when the traveller has approached within two miles of the city.

A large lake spreads its waters along the base of a lofty and precipitous mountain, which forms the first ridge of Pindus, on this side, and which, as I had afterwards reason to believe, attains an elevation of more than 2500 feet above the level of the plain. Opposed to the highest summit of this mountain, and to a small island which lies at its base, a peninsula stretches forward into the lake from its western shore, terminated by a perpendicular face of rock. This peninsula forms the fortress of Joannina; a lofty wall is its barrier on the land side; the waters which lie around its outer cliffs, reflect from their surface the irregular, yet splendid outline of a Turkish seraglio, and the domes and minarets of two Turkish mosques, environed by ancient cypresses. The eye, receding backwards from the fortress of the peninsula, reposes upon the whole extent of the city, as it stretches along the western borders of the lake:—repose, indeed, it may be called, since both the reality and the fancy combine, in giving to the scenery the character of a vast and beautiful picture, spread out before the sight.

The length of the lake, on the borders of which the town of Joannina is situated, is about six miles, and its greatest breadth two; but at the point where the peninsula juts out into the lake, the breadth of the latter is very small. The city extends along the greater part of the western shore of the lake, and stretches, in width, from the lake to a row of low eminences, about a mile and a half distant from it. The interior aspect of the town is said to be rather gloomy, except at some particular spots. The streets are very tortuous, so as to give a stranger a great deal of embarrassment in reaching any destined part of the town; and those in which the lowest classes of the inhabitants dwell, contain little but wretched mud-built cottages, and are in the outskirts of the city. The habitations of the middle ranks make a nearer approach to comfort, being constructed of wood, with a small open gallery under the projecting roof; altogether dissimilar to the cottages of Switzerland. The dwellings of the higher classes, both Greeks and Turks, partake more of an Oriental character, being quadrangular structures surrounding an open court, and having wide galleries running round the sides: the construction of these houses is such as to be extremely convenient in a warm climate; but, externally, they have more the appearance of prisons than of houses, for they present little more to the eye than lofty walls, with massive double gates, and windows (if any) at the top of the building.

The bazaars form, in Joannina, as well as in other Turkish towns, the most bustling and attractive feature in the place. They consist of ten or twelve streets, intersecting each other at irregular angles: they are narrow, and are rendered rather dark by the low projecting roofs, and by the large wooden booths in which the goods are exposed for sale. Each bazaar is appropriated to the sale of one particular class of goods; for instance, there is one occupied by those who deal in jewellery, and other ornamental articles; a second, by the dealers in pelisses, Turkish shawls, and other articles of dress; a third, by the retailers of common cotton goods; a fourth, by the dealers in grocery, tobacco, dried fruits, &c.; a fifth, by those who sell hookah and Meerscham pipes, wooden trinkets, &c.; a sixth, by the dealers in coloured leather, and Turkish slippers; and one or two others. Some of these bazaars, especially those in which jewellery and articles of dress are sold, are richly and abundantly furnished.

Joannina contains sixteen mosques, each standing on an open space of ground, and generally surrounded by large cypresses. There are also about seven or eight Greek churches, Joannina being the seat of a Greek archbishop.

The seraglios, or palaces of the pacha, are very large and important buildings. The chief one is lofty in itself, and situated on the most lofty spot in the city: it is

principally built of wood, but is supported and surrounded by high and massive stone walls, on different parts of which cannon are mounted. The palace itself is built entirely in the Turkish style, with roofs projecting far beyond the face of the building; windows disposed in long rows underneath; and walls richly decorated with paintings, occasionally landscape, but more generally what is merely ornamental, and without any uniform design. The entrance to the seraglio is very mean, being under a broad wooden gateway, within which is a large irregular area, two sides of which are formed by the buildings of the seraglio. On crossing this area, a dark stone staircase leads to an outer hall, from which an entrance leads into a long and lofty apartment, contiguous to the audience chamber of the pacha. This last mentioned apartment is decorated in a somewhat gaudy style, the prevailing colours, as well of the walls and ceiling as of the furniture, being crimson, blue, and yellow. The ceiling is divided into squares by woodwork very curiously and delicately carved, the interior of each square being decorated in crimson and gold. Pilasters are arranged at equal distances round the walls, and on these are hung sabres, daggers, pistols, &c., all profusely ornamented with gold and jewels. A carpet covers the floor; and round three sides of the room are ranged *divans*, or platforms, about fifteen inches high, and covered with cushions of crimson satin. A hearth, for burning wood fuel, is situated at one side of the room, and over it is a projecting chimney, rising in the form of a conical canopy, superbly ornamented with gilding. This description of the style of decoration in the audience chamber, will serve to convey a general idea of all the state apartments, in which a strange mixture of gaudiness and barbarity is observable, but very little real taste.

Perhaps the most beautiful structure in the town is the pavilion of the pacha, situated in the northern suburb. This pavilion is in the middle of a garden, and consists of a great saloon, two hundred and forty feet in circumference: its outline is not a perfect circle, but is formed by the curves of four separate areas or recesses, which are all open to the great circular area that occupies the centre of the building. The curve of each recess contains nine windows; and there are two also at the entrance into the pavilion. The pavement is of marble, with a large and deep marble basin in its centre: in the midst of this basin stands the model of a pyramidal fortress, mounted with numerous cannon, from each of which a *jet d'eau* issues, meeting the other jets from cannon on the outer circumference of the basin. Attached to one of the pillars of the pavilion is a small organ, which plays while the water is flowing.

The peninsula, of which we have before spoken, widens as it advances into the lake, and is terminated by two distinct promontories of rock; on one of which stands a large Turkish mosque, its lofty minaret, and extensive piazzas, shaded by the cypresses surrounding it. On the other promontory is situated the old seraglio of the pachas of Joannina, inhabited by them previous to the erection of the one which we have described, but now chiefly inhabited by officers and soldiers of the pacha's guard. The whole of the peninsula is fortified, so as to form a little town in itself, insulated from the rest of the city by a lofty stone wall, and a broad moat which admits the waters of the lake.

The banks of the lake are studded with numerous objects of a picturesque nature, such as the Great Seraglio, which seems to rise directly from the shore; a painted kiosk, projecting over the water, below the rocks of the old seraglio; a convent of dervishes, shaded by trees, towards the north. But the most attractive object is one which owes nothing to the hand of man, viz., the mountain ridge which backs the city, and which rises to a height of nearly three thousand feet: this range forms a continuous boundary to the valley in which the lake is

situated, rising from the water's edge, in the part opposite to Joannina, with an abruptness and majesty of outline which has much of the sublime in it: its precipitous front is intersected by the ravines of mountain torrents, the borders of which, expanding as they approach the lake, are covered with wood, and form the shelter to many small villages.

The lake is rather inconsiderable in depth, and is terminated at each extremity by low marshy land; there is an outlet towards the north, by which the water of the lake flows to another small lake about six miles distant from the city. The water which thus flows from one lake to the other, after having passed through the second lake, suddenly enters a subterranean passage underneath some limestone hills, and appears again at a considerable distance. The supply of water to both lakes, is derived from springs, and from the various mountain torrents which descend into them.

There is a considerable amount of trade carried on at Joannina. The chief article of importation, is cloth of French and German manufacture: this reaches them by way of Leipsic, and the demand for it is very considerable, since all the rich Greeks and Turks, not only in Albania, but also in parts of Roumelia, and the Morea, purchase at Joannina the cloth for their loose robes and winter pelisses. Within the last few years, English cloths have also found a market at this place. The articles of exportation are, oil, wool, corn, and tobacco, for the Italian ports; and for inland circulation, through Albania and Roumelia, spun cottons, stocks of guns and pistols mounted in chased silver, embroidered velvets, stuffs, and cloths. Large flocks of sheep and goats, and droves of cattle and horses, are collected from the Albanian hills, and sold at an annual fair held near the town: the horses are generally sold again to inhabitants of Albania; but the cattle, sheep, and goats, usually go to the Ionian Islands.

In concluding this slight description of Joannina, we must remark that the town was the scene of many desperate conflicts between the Turks and the Albanians, during the latter part of the life of Ali Pacha, and that these contests have probably made some alterations in the buildings and arrangement of the town; but as there have been very few recent travellers to that part of Turkey, we are not exactly in a position to state what these changes or alterations may have been. Everything relating to the natural beauties of the spot, must, however, be nearly or quite the same as they were before, whatever be the turmoils and strifes of ambitious men: the palaces and houses made by men, may be destroyed by them; but the mountains and valleys remain, enduring witnesses of the power of the Great Creator who formed them.

LOVE OF HOME.—Whatever strengthens our attachments is favourable both to individual and national character. Our home,—our birth-place,—our native land! Think for a while what the virtues are which arise out of the feelings connected with these words; and if thou hadst any intellectual eyes, thou wilt then perceive the connection between topography and patriotism. Show me a man who cares no more for one place than another, and I will show you in the same person one who loves nothing but himself. Beware of those who are homeless by choice! You have no hold on a human being whose affections are without a tap-root. Vagabond and rogne are convertible terms; and with how much propriety, any one may understand who knows what are the habits of the wandering classes, such as gipsies, tinkers, and potters.—*The Doctor.*

THE history of creation is, itself, the history of God's government; and nothing short of absolute idiotism, rather than mere ignorance, could believe it possible that this incalculably complicated, multifarious, and inconceivably extended universe, could preserve its order without a government.—*MACCULLOCH.*

ON CHESS.

I. ORIGIN AND ANTIQUITY OF THE GAME.

THE origin of the game of Chess has been the subject of very laborious research and warm argument; and, although the results are by no means satisfactory, yet the inquiry has afforded a good deal of valuable and amusing information; a selection from which will probably be interesting to the general reader, as well as to the amateurs of this noble and scientific game.

Some historians have referred the invention of chess to the philosopher Xerxes; others to the Grecian prince Palamedes; some to the brothers Lydo and Tyrrhene; and others, again, to the Egyptians. The Chinese, the Hindoos, and the Persians, also prefer their claims to be considered as the originators of chess, but the testimonies of writers, in general, prove nothing except the very remote antiquity of the game.

In examining the testimonies of various writers, on a subject so obscure, we must always make considerable allowance for that prejudice in favour of certain opinions which habit and local circumstances apart from sound reasoning have tended to confirm. Thus, a historian who has passed much of his time in India, studying the manners and customs of the native tribes, tracing out their history, translating their legends, and copying their monuments, would almost unconsciously support against any other, the claims of such a people to any remarkable invention. The same remark applies to the historian of the Chinese, of the Egyptians, of the Greeks, and other ancient nations; and, accordingly, we find that each of these nations has its advocate in English literature.

The first writer that we shall mention, is Mr. James Christie, who has written a quarto volume, entitled, *An Inquiry into the Ancient Greek Game, supposed to have been invented by Palamedes, antecedent to the Siege of Troy*. It is, however, generally agreed that the claims of the ancient Greeks to the invention are unfounded. Palamedes lived during the Trojan war, and was so renowned for his sagacity, that almost every early discovery was ascribed to him. The whole of the claim of Palamedes rests upon the definition of the game of pebbles, *πετραίαι*, as played by the Greeks. This game was played with white and black pebbles, and was invented by Palamedes, as appears by a line in the first book of Homer's *Odyssey*.

The claim of the Romans is equally unfounded: a game, something like dice, is spoken of by their writers, which has been mistaken for chess.

Mr. Irwin, in a letter to the Earl of Charlemont, published in the *Transactions of the Royal Irish Academy*, supports the claims of the Chinese, in whose *Concum*, or *Annals*, appears the following passage:

Three hundred and seventy-nine years after the time of Confucius, or 1965 years ago, Hung-cochu, king of Kiang-nan, sent an expedition into the Shen-si country, under the command of a mandarin, called Han-sing, to conquer it. After one successful campaign, the soldiers were put into winter quarters; where, finding the weather much colder than what they had been accustomed to, and being also deprived of their wives and families, the army, in general, became impatient of their situation, and clamorous to return home. Han-sing, upon this, revolved in his mind the bad consequences of complying with their wishes. The necessity of soothing his troops, and reconciling them to their position, appeared urgent, in order to finish his operations in the ensuing year. He was a man of genius, as well as a good soldier; and, having contemplated some time on the subject, he invented the game of chess, as well for an amusement to his men, in their vacant hours, as to inflame their military ardour,—the game being wholly founded on the principles of war. The stratagem succeeded to his wish. The soldiery were delighted with the game; and forgot, in their daily contests for victory, the inconveniences of their post. In the spring, the general took the field again; and in a few months, added the rich country of Shen-si to the kingdom of Kiang-nan. Hung-cochu assumed the title of emperor, and Chou-payuen put an end to his life in despair.

In the Chinese game of chess, (which is called *Chong-ke*, or the Royal Game,) the board is divided by a river in the middle, to separate the contending parties. The powers of the king are very limited: he is intrenched in a fort, and moves only in that space in every direction. There are also two pieces whose movements are distinct from any in the European game: viz., the MANDARIN, which answers to our bishop in his station and sidelong course, but cannot, through age, cross the river: and a ROCKET-BY stationed between the lines of each party, who acts with the motion of a rooket, by vaulting over a man, and taking his adversary at the other end of the board. Except that the king has two sons to support him instead of a queen, the game is like ours.

From these considerations, Mr. Irwin infers that the game of chess is probably of Chinese origin; that the confined situation and powers of the king, resembling those of a monarch in the earlier periods of the world, favour the supposition, and that the agency of the princes, in lieu of the queen, bespeaks forcibly the nature of the Chinese customs, which exclude females from all power. The princes, in the passage of the game through Persia, were changed into a single vizier, or minister of state, with the enlarged portion of delegated authority that exists there; instead of whom, the European nations, with their usual gallantry, adopted a queen on their board. Mr. Irwin further infers, that the river between the parties is expressive of the general face of China, where a battle could scarcely be fought without encountering an interruption of this kind, which the soldier was here taught to overcome; but that, on the introduction of the game into Persia, the board changed with the nature of the region, and the contest was decided on land.

Sir William Jones, Dr. Hyde, and others, favour the claim of the Brahmins of India, and adduce the testimony of the Persians (who acknowledge that they received the game from India in the sixth century,) as well as of certain ancient treatises on chess in the Sanscrit. The Brahmins relate, that one of their body contrived chess in the beginning of the fifth century of the Christian era to divert the melancholy of a love-sick princess; but the more popular story is as follows:

At the commencement of the fifth century of the Christian era, there lived in the Indies a very powerful prince, whose kingdom was situated towards where the Ganges discharges itself into the sea. He took to himself the proud title of King of the Indies; his father had forced a great number of sovereign princes to pay tribute to him, and submit themselves under his empire. The young monarch soon forgot that the love of the subjects for their king is the only solid support of his throne: he oppressed the people by his tyranny; and the tributary princes were preparing to throw off the yoke. A Brahmin named Sissa, touched with the misfortunes of his country, and resolved to make the prince open his eyes to the fatal tendency of his conduct, invented the game of chess, wherein the king, although the most considerable of all the pieces, is both impotent either to attack or to defend himself against his enemies, without the assistance of his subjects.

The new game soon became so famous, that the king wished to learn it. The Brahmin Sissa was selected to teach it him, and under the pretext of explaining the rules of the game, and showing him the skill required to make use of the other pieces for the king's defence, soon made him perceive and relish important truths, which he had hitherto refused to hear. The king rigidly applied the Brahmin's lessons to his own circumstances, and feeling that his real strength must consist in his people's confidence and love, averted, by a timely alteration of his conduct, those misfortunes which seemed to be coming upon him.

Out of gratitude to the Brahmin, the prince left him to choose his own reward. The Brahmin requested that a number of grains of corn, equal to the number of the

squares of the chess board, might be given him, one for the first, two for the second, four for the third, and so on, doubling always to the sixty-fourth. The king, astonished at the seeming modesty and reasonableness of the demand, granted it immediately; but when his officers had made a calculation, they found that the king's grant exceeded the value of all his treasures. The Brahmin availed himself of this opportunity, to show how necessary it was for kings to be upon their guard.

The game of chess has been known from the time of its invention or introduction in Hindustan, by the name of *Chaturanga*, or the four members of an army, viz., elephants, horses, chariots, and foot-soldiers.

Sir William Jones informs us, that by a natural corruption of the pure Sanscrit word, it was changed by the old Persians into *Chatrang*; but the Arabs, who soon after took possession of their country, had neither the initial or final letter of that word in their alphabet, and consequently altered it further into *Shatranj*, which soon found its way into modern Persian, and at length into the dialects of India, where the true derivation of the name is known only to the learned; and thus has a very significant word in the sacred language of the Brahmins been transformed by successive changes, into *Azedrez*, *Scacchi*, *Echecs*, *Chess*. Our learned author thinks that the simpler game, as now played in Europe and Asia, was invented by a single effort of some great genius, and not completed by gradual improvements. He informs us that no account of the game has hitherto been discovered in the classical writings of the Brahmins, though it is confidently asserted, that Sanscrit books on chess exist. He describes a very ancient Indian game of the same kind, but more complex, and, in his opinion, more modern than the simple chess of the Persians.

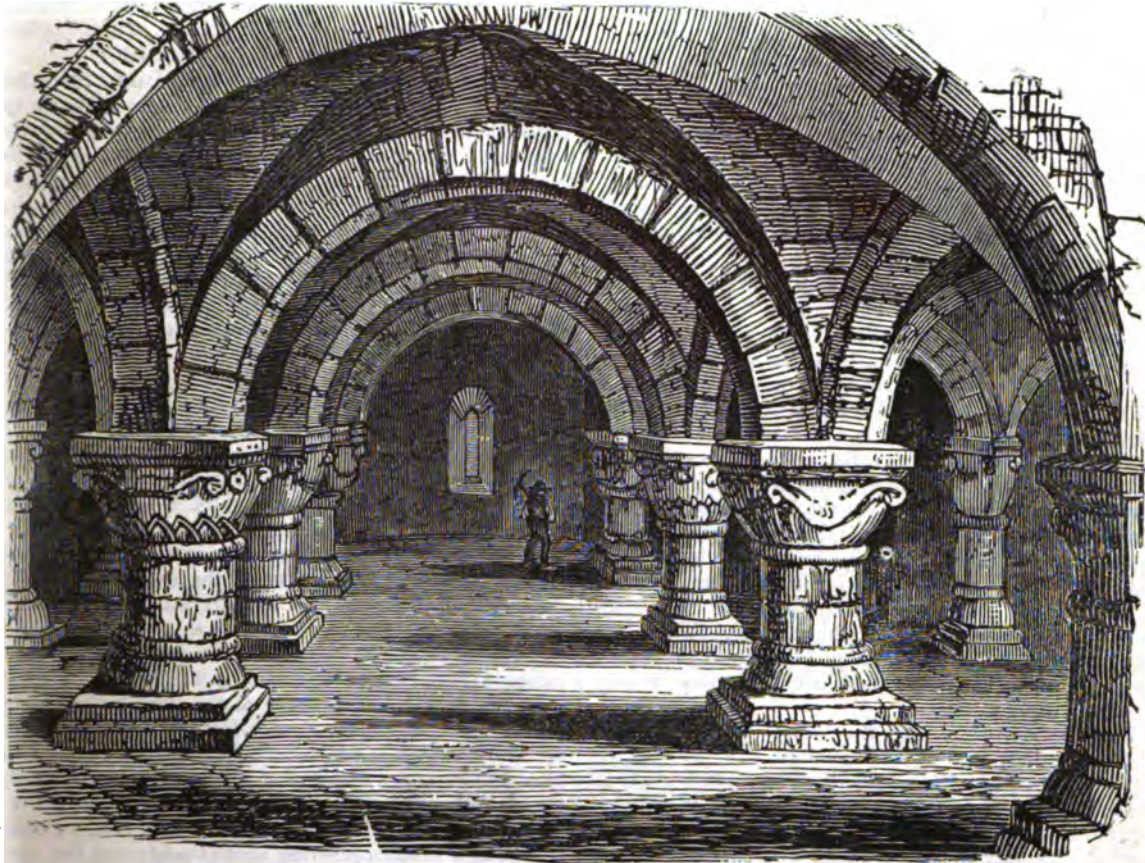
ANECDOTE OF SIR RALPH ABERCROMBIE.—When Sir Ralph Abercrombie was commander-in-chief of Ireland, he visited Kilkenny, and stopped a few days there. In early life, Sir Ralph had been quartered there, then a subaltern officer. He was in the habit of going down the river to fish; there was a young man and his wife, of the name of Dunfy, who invariably invited him into their cabin, near the river, and were so partial to him, they gave him, on many occasions, the best fare they had, such as potatoes, eggs, and milk, which he, with pleasure, partook of with them. His regiment left Kilkenny, and he never had an opportunity of visiting it after, until this period. The day after Sir Ralph arrived, he walked down, unaccompanied by any one, to his old haunt, and stopping at the door of his once kind friend, Dunfy, found him and his wife living, then an old couple, with a family grown up. Sir Ralph asked them if their names were Dunfy: they replied in the affirmative; he then said, "Do you recollect an officer of the name of Abercrombie, that frequently visited your cottage when fishing in the river some years ago?" "Recollect," said the old man, "we do, indeed, sir, and often inquired for him; at last, we heard he was dead, and heartily sorry for him we were, for he was a good creature, and had no pride: he used to sit down with us in our poor cabin, and sometimes taste our humble fare." "In troth," said the old woman, "we would share with him now, was he alive"—at the same time giving an expressive look at her husband, as if in sorrow for him. To their great surprise and joy, he told them that he was the same Abercrombie that they had known. He then put a one hundred pound note into the old man's hand, and wishing him, his wife, and family, all happiness, expressed his grateful sense of his former kindness to him. Judge their surprise, on going into the town of Kilkenny, to hear that their kind benefactor was then commander-in-chief of Ireland.—*The Veteran*.

WHAT is unknown admits of an interminable phraseology, while real knowledge can be condensed in a few words.—MACCULLOCH.

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ON ANCIENT CRYPTS



CRYPT IN LASTINGHAM CHURCH, YORKSHIRE.

IN details relating to architecture, we meet with frequent mention of a portion of an ecclesiastical edifice called the *Crypt*. This name appears to have varied somewhat in its application; for several of the places which we now call crypts, differ in some respects from those which in former times bore that name. Generally speaking, however, we may say that a crypt (the Greek word signifies a place of *concealment*) is a subterranean vault, or chapel, constructed beneath the high altar, or eastern end of many cathedral, abbey, and collegiate churches, for preserving the bodies of martyrs and holy persons, and for the performance of Divine Worship.

Catacombs, or subterranean places, used among the ancients for the burial of their dead, were resorted to by the primitive Christians as places of security from their persecutors, and this, doubtless, from the knowledge that such receptacles were deemed sacred and inviolable, and might therefore be expected to afford them a sure retreat. Some authors have maintained the strange idea that the Christians themselves were the excavators of the catacombs; but the vast extent of these subterranean galleries, as they exist at Rome, Naples, Syracuse, &c., and the inability of the persecuted flock to carry on such undertakings, have only to be considered, to make this opinion appear very extravagant and absurd.

Doubtless, the Christians took these catacombs, as they naturally presented themselves as places of retreat:

they became their places of abode, their churches, and their burial-places; and around the tombs of the earlier saints and martyrs, there deposited, they met together, to encourage each other in their holy faith, and to perform the rites of their religion. When the persecution ceased, and they were no longer obliged to hide themselves from the malice of enemies, but were at liberty to raise public edifices for the performance of Divine Worship, they naturally chose out such situations for this purpose as should mark the remains of their martyred relatives or friends which lay beneath; and gradually as these remains came to be considered as endowed with peculiar sanctity, it became the rule never to consecrate an altar till the remains of some saint were placed within its bosom, or under its base. When churches were required at places distant from the catacombs, similar excavations, but smaller in extent, were made beneath the altars, and relics transferred to them. The excavation just alluded to was the crypt, or vault, which was partly raised above the level of the floor, and partly sunk beneath it. The descent to the crypt was by a number of steps in the nave, or transept, and other steps ascended from it to that part of the sanctuary immediately over the crypt. The contents of the crypt were seen from above, through grated apertures; and over the tomb of the saint was placed the altar. These crypts were likewise furnished with all the requisites for wor-

ship; and in the writings of William Thorne, the monk of Canterbury, mention is made of a particular collect to be said in the service performed in crypts. Thus the crypt, as well as being the depository of the bodies or limbs of departed saints (for where the whole body could not be obtained, a limb was regarded by the devotees with almost equal reverence), was also a sort of subterranean church or chapel, and, according to the reputation for sanctity borne by the person whose remains it enclosed, was thronged with worshippers, and honoured with exterior embellishments in the grandeur of the edifice raised above it. The church of San Martino, at Rome, was raised in the year 500, by Pope Symmachus, over a subterranean chapel, or crypt, which contained the body of Pope Sylvester; and St. Peter's, at Rome, was built above the crypt of the martyrs that suffered in the circus of Nero.

Crypts are also found unconnected with any religious edifice; but forming in themselves both temple and tomb. About a quarter of a mile northward of Laodicea, in Syria, are several such crypts, or sepulchral chambers, hollowed in the rocky ground, and varying from ten to thirty feet square. In most of these crypts there is a range of narrow cells, each large enough to receive one coffin in width, and two or three in length. In one crypt, named after St. Teckla, is a fountain, to which the Greek Christians used to bring diseased persons, for the anticipated recovery of their health, by ablution in the fountain. Jerusalem and its neighbourhood contains many crypts, in which are stone benches, instead of cells, for the reception of coffins. How far sepulchres of this kind were in use in Syria, before the Christian era, is uncertain; but the sepulchre in which our Saviour was laid is described by the Evangelists as being hewn out of a solid rock; and, from the circumstance that Mary and John had to stoop down, in order to look into the sepulchre, we may infer that the sepulchre was below the level of the ground. There are many sepulchres in and around the Mount of Olives, which appear to have been used as burial-places for holy persons.

This custom of placing the last earthly remains of inspired or holy men apart from those of other persons, was adopted by the Church of Rome; but with many of those debasing and irreligious infringements which that church made in the middle ages, and by which the Romish Calendar became crowded with saints of human creation. When the Gothic cathedrals of Europe were built, the construction of a crypt, probably for some such purpose as we have indicated, was very common; and among them are the crypts beneath Canterbury, York, and Winchester Cathedrals, and those beneath the churches of Grimbold, Christ Church, Wimburn, Dorchester, Grantham, Peterborough, Waverley, Wells, &c.

In Protestant countries the crypts are seldom now used, either for sepulchres or for chapels; indeed so long have most of them been disused, that many writers are in doubt whether they were originally designed for sepulchres or for chapels. In Buildwas Abbey Church, Shropshire, there is a crypt, beneath the north transept, extending the whole length of the transept from east to west, and about half its width from north to south. The principal entrance to this crypt was at the west end, by a flight of steps out of the cloister; and there seems to have been also a doorway in the northern wall of the crypt. This subterranean vault, whatever may have been its original destination, has long been used as a cellar.

Canterbury Cathedral contains a vast vault, or rather series of vaults, which is called the crypt, or undercroft, and which is supported by numerous piers and massive columns. This crypt, if such be its real nature, appears to be much larger than the generality of such vaults.

Other crypts, as we have said, are to be found beneath many cathedrals and ancient churches; but it will

be sufficient for us here briefly to notice that which is represented in the wood-cut at the head of this article, and which is the crypt beneath the ancient church of Lastingham, in the north riding of Yorkshire.

Lastingham Church is situated about five miles from Kirby Moorside, in the mountainous part of the north riding, and is so ancient that great diversity of opinion exists as to many points connected with its history. According to Bede, a small monastery was founded on this spot by Bishop Cedd, during the time of the Heptarchy, both as a place of worship and as a sepulchre. When the bishop died, he was buried on the outside of the monastery; but in process of time a stone church was built in the monastery, and the body of the prelate was buried at the right-hand side of the altar.

During the two centuries which immediately preceded the Norman conquest of England, very little is known of Lastingham Monastery; but it is supposed to have been ruined and destroyed during the Danish wars of those times. We find that in 1078 Lastingham was included in the royal demesne, and that Stephen, abbot of Whitby, solicited permission to establish a new monastery at Lastingham, on account of the exposure of Whitby Abbey to pirates and robbers. From that time scarcely anything is known of Lastingham Monastery or Church. The latter became a parochial church at some subsequent period, but at what time is not now known.

The crypt underneath this church has by many persons been supposed to be of Saxon construction, the remnant of the monastic church built before the Conquest; but Mr. Britton considers it to be a specimen of the early Norman style, and to have formed part of the monastery built by the abbot of Whitby, after his removal to Lastingham, since it corresponds with other known crypts of the Norman age, in the massive character, forms and ornaments of the columns, and the simplicity of the groining and arches. The crypt is about forty-one feet in length, from east to west, and twenty-two in width, from north to south. The present entrance descends by a trap-door and flight of steps from the west end of the nave of the church; but there was formerly another entrance from a vaulted passage on the north side, which was traditionally reported to have extended to a distance of two or three miles from the church, underground. On entering the crypt, however, by the present entrance, at the west end, we come to a square vault, measuring about twenty-one feet each way, the roof being supported by four massive columns, nearly equidistant. On the eastern side of this square portion, and close to the north and south walls, are two loop-holes, which serve for windows. Between these loop-holes is an opening leading to another portion of the vault, nearly semi-circular, and measuring about eighteen feet by thirteen. At the eastern extremity of this portion, and of the whole vault, is another loop-hole, serving to admit a dim light to the crypt.

The sight of this and similar structures may well serve to recal to our minds the period and the sufferings which first made it necessary for those who bore the name of Christ to seek for subterranean places of worship; nor can we do this without remembering our own superior privileges, and the reason we have gratefully to follow the faith of those who witnessed a good confession in the midst of so many difficulties, and at a time when, to use the language of our homilies, "They had but low poore conventicles, and simple oratories, yea, caves under the ground, called *cryptæ*, where they for feare of persecution assembled secretly together."

CHRISTIANITY recommends itself to us at first sight by this peculiar presumption of its being the true religion, that it makes application to men as reasonable creatures, and claims our assent on account of the proofs which it offers.—
ARCHBISHOP SPOKER.

CALCULATING MACHINES.

I. NAPIER'S BONES.—THE ANCIENT ABACUS.

A LARGE portion of those labours to which the human mind is directed, have for their object the more speedy attainment of something which can already be attained by slow means: what we term a new invention, a new process, or a new art, is not always a means of doing something which could not be effected before, or without it, but is oftentimes only an improvement by which a given object can be attained better and more speedily. The same, to a certain extent, may be said of the processes of arithmetic: multiplication is not a totally different process from addition,—it is not, therefore, a means of effecting that which could not be effected without it, but it is a *speedier* means of effecting that which is within the scope of addition. When we multiply 12 by 8, we in effect add up 12 eight times; but, by the aid of the multiplication table, we lose sight of the process of addition, and at once conclude that 12 multiplied by 8 equals 96. So, likewise, division is but a speedier kind of subtraction; for, if we have to divide 24 by 6, we in effect subtract 6 four times over, by which we separate 24 into four parcels of 6 each.

To one who has the multiplication table committed to memory, the performance of this process is as easy as that of addition; but, where this is not the case, the process of multiplication becomes rather tedious, as our forefathers 200 years ago very generally felt it to be: they were not then taught from infancy the multiplication table, up to 12 times 12, any more than we now commonly learn it beyond that step.

It was, therefore, to afford them aid that the celebrated Napier, the inventor of Logarithms, devised the little instrument, or series of instruments, known as "Napier's rods," or "Napier's bones;" the mode of constructing which is as follows:—Provide several slips of card, wood, or metal, about nine times as long as they are broad; and divide each of them into 9 equal squares. Inscribe at the top square of each slip one of the numbers of the natural series, 1, 2, 3, 4, &c., to 9 inclusive. Then divide each of the remaining squares into two parts by a diagonal line drawn from the upper right hand corner to the lower left hand corner; and inscribe in each of these triangular divisions, proceeding downwards, the double, triple, quadruple, &c., of the number inscribed at the top; taking care, when the multiple consists of only one figure, to place it in the lower triangle, and when it consists of two, to place the units' figure in the lower triangle, and the ten's in the upper one. It will be necessary to have one of these slips or rods, the squares of which are not divided by a diagonal, but inscribed with the natural numbers from 1 to 9: this one is called the *index-rod*. It will be proper also, to have several slips of each kind, so that there may be one for each particular figure.

The rods being prepared, let us trace the process of multiplying, for instance, the number 6785399. Arrange seven of the rods or slips inscribed at the top with the figures close to each other, and apply to them on the left hand the index-rod. The arrangement will then be as in the annexed figure, a little inspection of which will show that we have a table of all the multiples of each figure in the multiplicand; and scarcely anything more will be necessary than to transcribe them. Thus, for example, to multiply the above number by 6: looking for 6 on the index-rod, and opposite to it in the first square on the right hand, we find 54: write down the 4 found in the lower triangle, and add the 5 in the upper one to the 4 in the lower triangle of the next square on the left, which makes 9: write down the 9, and then add the 5 in the upper triangle of that square to the 8 in the lower triangle of the next one to the left. Proceed in this manner, taking care to carry as in com-

mon addition; and we shall find the result to be 40712394, or the product of 6785399 multiplied by 6.

1	6	7	8	5	3	9	9
2	12	14	16	10	06	18	18
3	18	21	24	15	09	27	27
4	24	28	32	20	12	36	36
5	30	35	40	25	15	45	45
6	36	42	48	30	18	54	54
7	42	49	56	35	21	63	63
8	48	56	64	40	24	72	72
9	54	63	72	45	27	81	81

NAPIER'S RODS OR BONES.

A little reflection will show that the same instrument would be available for a larger multiplier. Suppose that the same multiplicand is to be multiplied by 839936. Write down the multiplicand and the multiplier below it, in the usual manner; and as the first figure of the multiplier is 8, look for it in the index-rod, and by adding the different figures in the triangles of the horizontal column opposite to it, the result will be 54283192, or the product of the above number by 8. Then find the result of the figures in the horizontal column opposite to 3, and write the sum down as before, but carrying it one place farther to the left. Continue in this manner, until all the figures of the multiplier have been used; and if the several partial products be then added as usual, the total product, 5699314465262, will be the same as that resulting from common multiplication.

Thus it will be seen that the process of multiplication, as performed by Napier's rods, is nothing more than a series of additions; so that a person totally ignorant of multiplication may perform processes coming under that rule. The rods may also be made occasionally serviceable in shortening the process of division, especially when large sums are to be often divided by the same division. Thus: if the number 1492992 is to be divided by 432, and if the same division were frequently to occur, construct, in the manner before described, a table of the multiples of 432 by all the units.

1 times 432 =	432	432)1492992(3456
2 " " =	864	1296
3 " " =	1296	1969
4 " " =	1728	1728
5 " " =	2160	2419
6 " " =	2592	2160
7 " " =	3024	2592
8 " " =	3456	2592
9 " " =	3888	...

Since 432 is not contained in the first three figures of the dividend, some multiple of it must be contained in the first four figures, viz., 1492. To find this multiple, look at the table, where it will be seen that the next less multiple of 432 is 1296, which stands opposite to 3. Write down 3 in the quotient, and 1296 under 1492; then subtract the former from the latter, and there will remain 196, to which if the next figure of the dividend be brought down, the result will be 1969. Again referring to the table, we find that 1728, which stands

opposite to 4, is the greatest multiple of 432 contained in 1969: write down 4 therefore in the quotient, and subtract as before. By continuing the operation in this manner, it will be found that the other figures of the quotient are 5 and 6, and that there is no remainder.—We will here again remind the reader, that he must not test the excellence of such an expedient as this by the present state of knowledge on arithmetical subjects, but by the wants of society at the time when Napier lived, more than two hundred years ago.

A mechanical contrivance for facilitating the processes of arithmetic to uneducated persons, under the name of the *ABACUS*, has been known in various countries for a long period. The principle of the instrument is, to express numbers by the relative position of beads sliding upon wires, or of counters placed between lines. The Chinese abacus, called *shwan-pan*, consists of several series of beads strung on brass wires, stretched from the top to the bottom of the instrument, and divided in the middle by a cross-piece from side to side. In the upper space every string has two beads, which are each counted for 5, and in the lower space every string has five beads, of different values, the first being counted as 1, the second as 10, the third as 100, &c. This apparatus is commonly used in the shops of China, and the natives are very expert in the working of it. The Grecian abacus was nearly the same as that of the Chinese, except that little ivory balls were used instead of beads. The Roman abacus differed a little from the Grecian, in having pins sliding in grooves, instead of beads or balls sliding on wires. The abacus used at the present day in some European countries is made as follows:—small counters are provided, and a sheet of paper is ruled with parallel lines, each two being at such a distance as may be at least equal to twice the diameter of the counter. Then the value of the lines thus drawn, and of the spaces between them, increases from the lowest to the highest in a tenfold proportion: thus—counters placed upon the first line signify so many units or ones; on the second line, tens; on the third line, hundreds; on the fourth line, thousands; and so on. In like manner, a counter placed in the first space, between the first and second lines, denotes 5; on the space next above it, 50; on the third space, 500, on the fourth space, 5000; and so on. So that there are never more than four counters placed on any line, nor more than one in any space; this being of the same value as five counters on the next line below. Thus, 47382 is indicated in this manner:—two counters on the lower line implying units 2; three on the second line, and one in the space above it, indicating conjointly 80; 3 on the third line, for 300; 2 on the fourth line, and 1 in the space above it, for 7000; and 4 on the fifth line for 40,000.

Numerous contrivances have been from time to time introduced, bearing resemblance more or less to the abacus, or to Napier's rods. Mr. Gamaliel Smethurst, in the forty-sixth volume of the *Philosophical Transactions*, described a variation of the Chinese *shwan-pan*, which appeared to him to increase its usefulness; for besides teaching arithmetic to persons ignorant of it, he deemed it useful "to examine accounts by; for, as the person will, by the *shwan-pan*, work it in quite a different way, it will serve as if another person had gone through the account; if it proves right with the written one, they may rest assured the work is true." Many other individuals have likewise directed their attention to this subject. Sir Samuel Moreland published, in 1673, an account of two arithmetical machines, the construction of which however, he did not explain. Leibnitz, Poleni, Perrault, Lespine, Boistissandeau, and others devised machines, having a similar object in view. As there is a good deal of similarity between many of these contrivances, we will not stay to describe them, but will, in another article, speak of the ingenious means by which Dr. Saunderson, the blind mathematician, established a kind of

palpable arithmetic; and also of a calculating machine invented by Pascal.

The reader should know that the words "calculate" and "calculation" are derived from the Latin word *calculus*, a counter, or pebble: hence, among the Romans, accountants were called *calculatores*.

THE BURNT PILLAR AT CONSTANTINOPLE.

VARIOUS writers have described a remarkable column standing in the city of Constantinople, but I have not found two that give the same account of it. In order to describe it as I found it, I must differ from them all. It is situated in one of the principal streets of Stamboul, (Constantinople,) near the Chatladi gate, and is said to have derived its modern name from having been burnt by fire. There is a story current, both among the Franks and Turks, that some Jews burnt it, and melted the gold plates with which it is said to have been covered; but the story, though universally believed, is not worthy of the slightest credit, as nothing like authority or date can be given for it. Hobhouse says it is called the Burnt Pillar from its burnt appearance, and certainly to a casual observer it does appear as if it had been burnt by fire; yet, on a close and careful examination, I could not find one vestige of fire ever having touched it; in fact it owes its black and burnt appearance to time and the elements. The first time I visited it, there were houses built on two sides of it; the other two were open, and dug round for the purpose of building: and on my second visit, a few months after, I found a new and elegant white stone guard-house, giving to its base the appearance in the engraving. In consequence of the ground being dug all around it, I had an opportunity of observing the nature of the foundation as well as the pedestal, which I found of the most solid structure.

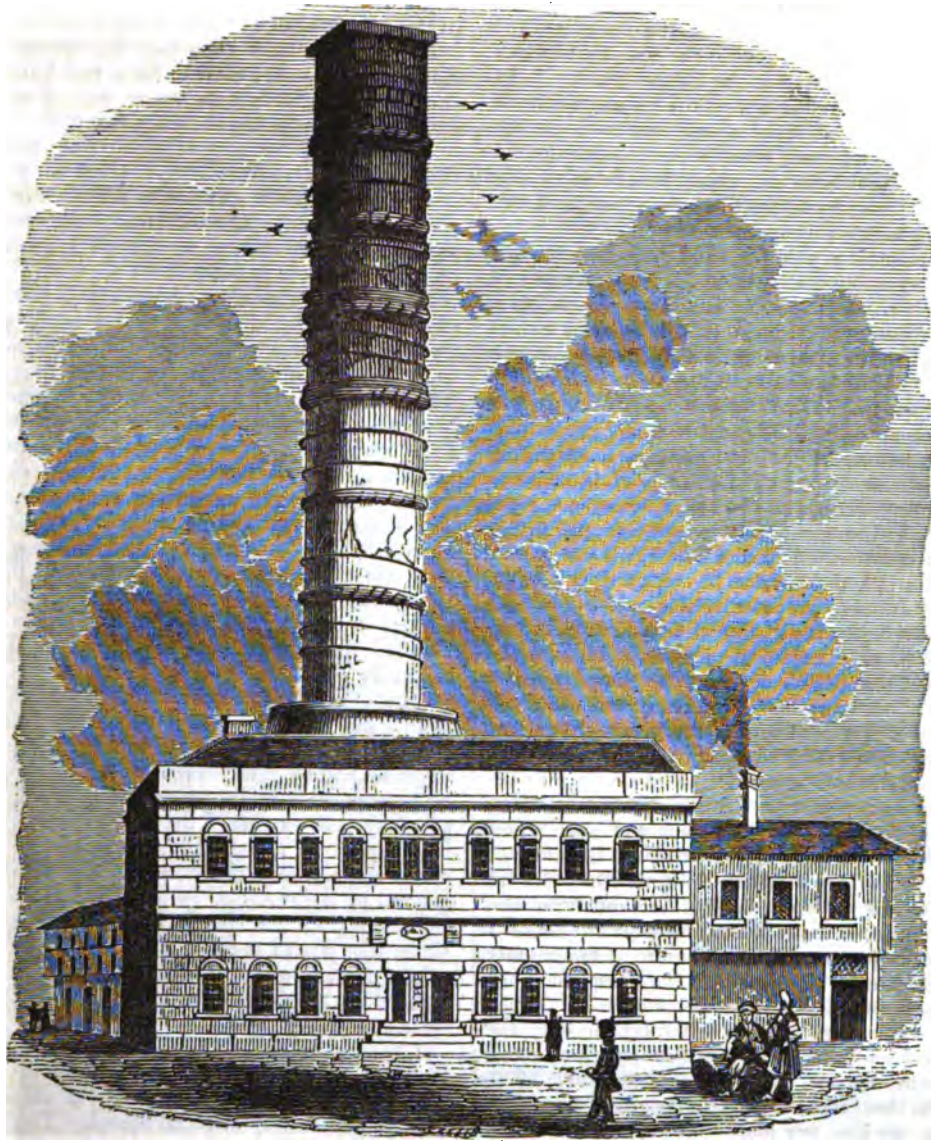
The pillar consists of six blocks of red granite or porphyry, each about ten feet high, and six in diameter. The capital consists of twelve rows of masonry, and the whole is crowned by a square row of stones about eighteen inches high.

Hobhouse calls it ninety feet high, but I think that an actual measurement with instruments would bring it very close upon one hundred and five, as I was very careful in comparing one point with another, and measuring it. It is encircled with fourteen iron hoops, of a much more modern date than the pillar itself, and these have evidently been put on to prevent the stone coming off in large scales, as it appears prone to do: in fact, at the time I saw it, there were various loose fragments which were only held to the body of the column by these hoops, and many places from which other pieces had fallen.

Hobhouse says that these hoops conceal the joints of the pillar, but in that he is mistaken, as the joints are marked by the wreath of laurel, about twelve inches deep, round the bottom of each block of stone. He is correct, however, in saying that the hoops are of iron, and it is difficult to imagine how Wheler made such a mistake as to call them brass.

Tournefort, who visited Constantinople in 1700, says that it is composed of "porphyry stones, the junctures hid by copper rings." If such were the case in his day the rings must have been taken away, as, with the exception of the iron hoops, there is no metal about it. Pococke says that it originally consisted of ten blocks, and that seven of these now remain; and he describes the masonry on the top so accurately, that there is no doubt it remains now as in his day; yet there are only six blocks. The inscription upon the top is in Greek, much dilapidated, and too high to be read from the street.

When there is so much discrepancy in the accounts of those who say they have seen this pillar, we can hardly expect a very correct historical account of it. The column is said to have been originally 120 feet high, and



THE BURNT PILLAR AT CONSTANTINOPLE.

to have supported a bronze statue of the Trojan Apollo, supposed to have been the work of Phidias, (B.C. 450); it was of colossal height, bore a sceptre in its right hand, a globe in its left, and a crown of glittering rays upon its head. Although originally modelled for Apollo, Constantine called it after his own name.

Glycas says that, towards the close of the reign of Nicephorus Botoniates, (A.D. 1080,) the pillar was struck by lightning, and the statue thrown down—and, according to the inscription upon it, which is given by Wheler, it appears to have been repaired by the Emperor Manuel Comnenus (A.D. 1180.)

Whatever the pillar once was, it is now an ugly unshapely mass; and however grand the object may have been for which it was raised, it is unregarded by its present possessors, who seemed to consider that the time I was engaged in examining it would have been much better employed in smoking a pipe at the neighbouring café, and I was asked more than once if I was going to take it away, as those around me could not understand the motive for what appeared to them so much useless labour. There was, however, one middle-aged Turk who asked me to smoke a pipe with him, and when we had got fairly seated, he patronisingly recommended me not to employ my time on such old ugly pillars as the one beside us, but said, if I wished something good to paint, that there were some very fine new ones, prettily

gilded and painted, on the top of the new palace on the Bosphorus;—the tasteful Turk was describing to me, as works of high art, the chimney-tops of the Sultan's kitchen!

W.

THE MISSISSIPPI SCHEME.

THE pages of the *Saturday Magazine* are, for obvious reasons, kept clear of those exciting topics which engage the attention of politicians; still, there have been events in the past history of nations which are now viewed pretty nearly in the same light by all thinking persons, and which are capable of affording instructive lessons. One such event was the mania—the national insanity, we may almost term it—which seized on the French people, at the early part of the last century, in favour of a speculation known as the MISSISSIPPI SCHEME, the professed object of which was to insure large fortunes in a very little time; a plan which is nearly always attended with ruinous consequences.

The author of this delusive scheme was one John Law, who was born at Edinburgh, in the year 1671, of wealthy parents; and, after receiving a good education, during which he was known to pay much attention to matters connected with political economy, ran into profligacy and dissipation. He was sentenced to death for

having killed in a duel a gentleman whose domestic peace he had destroyed, but was respited, and afterwards made his escape from prison, and fled to Holland, where he became secretary to the British resident. He found means to return to his own country about the year 1700, without molestation, and began to promulgate a scheme for relieving Scotland from some financial difficulties, by the issue of paper money on landed security. This plan was rejected by the parliament, and Law returned to the Continent.

He then became a gambler, and such was his skill and address that, by the year 1714, he was master of 110,000*l.*, and had managed to gain the good opinion of the King of Sardinia, the Duke of Orleans, the Prince, of Conti, the Duke de Vendôme, and other foreigners of distinction. France at this time was in a desperate state: the expensive wars in which Louis the Fourteenth had been engaged, and the extravagant proceedings of the court, had so reduced the national finances, that it was proposed to sponge out the whole of the national debt. The disgraceful expedient was however rejected by the regent Orleans, and a committee was appointed to inquire what course could be adopted. This was just the state of affairs to suit Law, and he was not slow in taking advantage of it. He proposed to liquidate the national debt by issuing notes secured upon landed property and the royal revenues. This plan being rejected, Law proceeded to establish a bank of his own, assisted by those who chose to join him; but after two years, the regent seeing that the new plan promised success, took it into his own hands, and formed a royal bank, of which he made Law the director-general.

The time was now ripe for the famous Mississippi scheme, a scheme as stupendous as it was extravagant. France possessed the extensive country of Louisiana, in North America, which is watered throughout its whole extent by the river Mississippi; but as commerce, navigation, and manufactures, were at a stand for want of funds, this colony was of very little use. Law proposed to remedy all these evils at once, by vesting the whole of the privileges, effects, and possessions of all the foreign trading companies, the great farms, the mint, the royal revenues, and the property of the bank, in one great company, who, having thus in their hands all the trade, taxes, and royal revenues, might multiply the notes of the bank to any extent they pleased, doubling or even tripling at will the circulating medium of the kingdom, and, by the immensity of their funds, carry the foreign trade and the improvement of the colonies to a height unattainable by other means. The principles of national wealth were but little understood at that time; and, however wild and chimerical such a scheme may now appear, it was received with avidity by persons of all classes in France, as a sovereign panacea for the distresses of the nation. Letters-patent were granted to the company, under the title of the "Company of the West," and they were authorized to raise a capital of 100,000,000 livres. The company first had a grant of the whole province of Louisiana; then the farming of the revenues on tobacco was made over to them, on the payment of a large sum into the national treasury. Afterwards they became in succession the proprietors of the Senegal Company, the East India Company, the China Company, the South Sea Company, and others, and the company changed its name to the "Company of the Indies." In July, 1718, the mint was made over to them, on the payment of 50,000,000 livres within fifteen months; and afterwards the whole receipt of the revenue was placed in their hands, for a further advance.

The company had thus actually obtained, in the course of a few months, all that Law had promised; for they concentrated in themselves nearly all the public and joint-stock wealth of France. The reader may naturally inquire what effect this extraordinary movement produced. The 100,000,000 livres, which constituted the

original capital, was raised by 200,000 shares, of 500 livres each; and after some of the extraordinary grants had been made to the company, the expectation of enormous profits was so general, that people were desirous of becoming shareholders on any terms. The competition for shares speedily raised their price from five hundred to a thousand livres, so that those who had purchased the original shares were now enabled to get cent. per cent. profit on them. But when the royal revenues were placed in the hands of the company, the competition for shares amounted almost to frenzy, insomuch that the price speedily rose to 5000 livres per share. All classes, peers, princes, statesmen, magistrates, clergymen, mechanics, all scraped together what ready money they possessed, and the competition for shares was so great, that the price at last rose to 10,000 livres per share. The effect of this state of things may in some degree be imagined. If a purchaser of the original shares, at 500 livres each, sold them a few months afterwards for 10,000, he had a clear profit of 2000 per cent. But this was not all. When the company was about to be formed, shareholders were permitted to pay for their shares in a depreciated paper currency, called *billets d'état*, which were not then worth above one-third of their nominal value, but the subsequent price of 10,000 livres was payable in metallic currency; so that in less than twelve months, shares were sold at sixty times the sum they originally cost.

The consequences of this rapid transmission of money from hand to hand, were most startling, and ludicrous stories are related of the effects of the sudden fortunes made by humble individuals. Cook-maids and waiting-women appeared at the opera bedizened in jewels; and a baker's son purchased the whole contents of a jeweller's shop. As to Law himself, he became in many respects the first man in France; he was made comptroller general of the finances, he possessed the confidence of the regent, and was courted by princes, peers, and marshals, who waited at his levees as if he had been a sovereign. He amassed such immense property, that he was enabled to purchase no less than fourteen estates with titles annexed to them.

But such an unnatural state of things could not last long; no new wealth had been produced by this scheme, which was nothing but a change of money from one hand to another, by artificial means. The first circumstance which indicated the rottenness of the scheme was the continual demand on the bank for gold and silver specie: the original purchasers of the shares converted their newly acquired property into gold, and sent it out of the kingdom, as a security against the approaching storm; it was estimated that not less than 500,000,000 livres in specie were conveyed out of France. This alarmed the government, and it was ordered that small payments only should be made in specie, and soon afterwards that no person should keep more than 500 livres in their possession, the bulk of their money being in notes.

But the finishing stroke was brought on by the following circumstance. The bank, acting in concert with this all-engrossing company, had issued paper money with such rapidity, that by the month of May it amounted to 2,600,000,000 livres, while the whole of the metallic specie of the empire amounted to only about half that sum. It was proposed, therefore, either that the value of a paper livre should be diminished one-half, or that the value of a livre in specie should be doubled, in order to equalize the paper currency with the metallic. This proposal Law opposed, but it was carried against him; and the people were thunderstruck at hearing that the value of the notes was reduced one half. The effect of this breach of national faith was instantaneous; the notes became mere waste paper; those who had gold, feeling that the government which had reduced the value of the notes to one half, might proceed still further, refused to exchange their gold for notes on any

terms; and the holders of the notes (amounting to 90,000,000*l.* sterling English) were reduced to beggary.

John Law at once fell from the height of power and became an object of execration, and his life was in danger from the rage of the unfortunate note-holders. He escaped from France, and his immense possessions were confiscated to the crown as having been acquired through unfair means. He wandered from country to country, and experienced a truth which more worthy men have often bitterly felt,—that friends in time of prosperity become strangers with cold hands and hearts, when adversity overtakes those whom they formerly flattered. Law was persecuted nowhere out of France, but he was neglected everywhere, and died a poor man, in the year 1729, before he had passed the middle period of life.

Thus ended the Mississippi Scheme; and France had for many years to lament the short-sighted policy which had subjected her to such severe distress.

HISTORY OF THE SMALL-POX, AND OF THE MEANS FOR ITS PREVENTION.

I.

ORIGIN AND PROGRESS OF THE SMALL-POX. INTRODUCTION OF INOCULATION.

ALTHOUGH the details of subjects connected with the practice of medicine can seldom be laid with advantage before the general reader, yet all persons aspiring to a liberal education should make themselves acquainted with the historical and literary portions of these, furnishing, as they frequently do, matter of an interesting and instructive character. Of all subjects of this kind the *Small-pox* is that which should interest an Englishman most, as it is from the exertions of his countrymen that all the attempts at removing or alleviating this scourge of the human race have emanated. This is literally the case, whether we consider the improved modes of treating the disease, introduced by Sydenham and Cullen, the introduction of inoculation into Europe by Lady Montagu, or the discovery of vaccination by Dr. Jenner.

The origin of small-pox is involved in much obscurity, and has given rise to many discussions. While some believe it to be identical with the plague of boils and blains inflicted upon the Egyptians, and with many of the diseases described by the Greek and Roman authors, others consider these analogies to be fanciful. According to the reports of Du Halde and others, this disease has been known in China for 1200 years prior to the Christian era, under the name of *Tai-tou*, or "Venom from the mother's breast." In Hindostan, also, the Brahmins declare that the disease has been recognised from the remotest antiquity, and that the *Kedas* contains a form for the adoration of a tutelary deity of the small-pox. Wherever the disease may have originated, the first distinct account we possess of its existence is of its breaking out among the Arabians, at the commencement of the seventh century. This epoch (622) was most favourable for its dissemination, being that in which Mahomet led forth his followers, animated with fanatical zeal, to the conquest of various countries. In thirty years he and his successors had conquered Syria, Egypt, and Persia, and diffused the disease over all these countries. So freely did this diffusion of the malady take place over the Mohammedan empire, that the Saracen physicians founded their treatment on the theory that it arose from a natural change in the human constitution. It spread into Europe during the eighth century, after the conquest of Spain and Sicily; and in 731 the Saracens crossed the Pyrenees, and invaded France. They were repulsed before the walls of Tours, by Charles Martel, yet they left the infection of the small-

pox and measles behind them. Mead and others have attributed the introduction of small-pox into Europe to the returned crusaders; but, although these may have brought fresh irruptions of the disease, it was known two centuries prior to that epoch. The examination of some old Irish MSS., in the Bodleian Library, has led Dr. O'Connor to believe that the ravages of small-pox were known in Ireland as early as 679 and 742. However this may be, Great Britain could not escape for long a contagion which had overspread Europe; but the earliest accounts antiquarians can discover of its existence here refer to the commencement of the tenth century. In the Harleian and Cotton MSS., at the British Museum, are preserved prayers and exorcisms employed against the small-pox, showing the great terror that then prevailed upon the subject. Amulets, consecrated to St. Nicaise, (who had himself suffered from the disease, when Bishop of Rheims,) were worn as protectives by the nuns. Holinshed is the first English historian who expressly mentions the disease: speaking of the year 1366, he says, "Also manie died of the Small Pocks, both men, women, and children." The disease was transported to the continent of America by the followers of Columbus.

Considerable difficulty exists in judging of the extent of the ravages of small-pox in former times. The obscurity of early medical records, and their admixture with monkish fables and miracles, prevent our deriving much information from these sources. Again, as Dr. Moore has observed, the term "plague" or "pestilence" was formerly of much more vague and general application than in our own day, and almost every considerable epidemic was so designated: thus, in translating the Arabic writers upon this subject, the word plague was long used to express the term small-pox, and two very different diseases were confounded under the same title. There is little doubt that some of the pestilences of fire, so frequently raging in France, were attacks of small-pox, and there is reason to believe that the disease was frequent in its recurrence, and terrible in its mortality. In more modern times our accounts, of course, are more authentic. Dr. Jurin has calculated that one out of every fourteen born died of small-pox, and that one out of every five or six affected with the disease perished. Dr. Lettsom proved, from the Bills of Mortality, that the average number of deaths from 1667 to 1722 was to the whole number as 72 is to 1000, and from 1731 to 1772 as 89 to 1000.

But in its epidemic visitations this disease is more destructive of human life than the plague itself; and if, as Condamine states, it decimates in civilized life, it almost depopulates when carried among comparatively uncivilized races. Thus the capital of Thibet was after an epidemic deserted for three years, and Dr. Robertson and subsequent writers have described whole nations exterminated by this disease in America. In Russia two millions are said to have died of small-pox in one year, and one half of the persons attacked at Constantinople perished. Dr. Lettsom has calculated that not less than 210,000 fell annually victims to it in Europe, and Bernouilli estimates that not less than 15,000,000 of human beings thus perished in a quarter of a century. The disease seems to have been as fatal at the North Pole as under the Line, for in 1707 about 16,000 persons were carried off in Iceland, and in 1733 Greenland was nearly depopulated by it.

It may readily be supposed that so severe a disease as small-pox has called forth numerous proposals for its treatment. It is not our purpose to allude to these. We will only observe that most of the plans put into force originated with the Arabic physicians, or were the offspring of the dominant theory of the day, until the seventeenth century, when Sydenham, after describing the disease with an exactitude which has never been surpassed, and distinguishing it from the measles, with

which it had been confounded, laid down principles of treatment, which were founded in common sense and exact observation. We will pass on at once to the introduction of the practice of inoculation. The principle upon which this practice is founded is this,—that small-pox rarely occurs twice in the same individual, and if the disease be communicated purposely to persons, by inserting some of the matter of the disease into their skin, they become subjected to a much milder disease, which is nearly equally as efficacious in protecting them from a second attack as when it occurs spontaneously in its severer form. It would seem that for some centuries the custom of what is called "sowing the small-pox" has been known in China, and the Brahmans are said long to have been in the habit of following this practice, accompanying the operation with solemn prayers, addressed to the deity of the small-pox. The Circassians and Georgians, again, call it "buying the small-pox," and are accustomed to make a small nominal present of fruit to the person from whom the matter is received. It is, however, from Constantinople that we directly received our information. Notices of the practice of "engrafting the small-pox," as it was then called, as performed in that city, were published in London and Venice, in 1703, by persons who had witnessed its success; but it obtained little or no notice until 1717, when the celebrated Lady Mary Wortley Montagu, who had accompanied her husband, then ambassador to the Ottoman Court, attracted general attention to it in one of her letters. In this she informed the public that a number of old women were in the habit of conducting the operation at Constantinople, with little inconvenience and the happiest results. Her own children were inoculated, as also were, shortly after, those of the Princess of Wales. The practice, now become fashionable, extended among persons of high rank. It was, however, soon discovered that the reports from Constantinople had been exaggerated, and it was found that the inoculated small-pox was occasionally a severe, and sometimes a fatal, disease. Some deaths occurring after inoculation, though in a very much less proportion than after the natural disease, a most determined opposition was organized against the practice. Many medical men opposed it, as an unjustifiable experiment, and several divines as an immoral proceeding, in attempting thus to arrest the decrees of Providence, and consenting to the self-infliction of a disease, which in its course might carry the individual prematurely before his Maker. The most eminent of the faculty of physic, however, approved of the practice, and several celebrated divines, among whom were Bishop Maddox and Dr. Doddridge, having convinced themselves of the efficiency of inoculation, proclaimed it as a Christian duty to endeavour by its means to diminish the fatality of small-pox. So slow at first, however, was the progress of inoculation, that only 897 persons were inoculated in eight years; and after a somewhat further trial, the practice seemed to be about to be relinquished, when news arrived of the wonderful success which had followed its adoption among the Indians of South America and the inhabitants of South Carolina.

These successes determined public opinion much in favour of inoculation, and, in 1746, the small-pox hospital was established for conferring the benefit upon the poorer classes, which had hitherto been confined to the wealthy. The operations in S. Carolina were performed by the planters themselves, and it has been remarked that these were frequently more successful when conducted by non-professional persons. This is supposed to have arisen from the custom which then prevailed among the profession of encumbering the practice with a number of needless precautions and restrictions, and the administering an unnecessary quantity of drugs. This opinion would seem to be confirmed by the success which attended the practice of the Suttons, two empirics, who, by simplifying the treatment adopted, met with few fatal

cases, and were the means of rendering inoculation extremely popular in this country.

On the Continent, the practice of inoculation met with great opposition. In France, after a vigorous resistance on the part of the clergy and of the faculty of medicine, it was partially introduced in 1755, and the families of the Duke of Orleans and several of the nobility were inoculated. An extraordinarily fatal epidemic of small-pox, however, appearing in Paris in 1763, the government, believing the number of inoculations had caused the spreading of the disease, prohibited the practice. In Hanover, Sweden, and Denmark, the populace long resisted its introduction, and it made slow progress in Prussia and Germany. Catherine of Russia, desiring to set her subjects an example, had her own child inoculated, and the practice soon spread in that country; but, owing to a due want of caution in separating the inoculated from the rest of the community, the small-pox was thereby increased, and Sir A. Crichton states, that prior to the introduction of vaccination, one child in seven died from this terrible disease.

The flattering hopes entertained at the introduction of inoculation were not destined then to be realized. It is quite true that the inoculated disease was found to be infinitely less fatal than the natural, for while in this latter, one in six died, in the former, one in fifty, and after the improvements introduced by the Suttons, only one in two hundred died. It is also quite true that the natural small-pox very seldom attacks those who have been inoculated. But the fact which was lost sight of is, that the inoculated small-pox is just as contagious as the natural, and can impart to another as virulent a disease; so that, by thus diffusing inoculation, the number of centres or *foci* of infection were increased, and the disease spread over a wider surface; and, although individuals received security from inoculation, the community at large suffered. Thus, at the commencement of the eighteenth century, one-fourteenth of the mortality arose from the small-pox, while during the last thirty years of that century, when inoculation was in full vogue, that proportion arose to one-tenth. In the epidemic of 1796, 3549 persons lost their lives in London; and just before the introduction of vaccination, the total number of deaths in England from this disease was estimated at 45,000 annually. In Sweden and Spain, into which kingdom inoculation was scarcely admitted, the deaths from small-pox were fewer than in those countries into which it had been more freely introduced. This result could never have been prevented but by the adoption of two systems, both of which were impracticable, viz., universal inoculation, or where this was partial, the entire seclusion of those subjected to the operation.

THOUGH Justice has been called an "hobbling old dame, who cannot keep pace with Generosity," yet it is the hobbling old dame who creates confidence, and confidence is the firmest root of love, respect, and gratitude. Generosity may come with holiday gifts, but justice fills our cup with everyday comfort. We cannot live upon gifts; if we do we are degraded. Justice offers nothing but what may be accepted with honour; and lays claim to nothing in return, but what we ought not even to wish to withhold.—*Woman's Rights and Duties.*

THE rubbing of the eyes doth not fetch out the mote, but makes them more red and angry; no more doth the distraction and fretting of the mind discharge it of any ill-humours, but rather makes them more abound to vex us.—BISHOP PATRICK.

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BENEFICENCE, BY CANOVA

CANOVA AND HIS WORKS.

I.

ARCHITECTURE and Sculpture, in consequence of the intimate relations which subsist between them, have been represented as twin sisters; though in point of antiquity architecture must take the precedence of all the other fine arts. The period at which sculpture (in the ordinary sense of the word, as referring to representations of animated existence) began to be first practised, is unknown. But there has existed throughout its known history, a remarkable degree of harmony with the state of its sister art. The sculptured figures of Egypt and of India exhibit the same qualities of simple originality and ponderous dignity with the architectural monuments of those countries; the remains of Grecian art harmonize together in grace and beauty; and the boldness of Roman edifices expresses the same character with the gladiatorial figures and equestrian statues. The grand style of architecture of the middle ages met with its corresponding degree of excellence in statuary; and the varied beauties of the modern style of architecture have been kept pace with, through the revival in sculpture which has taken place almost in our own times.

From the days of Michael Angelo, to the latter part of the last century, sculpture gradually declined until it reached what may be called its second childhood; but here the advances of decay were checked, and new vigour communicated to the art by the appearance of the sculptor whose life and works are to form the subject of this and two subsequent articles.

Amid the recesses of those hills which form the last undulations of the Venetian Alps, as they subside into the plains of Treviso, lies the obscure village of Possagno, shut in by nature from general observation, and too insignificant in itself to merit notice except as having been the birth-place of Antonio Canova.

In this obscure situation was the future sculptor born on the 1st of November, 1757. His father, Pietro Canova, was by occupation a stone-cutter, and his mother was in nowise distinguished from the simple females of the hamlet. Antonio was the only child of this marriage, and when but three years of age, he lost his father, who is described as having been a man of melancholy habits, and weakly constitution. His mother soon formed a second marriage, and, removing to a neighbouring village, left Antonio to the care of his grandfather, Pasino Canova, also a stone-cutter, who, with his wife Catterina, watched over his infancy and amply supplied the loss of his real parents. The affectionate solicitude of Catterina was gratefully remembered by Canova through life; and, in after years, he proved his sense of former benefits, by taking her, then a widow, to reside with him at Rome, and paying her that respect and attention, which, while it did honour to his own feelings, contributed to the happiness and soothed the decline of his aged relative.

The romantic character of the scenery near Possagno, and the fine air from the mountains which refreshed the neighbouring country, led to the choice of several spots in that vicinity for the summer residences of the Venetian nobility. In the repairs and minor embellishments of these villas, the grandfather of Canova was occasionally employed, and he soon recommended himself among his patrons for his diligence and ingenuity. Canova often accompanied Pasino on these occasions, and exhibited, at a very early age, a decided taste for modelling, and for the more ornamental parts of the work on which his grandfather was engaged. The workshop became, even during infancy, his place of amusement; and so little interest did he take in the sports usual to childhood, that he became known among the youthful villagers as the *sullen Tonin**. Gentleness, rather than sullenness, however, was the characteristic of Canova, and it was

* Tonin is the provincial diminutive of Antonio.

more congenial to his temper to seek recreation and instruction in the tales and ballads recited to him by his grandmother, than to join the noisy circle of his young compeers. Accordingly he was ever to be found in the workshop of his grandfather, or hanging at the side and listening to the legendary lore of his grandmother, who was sometimes sorely annoyed to find proofs of his attachment left in the shape of tiny hand-marks impressed in modelling-clay on various parts of her dress.

The grandfather of Canova was a self-taught artist, and considering the situation in which he was placed, his talents appear to have been far from despicable. He possessed some knowledge of architecture; designed with neatness and facility; and showed considerable taste in the execution of ornamental works in stucco and even in marble. At nine years of age, Canova was taken as his regular assistant, and before that time he had shown marked indications of skill in the execution of models in clay, and in fashioning the larger fragments of marble-cuttings into ornaments of various kinds. Two small shrines of Carrara marble, inlaid with coloured stones, are still preserved as specimens of his primitive labours in sculpture. Until his twelfth year Canova appears to have laboured at his humble occupation in complete obscurity, and to have made use of his moments of leisure in cultivating his taste for drawing. But the time had now arrived when his talents were to become known to those who were better able to appreciate them, than the inhabitants of his native village.

Signor Giovanni Falier, the proprietor of the villa *d'Asolo*, near Possagno, was one of those noble Venetians of whom we have already spoken. He spent a few months of each year among the Alps, and was content to avail himself of the assistance of Pasino's skill in the repair of his villa, instead of sending for artists from the capital. The old man's good qualities had rendered him an especial favourite at the villa, and no season passed without his being invited to spend a few days there, even when there was little to require his labours. The young Canova now accompanied his grandfather on these visits, and soon became a universal favourite. "Few indeed," says his biographer, "could at this time know the amiable and unassuming boy, without feeling an affection for him. His light and graceful figure—his finely formed and expressive countenance, beaming at once with sensibility and fire, interested at first sight; while the unaffected simplicity of his address, the modest diffidence but not awkward timidity of his manner, his kindness of heart, and ingenuous disposition, could not fail to improve these favourable impressions."

Signor Falier thought he perceived in this youthful artist, talents that promised much; and believing that a little encouragement, and more extensive tuition, would elicit these, or, at all events, better qualify him to excel in the business of his grandfather, he generously took him under his immediate protection, and sought to obtain for him suitable tuition. An incident occurred at this juncture which tended still further to impress the patron of Canova with an idea of his talents, though it is not true, as generally related, that it was the means of his first introduction to the Falier family.

At a festival which was celebrated at the villa, and attended by a numerous assemblage of the Venetian nobility, the domestics had neglected to provide an ornament for the dessert, and did not discover their omission till the moment it was required to be supplied. Terrified at the thought of their master's displeasure, they applied to Pasino, who happened to be in the house, accompanied by his grandson. The old man was unable to suggest any remedy, but our young artist, seeing the necessity of the case, ordered some butter to be brought to him, and from that material presently carved a lion of such admirable proportions, and effective appearance, that it excited the attention and applause of all the company. An inquiry was made; the whole affair confessed,

and *Tonin Canova* declared the contriver of the ornament. Tonin was then called for, and was ushered into the brilliant assembly covered with blushes, and expecting a rebuke, instead of the warm approbation and kind caresses he met with.

It happened about this time that a Venetian sculptor of some eminence took up his abode in the neighbourhood of Possagno. This was *Giuseppe Bernardi*, surnamed *Toretto*, who withdrew to this retirement for a time in order to complete various works of embellishment on which he was engaged. Bernardi having been employed by the Falier family, was well known to them as a skilful artist, and was accounted worthy of the charge of instructing Canova; who was soon settled under his tuition, and recommended to the especial notice of his new master by the benevolent senator Falier. Bernardi, or as he is more generally called, Toretto, quickly discovered that his pupil possessed no ordinary talents; and while paying every attention to his charge, united the affection and esteem of a friend, with the discipline of a tutor.

Canova, from his early years to the latest period of his life, was remarkable for his unceasing industry: he did not trust to the native talent which he must have felt conscious of possessing, but applied himself earnestly and perseveringly to study. Many drawings and models are preserved by the Falier family, which exhibit his gradual improvement under Toretto. Two drawings in chalk, one representing a Venus, and the other a Bacchus, are much valued, as they were executed only a few days after their author had been placed with Toretto, and therefore show the degree of perfection which he had been able to attain under his grandfather's care. As the performances of a boy, not exceeding twelve years of age, these are said to discover considerable talent; being sketched in a bold style and with great correctness of outline.

The works, however, which at this period most delighted the friends of young Antonio, and which excited the utmost surprise in his master, were the models in clay of two angels, executed during a short absence from Toretto, and without assistance from any similar figures. These therefore were the first really original performances of our artist. They were finished in secrecy and haste, and then placed in a conspicuous situation in the workshop, against the expected return of Toretto. On his arrival, Canova watched the direction of his master's eyes with mingled hope and fear: at length they rested on these new creations of the trembling boy; and standing for a moment fixed in astonishment, he exclaimed, *Ecco un lavor veramente maraviglioso!* (This is in truth a most astonishing work!); and scarcely could he persuade himself that so perfect a work had been executed by his pupil.

Canova appears to have made his first essays in the representation of the human form in marble, when he had nearly attained his fourteenth year; but these performances were of a diminutive size, and merely undertaken as presents to his friends. Two of these statues, about a foot high, are still in the villa Falier. These attempts constituted his amusement and recreation from the more mechanical labours of his profession. Thus diligently employed, the time passed rapidly with our young artist; and through life he was accustomed to speak of this period as one of peculiar happiness. The family of his patron spent the winter in Venice; but the younger son, between whom and Canova a sincere friendship existed, was left at Possagno with a clergyman who conducted his education. In the company of the young Falier, and in visiting his grandmother and the good old Pasino, were spent every holiday, and every interval not devoted to study. The outlines of his character, such as with very little change it existed through life, were fully marked at this early period, and are thus described. "Open, sincere, ingenuous, he was himself

unconscious of dissimulation, and could hardly conceive deceit to exist in others. Full of vivacity in the society of his friends, he delighted them, at once by the originality of his observations, and by the native elegance of a delicate, though still untutored mind. Among strangers, from a natural timidity, which subsequent intercourse with mankind never entirely overcame, he was reserved, yet seldom failed to strike observers as possessing a mind of no ordinary stamp, or to fix those impressions, even on a casual interview, which common minds never leave."

Canova was sincerely anxious to excel in his profession, though as yet there was no definite intention that he should do more than follow the employment of his grandfather. But a period was now at hand, which was to decide his future prospects.

Toretto, who had now completed the engagements which for a period of nearly three years had detained him in the neighbourhood of Possagno, determined on re-establishing his residence at Venice: in a few months after returning thither he died, through the pressure of infirmities rather than of old age. Toretto evinced a sincere regard for Canova, in proof of which he declared him his son by adoption, with permission to bear the name; a privilege which was never made use of, and which, except as a pleasing mark of approbation, was productive of no advantage.

At the death of Toretto, Canova found himself once more on the point of being established in the workshop of Pasino, and to all appearance doomed to irksome toil, and to the obscurity of his native village. The Falier family were at that time absent from Asola, and Canova had no other friends capable of advancing his interests. But the dejection which naturally clouded his young and ardent mind at such a prospect, was suddenly changed into transports of joy, in consequence of an invitation from his benevolent patron to repair immediately to Venice, to consider the Falier palace as his home, and to trust to his friends there for everything which concerned his education and maintenance.

The frontispiece which adorns our article represents a group in the monument of the Archduchess Maria Christina, wife of Prince Albert of Saxony. The monument was executed in 1805, when Canova was at the height of his fame. It was justly considered as one of the finest conceptions of his mind, and, as such, will be particularly described in a future article. The group in question represents Benificence supporting an aged and infirm old man, and ascending the steps leading to the tomb. A funeral wreath unites this group with the rest of the procession.

THERE is not a more gloomy study than the history of the concluding scenes of Roman greatness. Nearly all ages and sexes appeared to contend with each other in the rapidity of their descent down the steep of vice. Under the emperors, tyranny and crime, in all their flagitious and appalling aspects; every suspicion that could embitter existence, and loosen the bonds of society; every hateful sentiment, and every baneful passion, had pervaded the unwieldy empire. The history oppresses our mind like a frightful dream: it is hard not to associate the notion of external gloom with the moral ruin, and clothe the face of nature with the dismal hue, the sullen stillness of a gathering storm; we seem to behold the coming "planetary plague."

When Jove

Shall o'er some high-voiced city hang his poison
In the sick air.

In the descriptions of their gorgeous splendour, and their baleful revolutions, their joys appear like demoniac wildness; their sobriety, the broodings of conspiracy or fear. To pursue inquiry through such ages would be useless; the manners of a people sinking into ruin from their own corruption, will never be appealed to, either for evidence of what is natural, or authority for what is useful.—*Woman's Rights and Duties.*

ON CHESS.

ORIGIN AND ANTIQUITY OF THE GAME.

II.

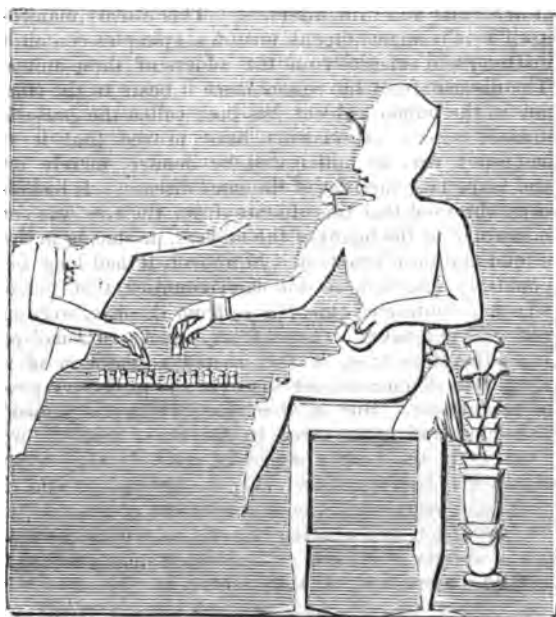
It has been supposed that the ancient Egyptians were acquainted with chess, or at least with a game bearing some close affinity therewith. Very slight inquiry, however, is sufficient to show that the game represented on the Egyptian monuments is nothing more than a species of draughts. The players are represented sitting on the ground, or on chairs, and the pieces, or men, being ranged in rank, at either end of the table, were probably moved on a chequered board; but, the game being always represented in profile, the exact appearance, or the number of the squares, cannot be given.

The pieces were all of the same size and form, though they varied on different boards, some being small, others large, with round summits: many were of a lighter and neater shape, like small nine-pins,—probably the most fashionable kind, since they were used in the palace of King Remeses. These last seem to have been about one inch and a half high, standing on a circular base of half an inch in diameter; and one in my possession, which I brought from Thebes, of a nearly similar taste, is one inch and a quarter in height, and little more than half an inch broad at the lower end. It is of hard wood, and was doubtless painted of some colour, like those occurring on the Egyptian monuments.

They were all of equal size upon the same board, one set black, the other white or red, standing on opposite sides; and each player, raising it with the finger and thumb, advanced this piece towards those of his opponent; but though we are unable to say if this was done in a direct or diagonal line, there is reason to believe they could not take backwards, as in the Polish game of draughts, the men being mixed together on the board.

It was an amusement common in the houses of the lower classes, and in the mansions of the rich; and King Remeses is himself portrayed on the walls of his palace at Thebes engaged in the game of draughts*.

We copy the following figure from BURTON'S *Es-cerpta Hieroglyphica*.



The modern Egyptians have a game of draughts very similar, in the appearance of the men, to that of their ancestors, which they call *dâme*, and play much in the same manner as our own.

The most impartial authorities are strongly inclined to favour the assumption that chess was originally invented in India, and thence transmitted to the nations of Europe, by means of the Persians and Arabs. The

* WILKINSON'S *Manners and Customs of the Ancient Egyptians*.

instruments of its introduction to the western world are generally supposed to have been the crusaders; but as this supposition necessarily excludes all knowledge of the game previous to the year 1100, it is liable to very formidable objections.

An eastern historian informs us that the game was known at Constantinople in the year of our Lord 802. At that period the Emperor Nicephorus began his reign, and made a pointed allusion to the game of chess in an epistle to the Caliph Haroun al Raschid. "The queen," said he, speaking of Irene, the mother of Constantine, "to whom I have succeeded, considered you as a *rook*, and herself as a *pawn*. That pusillanimous female submitted therefore to pay to thee a tribute, the double of which she ought to have exacted from thyself." The game being thus familiar at Constantinople at that early period, it is extremely probable that the knowledge of it was speedily transmitted to other parts of Europe; and the intercourse maintained between the courts of Constantinople and France renders it extremely probable that the latter kingdom was one of the first, if not the very first, in Western Europe, to become acquainted with chess. It is singularly confirmative of this supposition that a set of ivory chess-men, of great antiquity, are still preserved in the Cabinet of Antiquities, in the Bibliothèque du Roi, at Paris, and that in the history of the Abbey of St. Denis, where they were formerly deposited, there should be found the following notice:—"L'Empereur & Roy de France, Saint Charlemagne, a donné au Thresor de Saint Dénys un jeu d'eschets, avec le tablier, le tout d'ivoire: iceux eschets hauts d'une pauline, fort estimez; le dit tablier et une partie des eschets ont esté perdus par succession de temps, et est bien vray semblable qu'ils ont esté apportez de l'Orient, et sous les gros eschets il y a des caractères Arabesques." The dresses and ornaments of the two principal figures in this set are declared by Sir F. Madden to be in strict keeping with the costume of the Greeks in the ninth century, so that, having examined the engravings given of the king and queen, he is persuaded that these chess-men really belong to the period assigned to them by tradition, and believes them to have been executed at Constantinople, by an Asiatic Greek, and sent as a present to Charlemagne, either by the Empress Irene, or by her successor Nicephorus. Embassies were frequently despatched by the Frankish monarch to the court of Constantinople, and that sort of friendly intercourse was maintained which increases the probability of the above supposition. The size and workmanship of the chess-men prove them to have been designed for the use of some noble personage, and from the decided style of Greek art visible in the figures, it is inferred that they came to Charlemagne from a sovereign of the Lower Empire, and were not the gift of the Moorish princes of Spain, or even from the Caliph Haroun al Raschid, whose costly gifts to the Emperor of the West are particularly described by German historians.

The old French romances abound with references to the game of chess, in the time of Charlemagne. In one of these, called *Guerin de Montglave*, the whole story turns upon a game of chess, at which Charlemagne lost his kingdom to Guerin, the latter having proposed a game at which the stake was to be the kingdom of France. Another romance, describing the arrest of Duke Richard of Normandy, says that he was playing at chess with Ivonnet, son of Regnaut, and the officers came up to him, saying,—“Aryse up, Duke Rycharde; for in despite of Charlemayne, that loveth you so muche, ye shall be hanged now.” “When Duke Rycharde saw that these sergeautes had him thus by the arm, and helde in his hande a lady (*dame*) of ivory, where w^t he would have given a mate to Yonnet, he withdrew his arme, and gave to one of the sergeautes such a stroke with it into the forehead that he made him tumble over and over at his feet; and then he took a rooke, (*roc*), and smote another

w' all upon his head, that he all to brost it to the brayne."

Instances may be multiplied to disprove the common opinion that chess was not introduced into Europe until after the first crusade. We will quote one more example, and this is from the Epistles of Damiano, Cardinal Bishop of Ostia, who died in 1080. In a letter to Pope Alexander the Second, (1061-1073,) he mentions an incident which occurred between himself and a bishop of Florence.

Whilst we were dwelling together, having arrived in the evening at a resting-place, I withdrew myself to the neighbouring cell of a priest; but he remained with a crowd of people in a large house of entertainment. In the morning my servant informed me that the bishop had been playing at the game of chess; which thing when I heard, it pierced to my heart like an arrow. At a convenient hour I sent for him, and said, in a tone of severe reproof, "The hand is stretched out; the rod is ready for the back of the offender." "Let the fault be proved," said he, "and penance shall not be refused." "Was it well," rejoined I, "was it worthy of the character you bear, to spend the evening in the vanity of chess-play, and defile the hands and tongue which ought to be the mediators between man and the Deity? Are you not aware that, by the canonical law, bishops who are dice-players are ordered to be suspended?" He however, seeking an excuse from the name of the game, and sheltering himself under this shield, suggested that dice were one thing and chess another; consequently that dice alone were forbidden by the canon, but chess tacitly allowed. To which I replied thus,—"Chess is not named in the text, but is comprehended under the general term of dice. Wherefore, since dice are prohibited, and chess is not expressly mentioned, it follows without doubt that both kinds of play are included under one term, and equally condemned." To this the poor prelate could make no reply, and was ordered by his superior, by way of penance for his offence, to repeat the Psalter over thrice, and to wash the feet of, and give alms to, twelve poor persons.

CIRCUMSTANCES are the rulers of the weak; they are but the instruments of the wise.—LOVER.

THE cultivation of the affections comes next to the development of the bodily senses; or rather they may be said to begin together, so early does the infant heart receive impressions.—MRS. CHILD.

A GENTLEMAN of Marseilles, named Remonsat, shortly before his death, desired that his numerous family might be assembled about his bed. He acknowledged the delight which his children had afforded him by their affection and attachment, and especially for the tender love which they bore to one another. "But," continued he, "I have a secret to disclose, which will remove one of you from this circle. So long as I had any hopes of living I kept it from you, but I dare not violate your rights in the division of the property which I leave you. One of you is only an adopted child—the child of the nurse at whose breast my own child died. Shall I name that child?" "No, no," said they with one accord, "let us all continue to be brothers and sisters."

THE Almighty, who gave the dog to be companion of our pleasures and our toils, hath invested him with a nature noble and incapable of deceit. He forgets neither friend nor foe—remembers, and with accuracy, both benefit and injury. He hath a share of man's intelligence, but no share of man's falsehood. You may bribe a soldier to slay a man with his sword, or a witness to take life by false accusation, but you cannot make a hound tear his benefactor. He is the friend of man, save when man justly incurs his enmity.—WALTER SCOTT.

REJECT the society of the vicious; shun the agreeable infidel and the accomplished profligate. Lay it down as a fixed rule, that no brilliancy of connexion, no allurements of rank or fashion, no agreeableness, no wit or flattery, shall tempt you to associate with profligate or openly irreligious men. Make this an absolute rule. It is impossible not to suffer by its neglect. If you do not fall into their vices, still your heart will be estranged from the love of God.—GRESLEY.

HISTORY OF THE SMALL-POX.

II.

DISCOVERY OF VACCINATION—ITS PROGRESS ON THE CONTINENT—RE-VACCINATION.

THE same century which witnessed the introduction of the practice of small-pox inoculation, also witnessed its utter abandonment; for it was in the year 1798 that Edward Jenner announced to the world his discovery of *vaccination*—the fruits of twenty years' experiment and deliberation. A short biographical sketch of this great and good man has appeared already in the pages of the *Saturday Magazine**; we have no intention of repeating what has already been said, and will therefore confine our notice to some particulars of his life which have relation to his discovery. Jenner was hardly dealt with by his contemporaries, and he adds another name to the rather numerous list of wise men who have been more honoured in foreign countries than in their own. The posterity of entire Europe, nay, of the entire world, will yet, however, do him ample justice. If the philosophical and persevering pursuit of a laborious and intricate train of inquiry; if a consummate sagacity which explained difficulties with clearness, and anticipated with exactness conclusions which subsequent experience has verified; if the being actuated to this by the most philanthropic disinterestedness, which manifested itself in fervent thanksgiving to Almighty God for having rendered him an instrument of conferring good upon his fellow-men; if these qualities may challenge the admiration and gratitude of the world, then has the discoverer of vaccination an entire right to do so. We say *advisedly* and *emphatically discoverer*, because it has been foolishly argued that Jenner was not the discoverer of the practice in the proper sense of the word—An exposure of the fallacy of this objection will at once bring us to the history of the subject.

It has been observed, that in different parts of the world, when large numbers of cows had been congregated together, an epidemic disease has appeared among them at irregular and rare intervals. This disease manifests itself by the appearance of pustules, (pimples containing matter,) and especially on the udders of these animals. The disease, from the resemblance it bears to the small-pox in the human subject, has been called the *cow-pox*; indeed, recent experiments have proved that it and small-pox are, as anticipated by Jenner, merely mild and malignant varieties of the same disease. It had long been observed that this disease from the cow was communicable to the hands of the milkers, producing in them a mild and local eruption. Moreover, it had long been popularly observed, in the dairy counties, that persons who had contracted this disease from the cow, were in a remarkable manner exempt from attacks of small-pox. It is therefore true, in the limited acceptation of the term, that Jenner did not discover the protective power of vaccination. But the mere fact, which was passed by unheeded and unimproved by the other medical practitioners in the county where he resided, (Gloucester,) struck his observant mind even in his youth; and, for years and years after, the development of this fact, and its conversion into a means of practical utility, were the grand objects of his life. He devoted some years to the minute observance of the disease in the cows, and among the milkers, and satisfied himself of its true nature, and of the means of distinguishing it from other spurious affections which resembled it. He made no secret of his investigations, and in 1780 he visited London, with the hope of being able to excite the attention of some of the learned men of the metropolis. He there met with little or no encouragement, and was thrown upon his own intelligent perseverance; indeed, at a subsequent period, when he proposed presenting a memoir upon the subject to the Royal Society, he was cautioned

* See Vol. VI. p. 50.

not to risk losing the reputation he had acquired in that body on account of his researches in natural history. He persevered, and in 1796 he vaccinated a child with some matter taken from the hands of a milker; this child was afterwards inoculated for the small-pox, and resisted that disease successfully: he continued his experiments, and in 1798 announced his grand discovery to the world, detailing twenty-three cases of its successful application.

His state of mind, after the first success of his experiments, is thus depicted in his Journal.—He was in the habit of meditating much upon the subject among the meadows adjoining Berkeley Castle.

While the vaccine discovery was progressing, the joy I felt at the prospect before me of being the instrument destined to take away from the world one of its greatest calamities, blended with the fond hope of enjoying independence and domestic peace and happiness, was often so excessive, that in pursuing my favourite subject among the meadows, I have sometimes found myself in a kind of reverie. It is pleasant to me to recollect that these reflections always ended in devout acknowledgments to that Being from whom this and all other mercies flow.

His announcement was received with so much scepticism at first, that no subject could be obtained in London for some months, whereon to demonstrate the experiment. This having at last been satisfactorily accomplished, the practice was soon followed with avidity and precipitation. Mr Cline and other friends urged Jenner to settle in London, assuring him that a large fortune would await him. Attached to the charms of a rural life, and of the most limited desires in point of fortune, he refused. But peace and quiet were no longer to be his portion; from this period all his energies were required, not only to defend vaccination from the attacks of interested opponents, but, in a far greater degree, from the exaggerated and indiscriminate view of it taken by many of its supporters. Forgetting the laborious investigations Jenner had gone through, and the rules he had laid down for the adoption of the practice, numbers, believing the operation to be much simpler than it is, by neglecting the requisite precautions, propagated an affection resembling, but less protective than, the true one. A calamitous event of this kind occurred at the Small-pox Hospital, where, by inadvertency, the true vaccine virus became contaminated with small-pox matter, and in this state was distributed over the country and abroad, giving rise to inefficient protection and much disappointment. Dr. Jenner was unceasing in endeavouring to correct these errors, and in spreading correct ideas upon the subject; but in many of his professional rivals he found much evil spirit and obstinacy that disheartened him, and he obtained much more efficient assistance from non-professional persons, especially ladies, who were not too self-sufficient to listen to and follow the instructions of a man who had devoted his life to the inquiry. The repeated blunders which occurred, and the conduct of some who wished to divert all the honour and emolument of the practice to themselves, at last obliged him to repair to the metropolis.

Vaccination extended most rapidly, in that forming a remarkable contrast to the history of inoculation. As early as 1799 the Duke of York, seeing the great importance of the practice, caused its general adoption in the army, and both he and his brother, our late king, were always warm patrons of the practice. By 1801 6000 persons had been vaccinated in England, and most of them tested with the small-pox.

It is remarkable that the practice was received with much more avidity, and much more abundantly employed on the Continent than in the country of its birth. Dr. De Carro most extensively introduced it throughout Germany, and Dr. Sacco, in Italy, in eight years vaccinated himself 600,000 patients, and by deputy 700,000 others. Vaccination was introduced into Russia by the

empress-mother, who presented Jenner with a handsome diamond, and wrote an excellent letter to him. The first child vaccinated was called Vaccinoff, and was pensioned for life. In Sweden and Denmark it was soon adopted, and rendered compulsory, with the happiest effect. Owing to our unfortunate differences with France, the vaccine matter was not introduced into that country until 1800, when it was adopted with enthusiasm. After the practice was introduced into Spain, Dr. Balmis obtained from the queen a commission to extend the blessing to all the Spanish colonies in Asia and America; and a well-appointed expedition, having on board a number of young children, in order to keep up the supply of matter, circumnavigated the globe, not for the purpose of effecting bloody conquests, or introducing among uncivilized nations corrupt manners, but for diffusing the antidote to the greatest bane of those portions of the human race. It was conveyed to the United States in 1799, and thence gradually to the native Indians. Jenner was most anxious to transmit the virus to the East, wherein the small-pox raged with virulence; but failure after failure occurred; until, by the ingenuity of De Carro, it was enclosed in wax balls, and conveyed to Bombay, by way of Constantinople, and quickly diffused over India. The Marquis of Wellesley exerted himself actively in its propagation, and in removing the prejudices which many of the Hindoos felt against it, from its originating with the cow. We will not pursue farther the detail of the progress of vaccination; suffice it to say, that in little more than six years it became diffused over the habitable globe.

The effects of this extensive diffusion were striking and satisfactory. In many countries small-pox was infinitely diminished in frequency and mortality, and in others seemed to be exterminated. Ceylon resembled formerly a deserted place, after an epidemic of small-pox, and Dr. Christie states, that on the most moderate calculation, the small-pox swept off one sixth of the population. After the introduction of the vaccine by the English, in 1800, the mortality from this source became trifling. In Sweden and Denmark, by 1805, it seemed entirely subdued. In the district of Anspach, in Bavaria, out of a population of 300,000, only six deaths from small-pox occurred in 1809, and from thence to 1818 only one; while in the contiguous state of Wurtemberg, in which the precautions were more lax, the disease raged epidemically in 1814-17. In the epidemic at Berlin, in 1823, only five persons died, while in one prior to the introduction of vaccine, 1600 persons perished.

In concluding this article it may be desirable to present a slight sketch of the present state of vaccination. For several years after its introduction it was believed to be a complete preventive of the small-pox, and Jenner fondly hoped that the disease would by its means become exterminated. Further experience has, however, shown that small-pox does occasionally occur after vaccination, and, although the disease so produced is usually rendered much milder, yet has death even sometimes resulted. The small-pox, too, which for the first ten or twelve years after the introduction of vaccination was much subdued, has of late years broken out again with violence, and although its ravages have been much less extensive than heretofore, and chiefly fallen upon the unprotected, yet has much alarm been thereby excited. It is true that where vaccination has least extended, the disease has raged most; thus, Ireland has suffered from this cause less than England, and portions of this latter country, in which vaccination has been well attended to, have received an entire immunity. So, too, in the army and navy the prevalence of the disease has been very much diminished. Still, in countries, as Sweden, Russia, Italy, Ceylon, in which vaccination had been most effectually practised, and in which the small-pox for a while ceased to appear, that disease has of late recurred and

attacked many of the vaccinated, and such cases are on the increase.

The reason of, and remedy for, this diminished protective power of the vaccine virus have occupied much attention of late years, both at home and abroad. Its failure has been attributed by some to the deterioration arising from the matter having passed through so many individuals; but the experience of the Vaccine Board and Small-pox Hospital leads to the opinion that the same virus which has passed from person to person to the number of 1500 or 1600, still produces as active and as protective a disease as at first. This would seem to prevent the necessity of again having recourse to the cow, which however has in some instances of late been done with success. Another reason has been sought in the imperfect manner in which the process of vaccination has often been conducted, and the spurious and only partially protective virus thus diffused. This, as anticipated by Jenner, has led to many evils, and it is even said, that no person vaccinated by him has been known thus to suffer; still its influence has been exaggerated, and the small-pox has undoubtedly frequently occurred in persons who have been vaccinated with the greatest care and with the purest virus. The most generally entertained opinion upon the subject is, that the influence of vaccination is only temporary, and that it requires renewal. Many facts are in support of this opinion, and it has been most extensively acted upon on the Continent. It has been attempted, but with little success, to fix the exact period when the influence thus wears out, in order to determine when *re-vaccination* should be instituted. It would seem, however, that those who have been vaccinated in infancy often re-acquire the susceptibility to small-pox as they approach the period of manhood, and especially when they change the climate to which they have been habituated. The proportion of those in whom vaccination thus loses its influence is not known, but is still very inconsiderable, although on the increase.

In epidemics the small-pox has been found to be resisted by the vaccinated in proportion as they were young, while they became more liable to it as they receded from the period when the operation was performed. So, too, *re-vaccination* (the success of which has been regarded as evidence of the susceptibility to small-pox being renewed,) has been found to succeed on the adult but not on the child. In the Prussian army 47,000 soldiers were re-vaccinated in 1837, and a full effect resulted in 24,000; not one of these took the small-pox, although it was extensively prevalent. In Wurtemberg 44,248 were re-vaccinated, and only one became affected with the small-pox. In the Grand Duchy of Baden, the small-pox attacked many who had been vaccinated, a decree for universal re-vaccination was issued, and the disease disappeared. Of 216 children re-vaccinated at the Foundling Hospital, only eleven succeeded. At all events, the practice of re-vaccination should be put in force; it is, at least, harmless, and either supplies the valuable information that the protective power of the original vaccination is not worn out, or where this is the case, it renews it.

Even with the qualification that experience has placed upon the degree of benefit to be derived from vaccination, yet it continues one of the greatest boons ever presented to the human race. It must be recollected that the small-pox itself sometimes occurs a second time, as it does also after inoculation; and although, perhaps, it occurs more frequently after even properly performed vaccination, yet the difference is not so great as supposed. But the important fact must be noticed, that while the mortality from the natural small-pox was about twenty-five in the hundred, that where the disease occurs after vaccination, it is but nine. Of the advantages conferred by the practice, the diminished amount of mortality and increased duration of human life testify; thus, while in 1780

the annual mortality was one in forty, in 1821 it was about one in fifty-eight. This is more striking still when applied to children,—the frequent victims heretofore of small-pox. Mr. Edwards states, that prior to the introduction of vaccination, sixty per cent, in London, and forty per cent. in all England died, while, during the twenty years ending with 1830, these numbers have been reduced respectively to thirty and twenty per cent. It is true that the whole improvement cannot be attributed to the diminution of small-pox, but it may be fairly stated, that a large portion of it may, especially as that dreadful disease, even where it did not terminate fatally, laid the seeds for many future maladies. It is a minor, but yet an important consideration, that the amount of personal disfigurement, the loss of eye-sight, &c., from small-pox have immensely diminished. In Great Britain and Ireland, between 40,000 and 50,000 persons were formerly supposed to perish of small-pox, and, in proportion to the increase of population, that number, but for vaccination, would probably now amount to 80,000. In London, wherein the mortality was usually 2000 or 3000 annually, only 277 died in 1827. Through the neglect of vaccination, small-pox has prevailed severely in Great Britain this last year, the number of deaths for six months amounting to 6000.

There is no probability that the disease will be eradicated, but its virulence may be diminished, and its sphere contracted. This will be best brought about by an extensive system of vaccination. No one who has not examined into the subject can imagine the number of unprotected persons yet in this country. Vaccination, adopted almost universally by the wealthy and educated classes, has been opposed by the ignorance, carelessness, indolence, and prejudices of their poorer brethren. It is not until the scourge arrives among them that it is discovered to how great a degree precautions against it have been neglected. Compulsory vaccination would be contrary to the genius and habits of this country, but facilities should be offered with unbounded liberality; and it is with that view that the Vaccination Bill was introduced into Parliament last session by Lord Ellenborough, and is now part of the law of the land. By it gratuitous vaccination is everywhere offered to the poorer classes of the community; but, for its successful carrying out, the advice and persuasions of their more fortunate neighbours will be required, and will, we are persuaded, not be found wanting. Another provision of this bill is the punishment, as a misdemeanour, of the inoculation for the small-pox. The persistence in this injurious practice has tended much to maintain the disease among us, and its prohibition cannot but be of the greatest service.

J. C.

AN IMITATION FROM I. KINGS XIX., 11, 18.

HE passed, and his terrors before him were sent,
Beneath the strong tempest, the mountains were rent;
It crumbled to pieces the rocks as it passed
In its strength; but Jehovah was not in the blast.

By internal convulsions her terror expressed,
The earth the approach of her Maker confessed,
In the power of the servant, the Master adored,
For the might of the earthquake contained not the Lord.

The fire of the Lord from his presence has gone,
With the light of his coming the firmament shone,
As the smoke of a furnace, the mountain became,
But the Lord, but Jehovah was not in the flame.

Where then was Thy presence? The earth is all still,
The elements hushed are subdued to Thy will.
One still small voice only was heard in that hour,
When thy prophet adored thee, and worshipped thy power.

F. W. M.

NOTHING can overcome him that is not first overcome by his own imaginations and passions.—BISHOP PATRICK.

VELVET.

VELVET is one of the most beautiful productions of the silk-loom. It has been known in Europe for several centuries; but the secrets of its manufacture were for a long time confined to some of the chief cities of Italy. From this country the French learned the art, and succeeded in improving it. The revocation of the Edict of Nantes brought numerous French refugees to England, about the year 1685, who settled in Spitalfields, and practised the art of weaving velvet.

The reader is probably aware of the process of plain weaving with the common loom. A large number of threads, forming the *length*, or *warp*, of the intended cloth, are wound upon a cylindrical beam or roller, and pass from thence through a *harness*, composed of moveable parts, called *heddles*. Each of these heddles receives its portion of the threads of the warp, and is alternately moved up and down, so that the threads of the warp are alternately raised and lowered. Each time the warp is opened by the separation of its alternate threads, a *shuttle*, containing the *woof*, or transverse thread, is thrown across it, and this thread, being driven into its place by a frame called a *lay*, gradually forms by its repeated crossing the material to be woven. In the weaving of velvet, however, in addition to the warp and woof, there is a soft shag, or pile, produced by inserting short pieces of silk-thread, doubled, under the woof, and these stand up in so large a number, and so compactly, as to conceal the interlacings of the warp and woof which are seen in plain weaving. This silky pile imparts to velvet its peculiar softness to the touch, as well as beauty to the eye; but the production of these results depends in great measure upon the uniform evenness of the pile. To insure this latter quality, it is necessary to have all the threads of the pile of equal length, which requires some skill, and much patient attention on the part of the weaver.

In weaving velvet, the loom is first prepared as in the ordinary process of plain weaving: another set of threads is then prepared to go in the direction of the threads of the warp, which set is kept distinct from the warp by being stretched diagonally as shown in the figure, which



SECTION, EXHIBITING THE STRUCTURE OF VELVET.

represents the structure of velvet, and the plan adopted to combine the threads of the woof with the pile. At *a a*, are the threads of the warp, and the dots placed in the loops show the section of the woof threads: at *b* are the threads intended for the pile, and these threads meet those of the warp in the angle *c*. The weaver places in this angle a brass wire of the same length as the breadth of the piece of woven stuff, so that all the pile threads are above the wire, and those of the warp below it. By the action of the treadles the alternate threads of the warp are raised, the shuttle is thrown, and passes over the pile threads, and the alternate threads of the warp, which are depressed; the batten is then made to strike up against the woof, the interlacing of the warp and woof is effected, and a loop of the pile thread is formed over the wire as at *d d*. It is necessary to pass the shuttle thrice between each insertion of the wire: the thread for the first woof is coarser than that employed for the other two, and the action of the batten forces the wire into its proper position. The upper part of this wire has a groove running along it: by means, therefore, of a sharp-edged tool, called a *trenat*, passed along the groove, the loops *d d* are divided, the wire is liberated, the pile is formed as at *e e*, and thus the process of weaving velvet is completed.

The weaver, however, finds it necessary to employ

two wires, one of which remains in the texture, while the other is cut out: the reason for this is, that the pile threads may not be liberated and the whole process deranged; but as one wire is secured by the threads of the woof, the pile threads are prevented from being set at liberty while the loops are being cut. As soon as the wire is liberated from the first loop *d*, it is again inserted in the angle *c*; and when it has been secured as before, the wire forming the second loop *d* in the figure, but now the first loop, is cut out, and so on alternately. At one time the richest velvets were formed of thirty-eight loops to the inch, but this beautiful substance, velvet, has been so much in demand, and persons are willing to pay such high prices for the richest productions, that now as many as fifty-five loops are woven into an inch of velvet. This circumstance will enable the reader to form some idea of the extremely tedious process of velvet-weaving. The wire requires to be inserted and cut out again fifty-five times in the space of an inch, that is, a strip of velvet one inch broad, and whose length is equal to that of the breadth of the piece. And when we consider that the threads of the woof are of different degrees of fineness, rendering two shuttles necessary: which must be exchanged at frequent but unequal intervals, we can form an estimate of the incessant care and vigilance necessary on the part of the weaver in conducting these various operations. Much caution and dexterity, too, are required in cutting the loops: for however simple the operation of passing a knife along a straight edge may appear, yet this part of the process can only be acquired by long practice; for the smallest deviation from the straight line would injure the appearance of the velvet. The weaver being thus occupied in so many distinct operations in rapid succession, finds his work to increase very slowly, and he has been very industrious if at the end of a long day's work he has woven a yard of plain velvet.

It will be seen from what we have stated that the richness of velvet depends upon the number of threads forming the pile: the degrees of richness are accordingly indicated in this way, and the manufacturer speaks of velvet of two, four, or six threads, according to the number of the pile threads inserted. The striped velvet, with which waistcoats are sometimes made, is produced by leaving uncut a number of the pile loops.

The peculiarly rich effect of velvet results from the absorption of the light which falls upon its surface, and hence too arises the sombre effect when much of this substance meets the eye.

A room hung round with black cloth or velvet, and a coffin, on which is shed the light of wax-tapers, is an impressive spectacle. The light falling upon the cloth or velvet, is absorbed; and the feeling of gloom arises from the circumstance that nothing seems to reflect light. Whereas, in a room, whose sides are covered with mirrors, reflecting the various lights; where music and merry voices mingle in concert, how different is the scene! Even in the absence of human beings, and especially happy and innocent ones, whose presence blesses and enlivens almost every scene, the room yet appears cheerful, in consequence of the abundance of reflected light, the absence or absorption of which, is, in general, attended by a gloomy prospect.—TOMLINSON'S *Student's Manual of Natural Philosophy*.

It should be impressed on the minds of persons in general that those plants which afford the most efficacious medicine in the hands of the skilful practitioner, are the most dangerous in those of the ignorant, and should therefore never be used as a domestic remedy.—PHILLIPS.

ENDEAUOUR yourself to do good to all men, and never speak evil of them that be absent.—SIR THOMAS SMITH.

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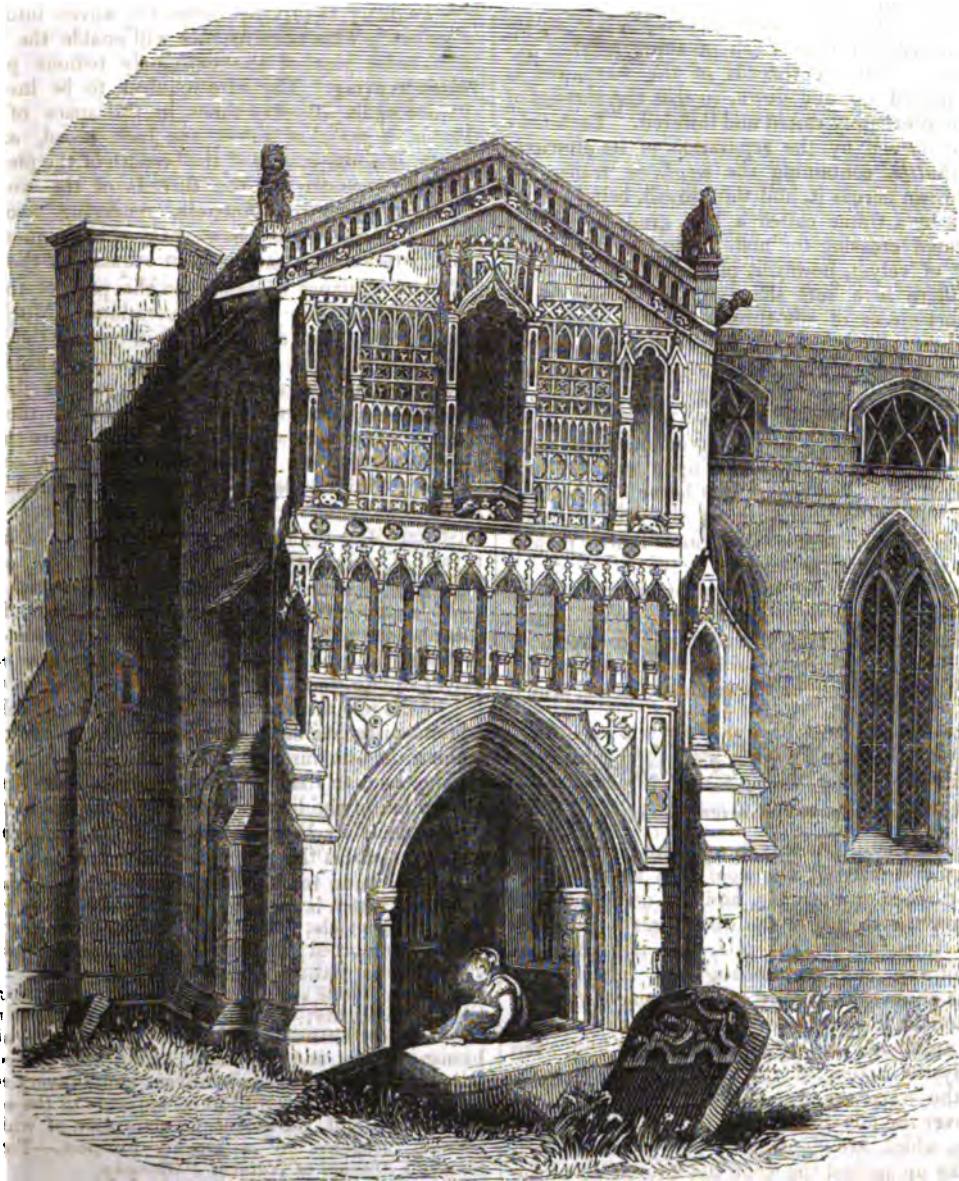
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THE TOWN OF LYNN, NORFOLK.



SAINT NICHOLAS CHAPEL, LYNN.

In the flourishing town of Lynn, Norfolk, stands the Chapel of St. Nicholas, (said to be the largest parochial chapel in the kingdom,) of the architectural embellishments of which we give our readers a specimen in the above view of the southern porch.

Lynn is situated chiefly on the eastern bank of the river Ouse, about twelve miles from the sea, where that river, having gradually widened its channel, becomes very considerable, and nearly equal to the Thames above London Bridge. This important stream is sometimes called the *Great Ouse*, to distinguish it from the *Lesser Ouse*, which is one of its tributaries. It is also called

the *Eastern Ouse*, to distinguish it from the *Northern* or Yorkshire river of that name. To this river the town of Lynn owes its chief importance, for by its commercial intercourse is carried on with the interior of the country to a great extent, and a communication with the sea is formed. It would be interesting to trace the course of this river from the place of its rise on the borders of Northamptonshire and Oxfordshire, through the midland counties, of which it traverses a considerable part, to its junction with the sea. Many ancient halls and noble edifices grace its banks and those of its tributary streams, and the fenny and marshy districts

through which it flows have also their own peculiar interest. But we are now to speak of the town of Lynn itself, and of the edifice we have selected for description.

Lynn is situated on the eastern side of Marshland, and of the Great Level or Fen Country, and has been called the great metropolis of the Fens. It was anciently called Bishop's Lynn, having been under the jurisdiction, both temporal and spiritual, of the Bishops of Norwich, who had a palace where Gaywood Hall now stands. The episcopal authority was surrendered in the reign of Henry the Eighth, and from that time the town was called King's Lynn. During the contest between John and the barons, Lynn was remarkable for its constant adherence to the king, who remained there for some time, and at the prayer of the bishop made the town a free borough; he presented to the inhabitants a silver cup, weighing seventy-three ounces, richly gilt, and enamelled, which is still preserved by the corporation.

The trade of Lynn appears to have been considerable as far back as the time of Edward the Confessor, and at the beginning of the thirteenth century the town had risen to such a height of commercial importance, that the revenue paid to the crown was two-thirds of that arising from the trade of the port of London. The harbour is extensive, and can accommodate three hundred sail, but the entrance is somewhat dangerous from the shifting of the sands which accumulate there, and the anchorage is rendered difficult by the nature of the soil and by the rapidity of the tide, which rises to the height of twenty feet. The situation of the port of Lynn renders it a place of much foreign and coasting trade: it imports wine from Spain and Portugal; timber, deals, hemp, and tallow from the Baltic; corn from the northern parts of Europe; oil-cake from Holland; and timber from America. It supplies the neighbouring districts with these imported articles, as well as with agricultural produce, by means of its extensive coasting trade. White sand of a particular sort is sent to the glass manufactories of Newcastle and Leith; and large quantities of shrimps are conveyed from this coast to the London markets. Not less than one hundred and fifty thousand chaldrons of coal are annually brought into this port, for the distribution of which in the neighbouring counties, the Ouse and its tributaries, with the various canals communicating with them, afford great advantages. That the reader may judge of the extent of traffic connected with this port, we may mention, that in the year 1826, sixty British and one hundred and twenty foreign ships entered inwards from foreign parts, and, twenty-one British, and one hundred and ten foreign vessels cleared outwards. Several ships used to be fitted out annually for the Greenland whale fishery, but this branch of the business has of late years greatly declined. Ship-building has been carried on at Lynn from an early period, but is not at present of very considerable note.

King's Lynn comprises the parishes of All Saints, St. Margaret's, and St. Edmund. Of the churches of Lynn, St. Margaret's being undoubtedly the most important edifice, first demands our attention. This church was founded about the close of the eleventh, or commencement of the twelfth century, by Herbert de Losinga, bishop of Norwich. According to an old record, he commenced building it at the request of the men of the town of Lynn, but the contributions proving inadequate to the magnitude of the work, he had recourse to the unworthy expedient of offering indulgences, or pardon of crimes for forty days, to all who would contribute to the undertaking. This plan proved eminently successful in raising money sufficient for the completion of the edifice; "the work," says the historian of Lynn, "went on prosperously, was soon finished in a magnificent style, and the indulgence effected what an appeal to the most pious considerations would probably have failed to accomplish."

The church, in its original state, was of larger dimensions, and more magnificent than at present; but it still presents a noble appearance. The western tower displays different styles of architecture, and the lower part of them is evidently very ancient. The interior consists of a nave with aisles, a chancel, or choir, with aisles, and a transept. A tall spire once adorned one of the western towers, but this spire fell in 1741, and did much damage to the body of the church. Soon after that event, the lofty tower, or lantern, which rose above the intersection of the cross aisles, was taken down through fear of a similar misfortune.

The chapel of ease to St. Margaret's is St. Nicholas, an elegant chapel, built upon the site of one much more ancient, and elaborately decorated in many of its parts. The south porch may be seen by our engraving to be covered with a variety of minute ornaments. The roof of the porch is handsomely groined with stone, and at the intersection of the ribs are some heads and figures in bold relief, but much obscured by whitening. The interior of the chapel of St. Nicholas consists of a lofty nave, with two side aisles: its architecture is thus described by the Rev. Edward Edwards.

The distinguishing characters of this structure, as seen from within, are lightness, simplicity, and perfect uniformity of style, the tower alone being of earlier date than the rest of the fabric. The pillars are slender, having the horizontal section of the shaft nearly in the form of a truncated lozenge, relieved by shallow flutings, and raised about four feet from the ground by corresponding bases. They have no capitals, but small brackets, which support the inner ribs of the arches. Opposite the arches, in the side aisles, are an equal number of windows: between the windows are niches or canopies. The east and west windows are very large, with a pleasing mixture of curved and rectilinear tracery, and embattled ornaments upon the transoms. More ornament has been bestowed on the doors than on any other part of the building. The western door-way, in particular, is divided by a mullion, which supports an elegant niche, and is adorned with other sculpture in stone. The small south door-way is in the same style, as is also the larger door-way towards the north. The front of the *South Porch* is still more elaborate.

The original chapel is said by Parkin to have been founded by William Turbus, or De Turbe, bishop of Norwich, who was consecrated in 1146, and died in 1174. He gave it to the monks of the Priory of Norwich, but forbade the rights of baptism and marriage to be performed in it, in order to mark its dependency on the church of St. Margaret's. Attempts were made, at various times, to raise it to the dignity of a parochial church, but it has ever remained annexed to St. Margaret's as a chapel of ease.

The edifice appears to have been rebuilt in its present state during the reign of Edward the Third, and until lately a figure closely resembling the usual portraits of that monarch, with three crowns on his sceptre, embellished the centre of the west window. The ornaments above the canopied niches at the west door are also said to appear very much like the crest of the same king, as represented on his first gold coin, the quarter florin.

The churches of All Saints and of West Lynn have nothing remarkable in them to require description, and the church of North Lynn, or Lynn St. Edmund's, was swept away by an irruption of the tide, or by the inundation of fresh waters, caused by the addition of the Grant, the Ouse, and the Nene, to the other rivers which had their passage to the sea near this town.

At a small distance from the town of Lynn stands a very singular little building, called the Chapel of Our Lady on the Mount. "If other buildings attract notice by their magnitude," says the author before quoted, "this deserves it from its peculiar smallness. It is so well proportioned, yet so extremely diminutive, that it seems like a beautiful model for a much larger edifice, or it may not improperly be denominated a cathedral for Lilliputians." The history of this chapel is involved in

much obscurity. There are records extant of offerings made by devotees at the chapel of the Virgin Mary at the Mount, but the uses to which the building has been applied at various periods, subsequent to the date of these records, have been of a very opposite character. In 1638 we find it to have been used as a store-house for gunpowder: in 1643 it became a place of arms, and had a regular bastion thrown up in front of it, and it is supposed that a cistern, visible until a few years since, in the lower apartment, was used as a reservoir for water. In 1665 it was used as a pest-house, and in 1783 the use of the chapel was granted to a teacher of navigation for an observatory.

There are still existing the remains of several other ecclesiastical edifices at Lynn. A tower, ninety feet high, remains of the monastery of the Grey or Franciscan Friars, and serves as a landmark to vessels entering the harbour. Several other signs of former monastic institutions are also to be met with in the town. Lynn has four alms-houses, and many charitable institutions, an endowed grammar-school, national and Lancasterian schools, a mechanics' institution, a parochial and a subscription library. The population of the borough was, in 1831, 13,370.

THE name of a country may be obliterated from a map, the deeds of heroes be effaced from the annals of the world; the pursuit of truth can only cease when man is no more: its light may be veiled by ignorance, craft, or cupidity, but it cannot be extinguished. The cities that gave birth to the illustrious philosophers of old have long ceased to exist, yet the immortal works of those sages that have escaped the ravages of time, are still as fresh and luxuriant as when their glorious oratory enchanted and captivated their disciples' ears.—MILLINGEN'S *Curiosities of Medical Experience*.

GREAT mental capacity alone, will never raise either individuals or nations to greatness or happiness. It is not mere mental power, but the right application of it, that brings our species to perfection. We know how possible it is for men to possess powerful abilities and extensive knowledge, and yet live a curse to their own country and to themselves. But what then, it may be said, is become of the boasted alliance between knowledge and virtue? The alliance is indeed strong, but it is not because there is a necessary connexion between the bare knowledge of facts and moral emotions. It is because, moral sensibility being a part of our nature, we cannot dwell long upon any subject, nor investigate all its relations, without discerning in it some circumstances that touch on moral nature, and awaken a sentiment. No one is destitute of all moral feeling, but some people have very little by nature, or it may have been destroyed by the strength and indulgence of their passions; and in such cases the most thorough knowledge of the facts that move others to admiration and love, will have no effect upon them. It is not the philosopher's laborious analysis, nor the fulness of his demonstration of the times and motions of the heavenly bodies, that have a moral effect. It is the perception of order and contrivance of beauty, and of infinity teeming with existence, which kindles within him feelings of admiration inherent in his nature. In like manner, when we study the sciences that relate to human life, it is not the logical proof, that certain means will produce certain results, that causes our emotions, but that sympathy with the good of mankind is implanted within us; and pictures of their good, laid strongly before us, move that affection. The cold and the sordid will not feel it, however perfectly they learn the science.

The tendency of knowledge and study, therefore, certainly is to promote right feeling and conduct in general, by occupying the mind always about the true and the useful; but a tendency is not a certainty, for it may be overruled by opposing circumstances; and the mass of mankind are made selfish and stolid by their gross habits of life.

PHYSIC, for the most part, is nothing else but the substitute for exercise or temperance.—ADDISON.

GARDEN HERBS.

CHAMOMILE.

THE generic name of this herb is *Anthemis*, derived, as ancient story tells us, from a virgin shepherdess, named *Athemis*, who kept her flock near Cuma, and not far from the cave where one of the Sibyls delivered her oracles. *Athemis* was frequently required to assist in the mystic ceremonies, and on one of these occasions was so overcome with terror that she died on the spot, and was immediately transformed into a plant bearing flowers, which received her name.

This herb was also called *Leucanthemis*, or *Leucanthemus*, from the whiteness of the double blossom; *Eranthemion*, because it flourished in the spring; and *Chamamelon* (from which the English name is derived), because its savour was said to resemble that of an apple.

The genus of plants to which chamomile belongs is of the compound-flowered order. It is distinguished by having the scales that surround its flower-heads membranous at the border, like those of a chrysanthemum, from which genus it differs chiefly in the receptacle of the flowers being provided with little chaffy projections.

The wild chamomile is found more efficacious for the purposes to which the herb is applied than the cultivated sorts. It is frequent on many of the commons of England, and its finely cut leaves, scarcely elevating themselves above the level of the earth, and rich-looking flowers, of which the ray is white, but the disk deep yellow, have a pleasing effect amidst the scanty herbage of such situations. The whole plant is intensely bitter, especially the yellow flowers composing the disk. In the cultivated sort the white flowers of the ray almost supersede the yellow ones: the disk becomes extremely small, and thus the flowers possess the bitter principle in a less powerful degree. Besides the principle for which chamomile is chiefly celebrated, it has been found by chemists to contain tannin, camphor, and a volatile oil, of a beautiful blue colour. The description of this herb, given by Gerarde, is exceedingly accurate, and gives a better idea of it than anything we could say.

The common cammomile hath many weak and feeble branches trailing upon the ground, taking hold of the top of the earth as it runneth, whereby it greatly increaseth. The leaves are very fine, and much jagged, and deeply cut, of a strong sweet smell; among which come forth the flowers like unto the field daisy, bordered about the edge with a pale of white leaves: the middle part is yellow, composed of such thrums close thrust together as is that of the daisy. The root is very small, and thready.

The may-weed (*Anthemis cotula*) greatly resembles chamomile, but is erect of growth, of a branching habit, and exceedingly disagreeable in its odour.

The most ancient recommendation of chamomile, as a medical herb, was made by Asclepiades, the Bithynian, who was renowned for his great skill in physic, and lived to a very advanced age, without ever having experienced a day's illness. Pliny tells us that he pledged himself to cease to act as a physician if he should be ever known to be sick. This celebrated man was entreated by Mithridates, king of Pontus, to reside at his court, and was even visited by ambassadors on the part of the king, with offers of reward if he would comply with the request; but Asclepiades had determined to exercise his skill in Rome; and there accordingly he went, and became the founder of a sect in physic, which was called after his name.

Recommended by such high authority, it is no wonder that the herb chamomile was highly esteemed among the Romans. An extract from the flowers and leaves was made into lozenges, for the relief of spasmodic disorders, as well as for the jaundice, and liver complaints; the powder of the dried flowers was administered in intermitting fevers; the leaves were given as a digestive, emollient, and diuretic medicine; and the whole plant was pounded, as a remedy against the sting

of serpents and other reptiles. The plant was also used in garlands, and even during winter a plentiful supply was to be had in its dried state for this purpose, as well as for use as a medicine.

Gerarde quotes from Galen concerning the virtues of chamomile, and adds his own testimony that it is of force to digest, slacken, and rarify; that it is a special help against wearisomeness, caseth and mitigateth pain, mollifieth and suppleth; is good against the colic, and various other diseases, and is mixed with good success with all those things that are applied to mitigate pain; "and all these operations," saith he, "are in our vulgar commomile, as common experience teacheth, for it heateth moderately, and drieth little"

Culpeper says—

A decoction made of camomile, and drank, taketh away all pains and stitches in the side: the flowers of camomile, beaten, and made up into balls with gil, drive away all sorts of agues, if the part grieved be anointed with that oil, taken from the flowers, from the crown of the head to the sole of the foot, and afterwards laid to sweat in bed, and that he sweats well: this is Nechessor, an Egyptian's medicine. It is profitable for all sorts of agues that come either of phlegm, or melancholy, or from an inflammation of the bowels; and there is nothing more profitable for the sides and region of the liver and spleen than it. It comforteth the sinews that be overstrained, mollifieth all swellings: it moderately comforteth all parts that have need of warmth, and digesteth and dissolveth whatsoever hath need thereof by a wonderful speedy property. Syrup made of the juice of camomile, with the flowers, in white wine, is a remedy against the jaundice and dropsy: the juice of the flowers is good to wash the head, and comfort both it and the brain: the oil made of the flowers of camomile is much used against all hard swellings, pains or aches, shrinking of the sinews, cramps or pains in the joints, or any other part of the body. Nichessor saith, the Egyptians dedicated it to the sun, because it cured agues, and they were like enough to do it, for they are the arrantest apes in their religion I ever read of.

In more modern times Dr. James speaks of chamomile as a plant of many virtues, being stomachic, hepatic, nervine, emollient, and carminative, and as affording a useful fomentation in cases of inflammation and tumour.

In later medical books we find these uses of the herb slightly mentioned. The external use of it is said to be little preferable to a simple fomentation with hot or warm water, and the powder of chamomile is scarcely used, on account of the inconvenient bulk of a requisite dose. As a domestic remedy, the well-known stomachic virtues of a cup of cold chamomile tea, taken fasting, are alluded to, and the extract of chamomile is recognized as a good simple bitter, and a useful vehicle for other tonics, when given in pills. Forty-eight pounds of this extract are obtained from a hundred-weight of good flowers.

We have mentioned this herb as producing an oil of a beautiful sky-blue colour. This colour is not permanent, and is only seen in the recently-distilled product. The oil of chamomile, which we obtain at the shops, is generally foreign, and has become yellow, or brownish yellow, and grows viscid by age. Antispasmodic properties have been attributed to this oil, and hence it is occasionally added to cathartic pills and powders. In Germany this oil rubbed up with powdered sugar is a favourite stomachic remedy, but a very unpalatable one.

The cultivators of herbs in the vicinity of London produce the chief supply for the market. There are upwards of twenty varieties known to English gardeners, one-fourth of which are native plants. They differ considerably in their qualities, but those are the most esteemed which strongly exhale their peculiar fragraney when rubbed. The large double flowers are sometimes preferred, but, as we have already said, the bitter principle is most powerful in the disk, or yellow centre; and the single flowers are therefore the best.

Chamomile is a hardy perennial, and spreads rapidly. It is easily propagated by parting the roots in spring.

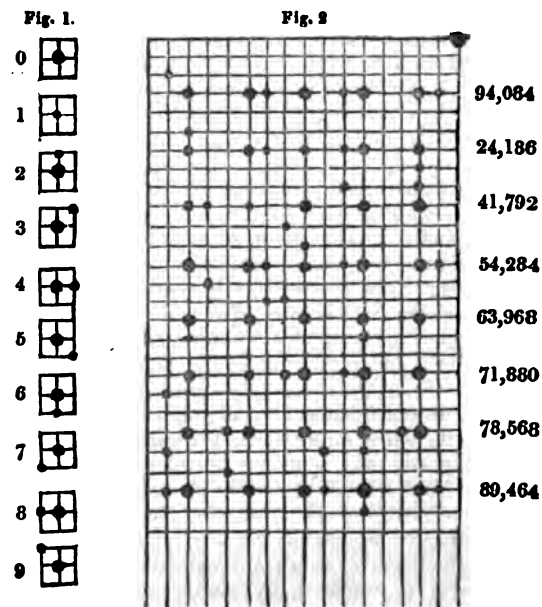
CALCULATING MACHINES.

2. THE APPARATUS OF SAUNDERSON, GERSTEN, AND PASCAL.

In our last article on this subject, we promised to describe an ingenious contrivance of Dr. Saunderson, for performing arithmetical processes in darkness. This remarkable individual, who was born in 1682, furnished an instructive example of the extent to which energy and perseverance may be made to overcome evils of a formidable and distressing nature. When only a year old, he lost his eyesight by an attack of small-pox; and being thus deprived of the blessing of light while yet an infant, his ignorance of its nature and properties was afterwards nearly as great as if he had been born blind. Yet such was the natural strength and intelligence of his mind, that he mastered all the usual branches of school learning, and became eventually Professor of Mathematics in the University of Cambridge, one of the most distinguished intellectual offices in England.

In the course of his mathematical duties, he had to perform many elaborate calculations; and still more was this necessary, before he could complete a treatise which, considering the circumstances under which it was produced, must be ranked among the most singular works published, viz., his *Treatise on Algebra*, in two large volumes. As the usual modes of writing with pen or pencil must obviously have been valueless to him, he had to devise a method by which he could feel the figures which he was arranging, or to establish a palpable arithmetic. We proceed to describe the plan which he adopted.

His calculating table was a smooth thin board, about a foot square, raised on a small frame, so as to lie hollow. The board was marked with a great number of parallel lines, which were crossed at right angles by another series of parallel lines, by which each square inch of the surface of the board was divided into 100 little squares, each square subdivided into four. At every point of intersection a perforation was made, capable of receiving a pin; and he always kept at hand two boxes filled with pins of two different sizes, or at least having heads of two different sizes; since it was by feeling the heads of the pins that he was enabled to perform calculations.



PROFESSOR SAUNDERSON'S CALCULATING MACHINE.

The particular portion of a pin, or of two pins with regard to each other, indicated a particular figure; and for this purpose four little squares were appropriated to each figure, in the manner shown in fig. 1. A large pin

was placed in the centre, for every figure or digit, except 1, when its place was occupied by a small one. For the digits 0 and 1, no pins surrounded the central one; but for all the digits from 2 to 9 inclusive, a small pin was placed near the central one, and the position of this second pin determined the digit indicated by it; when over, under, or at the side, of the central pin, the even numbers 2, 4, 6, 8, were indicated; but when placed diagonally, the odd numbers 3, 5, 7, 9, were expressed. All this can be seen at a glance by inspecting fig. 1.

The symbol for each digit being thus established, it is easy to conceive that every quantity, large or small, might be expressed by an assemblage of such symbols. This tablet was large enough to contain a great many such symbols; for the space devoted to each was one-fifth of an inch square, a narrow vacant line separating it on every side from adjacent symbols. The great pins which usually occupied the centres, and which were most frequently equidistant, were a guide to direct him in keeping the line, to ascertain the limits of every figure, and to prevent any ambiguity that might otherwise arise. As three of the vertical parallels were sufficient for a single digit, so three of the horizontal ones sufficed for a line of figures; and the next three for another line, and so on. If one symbolical arrangement on the right signified the unit's digit, that immediately adjoining it on the left was the ten's digit, and so on; and when the figures or digits were thus expressed, it is obvious that any of the usual computations could be performed, in the same order as with pencil or pen, provided the sense of touch were sufficiently delicate to detect at once the relative positions of the pins, and whether the central one were large or small. In this respect the blind are often remarkably expert; for having one medium with the external world quite shut out, their attention is directed with greater intensity to those which remain. Saunderson could place and displace the pins with incredible quickness and facility; he could also break off in the middle of a calculation, and resume it when he pleased,—recalling to mind the condition of the computation by merely drawing his fingers gently over the table.

Fig. 2 represents a portion of a table which was left by Dr. Saunderson, and which he appears to have arranged for his own use. The surface of the tablet is seen to be divided into minute squares, of which one hundred are contained in a square inch; and if we separate these lines into parcels of three in width and three in height, each parcel will be devoted to one symbol or figure. We then have eight lines of figures, one under another, each line containing five figures, or expressing tens of thousands. So long as the arrangement of the pins was undisturbed, it is obvious that such a table would be a *permanent* one, which could be referred to at any time, and it appears to have been for such purposes that this method was peculiarly valuable to Saunderson. After Saunderson's death there were found four tablets, eleven inches long, five and a half broad, and half an inch thick, divided by lines in the manner before described, and perforated at the points of intersection of the lines. On these tablets pins were arranged, so as to form small tables, having apparently a connexion with the sines, tangents, and secants of angles. He also made use of his tablets for geometrical diagrams, by sticking pins in at certain points, and winding a piece of fine thread or silk from one pin to another: the pins indicated angles or corners, and the thread indicated right lines: a rough approximation to *curved* lines could also be produced, by placing the pins very close together.

Such is a slight outline of the means by which the professor sought to effect that which might be thought almost unattainable by a blind man. It will be readily seen that many other kinds of palpable or tangible arithmetic might be devised, bearing resemblance, more or less, to that of Saunderson. We shall there-

fore not enlarge on this subject, but shall proceed to speak of methods in which machinery is brought in aid of calculation. What we have hitherto described are merely *instruments*, but there have been other contrivances deserving the name of *machines*, by which calculation was sought to be facilitated. Several machines of such a kind were contrived during the seventeenth and eighteenth centuries, but the only two of them which have been clearly described were that of Professor Gersten, of which he himself gave a description in an early volume of the *Philosophical Transactions*, and that of Pascal, which Diderot described in the *Encyclopédie Méthodique*.

It would be scarcely possible to give a detailed description of the mechanism by which the process of computation was performed in these machines: even engraved representations of the several parts, elucidative as they often are of written description, would in these instances be embarrassing to a general reader. We will therefore endeavour briefly to indicate the *kind* of movements which it is necessary to produce, instead of detailing the various positions of wheels, pinions, levers, screws, &c.

If we notice the manner in which quantities are, as it were, *built up* in the common system of numeration, we find each figure is worth ten times as much as it would be worth, if occupying a position one place to the right of it. Thus: 1728. Although 8 is greater than 2, yet the 2 in this position stands for a larger sum than the 8, because it occupies a position to the left of it. The quantities really expressed then by the figures

1728 are $\left. \begin{array}{l} 1000 \\ 700 \\ 20 \\ 8 \end{array} \right\}$, but in common practice we leave out

the cyphers, and place the significant figures side by side, taking care to keep them in the proper position from the right hand.

Now, if we have a wheel on whose axis is a pinion, with leaves or teeth,—if these teeth work into another set of teeth on the periphery of another wheel, and if the teeth on the latter are just ten times as numerous as those on the pinion, the pinioned wheel will revolve just ten times as fast as the other*. Here we have a certain sort of analogy between the decimal notation and the working of the wheels: it takes ten units to make up one figure or unit in the second place in common numeration, and it requires ten revolutions of the pinioned wheel to impart one revolution to the other wheel. Now this analogy applies to the machines to which we allude. There are generally several dial-faces, each marked with figures from 1 to 10. These dial-faces are fixed upon wheels, the teeth of which work into the pinions of other wheels, on which are similarly divided faces or disks. Then, while one face indicates units, another will indicate tens, another hundreds, and so on. The mode in which these wheels are made available in computations depends on the particular construction of the machine; but the principle to which we have just alluded is observable in all. In M. Gersten's instrument, for instance, if 32 were to be added to 59, two disks, or dial-faces, had to be turned by hand, until two index-points pointed to the two figures 5 and 9, one on each plate: then two slides were adjusted, until two indices pointed to the figures 3 and 2, one on each slide. Both the disks and both the slides were connected with toothed rack-work, which, interlocking one with another, turned another dial-plate in such a direction as to show 91 on its face, which is the sum of 32 and 59. If, on the contrary, it were required to subtract 59 from 91, indices would be pointed to 9 and 1, on two separate disks, and to 5 and 9, on two separate slides, and the movement, in an *opposite direction* to the former, of these disks and slides, would turn another wheel, so as

* See an article on the "Wheel and Axle," in Vol. XV., p. 131, of this work.

to show 32 on its face, the difference between 59 and 91. The process of multiplication was effected by a kind of reiteration of additions, and that of division by a succession of subtractions.

In the machine constructed by Pascal, the arrangement of the parts was to facilitate performance of certain numerical calculations connected with the duties of an office held in Upper Normandy by Pascal's father. These calculations had reference to pecuniary matters, which were reckoned in the currency of France, as existing at that time: the *denier* wheel had twelve teeth, representing the number of deniers in a *sol*. The *sol* wheel had twenty teeth, equal to the number of *sols* in a *livre*, above which each wheel had ten teeth, indicating 10, 100, 1000, &c. livres. Each wheel in the series carried a cylindrical barrel, on which were engraved the ten arithmetical characters. The wheel which expressed each order of figures or units was so connected with the wheel which expressed a superior order, that when the former passed from 9 to 0, the latter was advanced one figure.

Although this mechanism seems to have been adapted to one particular purpose, there is no evidence that it was ever brought into practical use. It was intended for the performance only of particular arithmetical operations, and it is doubtful whether even those could be performed by it so readily as by the pen of a ready computer. It is however important to remark that the principle of construction observable in those instruments was the forerunner of a modern instrument, which not only eclipsed all the calculating instruments or machines before constructed, but is deemed to be one of the most splendid pieces of mechanism that any age or country has produced: we allude to Mr. Babbage's calculating machine. We shall give a brief account of this machine in our next paper, but wish, in the mean time, to draw attention to the fact, that it is by the action of one toothed wheel upon another, making it revolve slower or faster, that the process of computation is conducted.

THE SPRING FAIR AT PEST, HUNGARY.

As I happened to be at Pest, during the great Spring Fair, I was not only provided with ample materials for amusement, but an opportunity of seeing the motley population of natives and strangers, which are usually attracted on this occasion; for though the Magyars, who have given their name to Hungary, are the greatest landed proprietors, and hold the reins of government, yet they are inferior in numerical force to the Slavonians, (or Totoks,) the original inhabitants. These are divided into at least half a dozen separate tribes, each speaking a different patois; and if to them we add the colonies of Germans, Wallachians, Greeks, Armenians, French, Italians, Jews, and Gipsies, speaking their own languages, and retaining their national manners, customs, and religions, we may term Hungary a miniature picture of Europe.

My first lounge was through the fair, which afforded as many groups for the painter as for the observer of life and manners; the Babel-like confusion of tongues was endless, and the costume and appearance of the motley tribes could not have been equalled in variety by any other fair in Europe, or even by the most entertaining maskers that ever trod the Piazza San Marco, or the Corso at Rome; because here each performed his natural character. The most prominent figures in the group were ever the proud Magyars, particularly those just arrived from the provinces. The dress of some of these noblemen was indeed singular, consisting of a tight sheep-skin coat, or mantle, the woolly side inwards; while the other was gaudily embroidered all over with the gayest flowers of the parterre, in coloured silk, among which the tulip was ever the most prominent. Those whose wealth permitted it, were to be seen habited in their half-military, half-civil costume; and you might in truth fancy from their haughty demeanour, that you were beholding a feudal lord of our own country of the middle ages, as, mounted on their fiery steeds and armed with sword and pistols, they galloped through the parting multitude, upon

whom, when the slightest interruption occurred, they glanced with scorn and contempt.

Among crowds of Jews, Turks, Greeks, Armenians, Tyrolians, Germans, Slavonians, Italians, and Hungarian peasants, were groups of Gipsies, their black matted locks shading their wild sun-burnt countenances, exhibiting their dancing-dogs, bears, and monkeys, or playing a lively tune for the amusement of the surrounding multitude, these itinerants being the popular musicians of Hungary. In another part of the fair, mountebanks on elevated platforms were relating the exploits of the famous robber, Schrubar, in the great forest of Bakony; or the ravages committed by the dreadful monster, half serpent, half flying dragon, that lately rose out of the Balaton lake, together with the most veritable history of the reappearance of the renowned Merman, who had inhabited, for the last two years, his own extensive domain, the Hansag marshes. All these astonishing marvels, besides hundreds of others, were listened to by the peasants, not only with attentive ears, but open mouths, and were illustrated by paintings as large as life, depicting the extraordinary wonders, executed in a style which set all imitation at defiance.

Bread, cakes, cheeses, vegetables, &c., were heaped on high in the streets, with the owners of each separate pile squatted in the midst. The savoury odour of frying sausages attracted some gourmands; whilst others feasted on the lighter refreshments of pastry, which the accomplished *cuisiniers* were preparing for their gratification.

But the popular viand was evidently the cray-fish, which all ranks, however otherwise engaged, were incessantly consuming; nor did they in this manifest any deficiency in *gout*, as the flavour of the little dainties was really excellent, and I have rarely seen them exceeded in size. Indeed, to thread the mazes of this great Hungarian fair, so as to obtain a view of its rarities, was an undertaking of no little difficulty, on account of the immense pyramids of wool, hides, tobacco, and other raw materials, which ever stood in the way; and as these articles were most tempting baits to the cupidity of the Jewish traders, they might constantly be seen making use of all their cajoling eloquence, while prevailing upon the artless peasant to dispose of his wares, at a price little more than nominal. When, however, the case was reversed, and the gaudy merchandise of the Jew and Armenian traders induced the peasant to become a purchaser, the balance of trade was considerably against him.

But, perhaps, of all the groups over which my eye wandered, none more strongly arrested my attention than the Saxon colonists: these were attired in the same costume in which their ancestors, some centuries gone by, had emigrated from their father-land, their blue eyes and heavy quiet countenances forming a striking contrast to the vivid glances of the half-Asiatic people around them. Nor were their moral traits less distinctly defined; for the prudent German, well knowing he was in the society of some of the most accomplished pickpockets on the Continent, wisely determined that they should not prey upon him, for he did not once remove his hand from his pocket, while his good woman never failed to keep watch behind, attended by her little ones, who, on the approach of the half-wild Gipsy, timidly covered their flaxen heads in the many folds of mama's cumbrous petticoat.

I would above all things recommend every traveller who may visit Pest during the Spring Fair not to leave it without taking a morning's ramble through the town. He will then see thousands of men, women, and children lying about the streets, beneath the piazzas, or in the numerous barks on the river, with no other covering save the canopy of heaven and their own sheep-skin mantles: he will also, still more to his surprise, behold them anointing their persons with lard, in order to protect themselves during the day from the effect of heat, and the bites of vermin and insects.—SPENCER'S *Travels in Circassia*, &c.

BENEVOLENCE, animated by Christian motives and directed to Christian ends, shall in no wise go unrewarded; here, by the testimony of an approving conscience; hereafter, by the benediction of our blessed Redeemer, and a brighter inheritance in His Father's house.—BISHOP MANT.

As it is in all cases necessary, on the one hand, to guard against the intrusion of empirics; so, on the other, it is expedient that we attach not ourselves, by undue prejudice, to any system of things, merely on account of a long acquaintance with it.—MAUND.

THE MAGPIE, (*Corvus pica*, LINN.)

THIS shy and distrustful, but very beautiful bird, is generally found at no great distance from human dwellings. To judge of the beauty of the magpie we must not be contented with a view of the bird in confinement, for under such circumstances it is seen to great disadvantage; the plumage is soon deprived of its brilliancy, and has a dull and dirty appearance; the bird loses much of its lively and restless character, and has not the same arch and animated expression of the eye, for which, in its natural state, it is so remarkable. At the same time it becomes familiar and attached to its owner when tamed, and its natural disposition to chatter, rather increases than diminishes; so that when taken young, it may be taught to pronounce words and even sentences, and will readily imitate any singular noise.

The body of the magpie is rather short and round, but with the addition of the tail measures about eighteen inches in length: the stretch of the wings is nearly two feet; the weight of the bird nine ounces. The wings are not calculated for long flights, but are better adapted for ascending and descending. They are broad and rounded, and the flight of the magpie appears to be accomplished with some difficulty. To a superficial observer, the colour of the plumage of this bird appears simply black and white. On a more careful inspection, however, it will be found that various beautiful hues and reflections, green, blue, purple, violet, &c., adorn the wing-feathers and tail, enlivening the sombre plumage, and giving it a rich and glossy appearance. The white on the breast, belly, and inside of the wing-feathers, is remarkably pure. Occasional varieties in colour have sometimes been observed, as in the case of the allied species; the more remarkable are pure white plumage, or white streaked with black, and also pale buff, or cream colour. The female magpie differs from the male in being smaller, and having a shorter tail.

The magpie is common in England, France, Germany, and most other countries of Europe. It has been seen in China, in Kamschatka, in Hudson's Bay, and on the banks of the Mississippi. The fact of its being thus widely dispersed, proclaims the hardy nature of the bird, and the capability which it has of accommodating itself to varieties of climate. In whatever part of the world it is found, the character of the bird is the same. Like the jackdaw, it is renowned for its prying, pilfering disposition, and is the subject of many an anecdote illustrative of thievish propensities. It is also regarded as a bird of good or evil omen, according to the situation or circumstances in which it is observed. The tree in which it nestles is seldom uprooted by the most violent gale of wind, and this circumstance, which arises from the careful choice made by the bird of a thick-branched and firmly-rooted tree, is looked upon as a sign of the mysterious influence of the magpie. The house on which a magpie perches is said to be safe from falling, and this superstition is evidently derived from the former one, though without the same common-sense reason being applicable to it. We have read of a man who was accustomed to go to a particular spring or well for water every day, and was always followed thither by a tame magpie; but it happened that one sultry day in summer, the fountain was almost dried up, and yielded a very scanty supply. The ignorant and superstitious water-carrier, having observed that on this occasion the magpie had hopped on before him instead of following in his usual manner, and that the bird had perched himself near the well, and was looking down into it, and then looking up at his master in a very sagacious manner, immediately conceived the idea that it was through the agency of the magpie, that the water had disappeared, and that the cunning bird was enjoying his trouble and annoyance. Possessed with this idea, he pelted poor Madge with stones, and though he contrived to elude his vengeance

at the time, yet he never forgave the bird for this supposed injury, or ceased to regard him with superstitious fear and dislike. It is common to hear the appearance of magpies spoken of as lucky or unlucky, according as their number is an even or an odd one. If they perch on a beast, it is a sign of evil to the animal, and for this, there is occasionally some reason. Like the raven and the crow, the magpie is very discerning, and quickly ascertains the symptoms of disease and death. Before the fact may have been observed by man, these birds are able to discover signs of decay, and watchfully notice the sickly among the flock. Lambs, and even sheep, are attacked by them, when in a weakly state; and they invariably commence the assault by aiming at the eyes of the animal. But their prey more frequently consists of smaller animals, such as young birds, field-mice, leverets, young poultry, fish, insects, &c. Fruit of all descriptions appears agreeable to them, and when nothing else is within reach, they content themselves with grain. They are loud and clamorous birds, and it is said that they frequently deprive the fowler of his sport, by giving the alarm to all the other birds with their noisy chattering. Though not a bird adapted for high and powerful flights, the magpie is of so restless a character, that it seldom remains still for any length of time, but flies from tree to tree, or skips from one branch to another, shaking its long tail almost incessantly.

No birds display greater industry in the formation of their nests than magpies: they generally select a tree with thick branches, as being best calculated for the protection and concealment of their large nest; and they are often found to choose one which is in the immediate vicinity of a farm-house. The situation chosen by these birds, however, is not always of this description. The tall tangled hedge-row, the fir-grove, or the old well-wooded inclosure, are spoken of by Mr. Knapp in the *Journal of a Naturalist*, as being the places in which it delights to build: a lofty elm or thorn-bush or apple-tree, at some distance from dwellings, are mentioned in the *Ornithologia* as the places most likely to contain its solitary nest: other writers describe the magpie's nesting-place as being the tall hedge, or thick tree, near the cottage, and Rennie tells us from his own observations, that "in the north, almost every farm has its denizen pair of magpies, which incubate in their hereditary nest on the old ash tree, year after year, precisely like an hereditary colony of rooks." In the business of building their nest, the male and female both take their part. They begin this work together in February, placing the nest in such a position that it shall be completely enveloped and surrounded with branches, and, when the leaves appear, quite concealed from sight. In this respect they differ greatly from the rooks, who seem at no pains to hide their progeny, but place their nests in situations where they can be plainly observed from beneath, and where the bickerings constantly going on among the different members of the community in the vicinity of the nests, often afford amusement to those who watch their proceedings.

The magpie's nest is very large; for although the diameter of the inside of the nest does not exceed six inches, it is upwards of two feet on the outside. It is made of small branches, interlaced together, and having at the bottom a matting of soft flexible roots. The twigs are continued over the top of the nest as a sort of dome, but this dome seems rather a protection from enemies, than a defence against the weather. The only opening is at the side, and the distance from this opening to the central hollow of the nest where the eggs are deposited is considerable, so that the female in the process of incubation has room for her long tail. The order in which the construction of the nest is carried on, is said to be this: first the hawthorn branches which are to compose the body of the nest are arranged in their proper order; then a lining of fibrous roots and long

grass is laid in, and afterwards a smooth plastering of mud and clay. After the nest is so far completed, and made firm and commodious, the canopy which is to defend it above, is added. The sharpest thorns are chosen for this purpose and woven together in such a manner as to deny all entrance except at the door. So carefully and patiently do these birds provide all that is in their power for the safety and well-being of their young!

The Reverend John Hall gives a remarkable instance of a low situation chosen by magpies for the construction of their nest.

On the road between Huntly and Portsoy, he says, I observed two magpies hopping round a gooseberry bush, in a small garden, near a poor-looking house, in a peculiar manner, and flying out and into the bush. I stepped aside to see what they were doing, and found, from the poor man and his wife, that these magpies, several succeeding years, had built their nest and brought up their young in this bush, and that foxes, cats, hawks, &c., might not interrupt them, they had barricaded, not only their nest, but had encircled the bush with briars and thorns, in a formidable manner, nay, so completely, that it would have cost a fox, cunning as he is, some days' labour to get into the nest. The materials in the inside of the nest were soft and warm, but all on the outside so rough, so strong, and firmly entwined with the bush, that without a hedge-knife, hatch-bill, or something of the kind, even a man could not, without much pain and trouble, get at their young, for from the outside to the inside of the nest extended as long as my arm. The magpies had been faithful to one another for several summers, and drove off their young as well as every one else that attempted to take possession of the nest. This they carefully repaired and fortified in the spring, with strong rough prickly sticks, that they sometimes brought to it by uniting their force, one at each end, pulling it along when they were not able to lift it from the ground.

The industrious and sagacious habits of the magpie are well illustrated by the above anecdote, and we may here observe, that if the birds be disturbed during the building of a nest, or if the nest be destroyed immediately on its completion, they do not enter upon the construction of another, (which, indeed, would be a wearisome undertaking, if we are to believe the account which says, that they are occupied two months in forming their nest,) but easily content themselves with an old nest of their own species, or the vacated nest of a crow, which they repair, and render available for their purpose.

Magpies have in general only one brood in the year, but, if their young be destroyed, they sometimes have a second, or even a third brood. The number of eggs is usually six or seven, of a yellowish-white colour, spotted with brown and grey. The male and female sit alternately for about fourteen days, when the young ones are hatched, and become the objects of their parents' unceasing care and attention for a considerable time. When first hatched they are blind, and continue so for several days. In supplying the wants of their young, magpies are very much addicted to plundering the nests of other birds of their eggs.

Advantage is sometimes taken of this circumstance to worry the poor magpie, especially when her nest is near a dwelling, and has attracted the attention of school-boys. An egg is emptied of its contents by blowing, and bird-lime is introduced to fill the vacancy; the egg is then laid in some place where it is sure to attract the notice of the bird; and poor "Madge" soon approaches, cautiously hopping in various directions to see that all is safe. She then advances to the egg, and dashes her bill into it, in her usual manner, to convey it away to her brood; but as the shell is already broken, the bill penetrates very deep, and the shell is forced up towards the eyes, where adhering, by reason of the bird-lime, it forms a complete blind, and prevents the bird from seeing her way. She takes flight however, and knocks herself against the twigs and branches of trees, in a ridiculous manner, before she can disengage herself from the egg-shell. This foolish sport must be the occasion

of much pain and inconvenience to the poor bird, as well as to her young, who are deprived of her care while she is labouring with her annoyance.

The councils which magpies appear to hold together, at particular seasons, commonly called "folknotes," are associated in the minds of many with superstitious and ominous notions. The innocent objects of terror, while meeting together most probably for the purpose of choosing mates, are supposed to be conspiring and clubbing their wits, for the weal or woe of the inhabitants of the neighbouring village. If they are of an even number and carry on their cheerful, noisy chatter, it is supposed to betoken good to old and young—but if there is an odd magpie perched apart from the rest, silent, and disconsolate, the reverse of this is apprehended, and mischievous consequences are inevitably expected. The sudden silence which sometimes pervades a folknote, or assemblage of magpies, is owing to their perception of the approach of a hawk or falcon. All their lively hoppings and chatterings are immediately at an end, and they remain motionless on the ground, as if all their faculties were absorbed in apprehension of their danger. When bushes are immediately at hand they creep into them for shelter from their enemy; and where large hawks are frequently seen, it has been observed that the magpies uniformly select some spot for their place or rendezvous, which is closely surrounded by broom, or furze, or low shrubs of some description, to which they may betake themselves.



THE MAGPIE.

CREDULITY is a far greater source of error than superstition, for the latter must be always more limited in its influence, and can exist only, to any considerable extent, in the most ignorant portions of society, whereas the former diffuses itself through the minds of all classes, by which rank and dignity are degraded, its valuable labours confounded with the vain pretensions of empiricism, and ignorance is enabled to claim for itself the prescriptive right of delivering oracles, amidst all the triumphs of truth and the progress of philosophy. Credulity has been justly defined, *belief without reason*, while scepticism, its opposite, is *reason without belief*, and the natural and invariable consequence of credulity; for it may be observed that men who believe without reason are succeeded by others whom no reasoning can convince.—PARIS.

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TURKEY AND THE TURKISH PROVINCES.



THE SULIOT HILLS.

THE SULIOT HILLS,

ALBANIA.

In a former article we gave a brief illustration of the wretched system which prevails in the government of Turkey, in regard to the appointment and subsequent conduct of the Pachas; and followed up our remarks by an account of the Pachalic of Joannina, in its topographical and commercial features. As it is our intention, to present, from time to time, such sketches as will illustrate Turkey and the Turks in their most interesting point of view, we will avail ourselves of the present opportunity to give an account of the *Suliot*s, a brave but persecuted band of men, who, living under the Pacha of Joannina, may be deemed subjects of the Turkish Empire. A description of the small district known as the Suliot Hills will be necessary to a due appreciation of the history of the tribe.

At a distance of a few miles south-west from the city of Joannina are the Suliot Hills, among which four villages, named Suli, Avarico, Kiaffa, and Samoniva, are the chief seats of this tribe; but as circumstances, which we shall detail in the next paper, have made sad changes in the condition of the Suliot;s; we will describe their home and their customs as they existed a few years ago. The four villages were situated on a plain elevated 2000

feet above the neighbouring river, Acheron; with a perpendicular cliff descending to the river on one side, and a chain of lofty mountains on the other. From the banks of the river, a winding and intricate path led up to the villages; and this path was at intervals commanded by strong forts, so that the Suliot plain formed one of the most inaccessible spots in Europe. Here the Suliot;s dwelt, and cherished that love of liberty which so often distinguishes mountaineers. Among these men were seen some of the finest of human forms; and their continual exposure to sun and wind had given to their complexion a swarthy tint, not unsuited to our ideas of a brave and vigorous people. When they left their villages on warlike expeditions, they took no tents with them; they slept on their own capotes, or cloaks, and had the sky for a canopy. The greater part of them were almost born soldiers, for they wore arms from a very early age; and their bravery was so well known and appreciated, that a real Suliot was regarded by his neighbours in somewhat the same light as the ancient Spartans were by the rest of the Greeks.

The Suliot;s were Christians belonging to the Greek church, the same faith to which the Russians belong; and this circumstance has led to much correspondence and treaty between the Greeks and the Russians, during the struggle of the former to shake off the Turkish

yoke. The Suliots, when their little republic was still entire, had no written laws; but many customs, handed down from time immemorial, served to regulate their conduct. The date of their establishment among these hills is placed by tradition in the 17th century, when some goat and swine herds, having led their animals to feed upon the heights of Kiaffa, were struck with the eligibility of the situation, and occupied it with their families. It is, however, the opinion of Mr. Hughes, that the mountains afforded refuge to some of those Albanians who fled from Turkish despotism after the death of Scanderbeg.

By whatever mode the district became peopled, the villages themselves were exceedingly simple: the houses were low, and rudely built, and no attempts were anywhere made at display. The life which the men led, when not actually engaged at war, was simple and hardy; and to aid in forming the character of the men to bravery and fearlessness, the women had precedence at the wells and fountains according to the character which their husbands bore for bravery; and if a woman happened to be married to a man of a weak and cowardly mind, she was obliged to stand at the well's side till the rest of the women had filled their pitchers. The effect of this custom was, that the men could more easily brave the enemy than the reproaches which were poured on them by their wives, if the latter had been subject to this ignominious treatment. The females were held in the highest esteem; and a curious law is mentioned by travellers, that no man was allowed, under the severest penalties, to interfere in the women's quarrels, lest by accident a woman might be killed; and that whoever committed murder on a woman was put to death with the execrations of his fellow men, not only as a murderer, but as a patricide.

Although the chief seat of this tribe was in the four villages which we have mentioned, yet there were numerous others gradually incorporated with one another. A century or two back, the tribe had attained sufficient importance to draw the attention of the neighbouring chiefs, and to carry on war with the Beys of Paramithia and Margariti, and with the Pachas of Joannina and Arta. The almost inaccessible and impregnable nature of their position effectually shielded them from attack from without, while the boldness and bravery of the mountaineers enabled them to take numerous possessions from the hands of their opponents, and gradually to extend their little republic. At one time it consisted of sixty-six villages, containing several thousand inhabitants. These inhabitants were divided into sections called *faras*, each *fara* containing a certain number of families, commanded by a chief or captain:—thus, just previous to Ali Pacha's war with the Suliots, the village of Suli, (from which they derived their appellation,) contained nineteen *faras*, and four hundred and twenty-five families: Kiaffa, four *faras*, and sixty families; Avatico, three *faras*, and fifty-five families; and Samoniva, three *faras*, and thirty families. The sixty-six villages of which we have spoken were considered as tributary or conquered possessions, and the inhabitants were not admitted to the rights of citizenship. Of the subordination in which they were held by the Suliots of the four federal villages, an example was given in the following incident:—on one occasion, the inhabitants of the four towns having increased beyond the means of subsistence, a certain number of them was quartered or colonized in seven of the tributary villages, where they were exempted from paying either forced contributions, or the regular tribute which the other inhabitants of those villages paid, and which amounted to one tenth of all produce.

In the few and simple judicial matters which had to engage their attention, the judge was either the captain of the *fara* in which the matter in dispute occurred; or in more important affairs, a council of chiefs assembled

from all the four towns at Suli, and decided the matter. But warlike deeds were the chief employment of the tribe, as they are of most infant states. The Suliots had a band of one thousand chosen troops, called *palikars*, all citizens of the four towns; as well as fifteen hundred troops levied from the dependent villages. Their mode of warfare was such as is customary among a people but little advanced in the arts of civilized life; that is, it consisted more in skirmishes than in pitched battles—in daring expeditions, sudden attacks, and quick retreats. It is said, that they had a rather extraordinary custom in their wars, of sending out a small body of troops against a superior force; and, on the contrary, a large body against a small one: in the first instance, they intimidated their foes, who knew they were prepared to conquer or to perish on the field of battle; in the latter, they were able to secure more prisoners, and gain a larger ransom for the purchase of arms and ammunition.

Martial exercises formed the chief education of this rude but vigorous people. Their amusements, the dance and the song, were calculated, the one to contribute to the increase of their bodily strength, and the latter to warm their national enthusiasm, which was one of the chief traits in their character. The Suliots women contributed very powerfully to the maintenance of a martial spirit among the men, not only by the custom at the wells and fountains, to which we before alluded, but also by their readiness to share all the hardships and perils of war with their husbands: troops of women attended upon the soldiers, to carry provisions and ammunition, to assist the wounded, and even in some cases to engage in the battles:—these characteristics strongly remind us of the state of manners and customs among the ancient Spartans.

This description of the Suliots villages,—the institutions which bound the inhabitants into a fraternity, and the manners and customs of the two sexes,—must be considered as applying to a period forty or fifty years ago. Since then sad reverses have occurred: families have been rooted out after a desperate resistance; villages have been burned to the ground; and the Suliots have been for forty years a scattered people. The circumstances which led to these results will be briefly detailed in the next article on this subject.

THE BOAT LAUNCH.

THE bark that is launched on the bosom of Ocean,
Holds gloriously onward her queenly career;
She dreads not the billow nor tempest's commotion,
The storm, though it lash her, brings with it no fear.

But soon—soon she finds that her vaunted defiance,
Her pride and her might alike are but vain,
That her strength in the trial affords no reliance,
Her efforts are nought when opposed to the main.

And thus 'tis in life, when youth and its gladness
Spread visions of happiness full in our view;
We fear not, we think not, that sorrow and sadness
Must tinge all these pleasures a different hue.

That the storm of affliction and the dark hour of anguish
Shall come and these phantoms must vanish away;
That the brightest and best must speedily languish,
The fairest of all can but boast of *to-day!*

How fondly the heart then should look for the morrow,
And wait for that time, when its troubles shall cease;
When tho' shattered and tossed it shall end all its sorrow,
And find in the Heavens its haven of peace.

Youghal, Ireland.

S. H.

If you are often unquiet, and too nearly touched by the cross accidents of life, your devotion is not of the right standard; there is too much alloy in it. That which is right and un-mixed taketh away the sting of everything that would trouble you. It is like a healing balm, that extinguisheth the sharpness of the blood. So this softeneth and dissolveth the anguish of the mind.—*The Lady's New Year's Gift.*

USE OF TEA IN CHINA.

We possess abundant information upon the culture and preparation of the tea-plant, and upon the period when it was first employed in Europe, but very little as to when it came into general use in China itself. M. Klaproth has contributed some interesting particulars upon this point to the *Journal Asiatique*. He says that the Chinese works convey but little information upon the subject. The practice of taking tea as a beverage, however, would seem to have commenced during the Tsin dynasty, and Wang-mung, a minister of public works, at the latter part of the fourth century, brought it much into vogue, being himself a great consumer, and treating all his visitors liberally with it. The historian of the Suy dynasty states that the Emperor Wass-te, in the latter part of his reign, was much tormented by severe pains in the head, for which he was recommended by a Buddhist priest to drink an infusion of the leaves of the plant termed *ming* or *cha*, (tea,) which effected a cure. The character was so written as to be pronounced anciently either as *cha* or *too*, and it is conjectured that the European word tea is the Malay *teeh*, which is probably derived from the old Chinese *too*. The Japanese have a tradition which ascribes a miraculous origin to the tea-plant. This states that a most pious prince, named Darma, came from India to China, in the beginning of the sixth century, and endeavoured to excite a higher degree of religious feeling among the inhabitants than then existed. He exposed himself, as an example, to severe privations and mortifications, living in the open air, and spending the whole night in prayer and exhortation. After continuing this course of discipline for some years, he happened one night, overcome by fatigue, to fall asleep. Horror-struck at this accidental violation of a vow, by which he had bound himself to refrain from such indulgence, he cut off, as a means of expiating the offence, and preventing its repetition, his eyelids, and buried them. Next day he found sprouting, from the spot where he had interred them, a plant hitherto unknown. He tasted some of the leaves, which enlivened him wonderfully, and restored to him the vigour he had long lost. He invited his followers to partake of so excellent an herb, and its reputation soon spread all over China. Kämpfer has presented to the world a copy of the portrait of this saint, who enjoys a great celebrity, both in Japan and China.

In 780, during the Tang dynasty, a duty of ten per cent. was levied upon all tea brought from beyond the mountains where it grew. In the reign of Moor-tsang, (A. D. 824,) the government being short of money, this duty was raised to the enormous sum of fifty per cent. When it was proposed to Ta-tsoo, the founder of the Sung dynasty, to raise the price of tea, as a means of supplying his exchequer, he replied benevolently, "Tea is an excellent article, which must not be rendered dearer, or the poor will be oppressed." In the reign of Jin-tsung, (1023-1063,) large factories were established, and at that period two separate kinds were prepared, viz., *peen-cha*, in which the leaves were dried by the fire, and formed into a solid mass; and *san-cha*, wherein they were dried and powdered. In the reign of Shin-tsung, (1068-86,) Le-Khe proceeded to the country of the Shoo, to procure tea, and then bartered it in various cities for horses. Extensive transactions of the same kind were carried on under the Sung with the Tibetan nations on the frontiers. Under the Ming dynasty, horses, &c., were also exchanged for the commodity with the Mongols.

The use of tea was introduced into Tibet in the ninth century, when Chang-loo was sent there as ambassador. The Tibetans, observing the preparation of this beverage in his tent, inquired concerning its nature. "It is," said Chang-loo, "a drink which relieves thirst and dissipates sorrow." The Tibetans naturally desiring to become possessed of so valuable a plant, he distributed

several packets among them. Although the use of tea was known in Japan in 810, the plant itself was not introduced until 815, when two Buddhist priests, from the monastery of Toga-no-o, brought some young shoots from China. These thrived, and the use of tea soon became general in Japan.

Tea is the common beverage of the Chinese, of which they are passionately fond, believing that it unites to its agreeable qualities valuable medicinal properties. They always present it to their guests. Every one takes it three times, but some even ten times, daily. It is said by most authors to have proved a peculiarly beneficial gift to China, as tending to correct, in some measure, the nature of the water of that country, which is both unwholesome and nauseous. The herb is usually kept a year before employing it, as when used too fresh it produces a narcotic or stupefying effect. The Chinese pour boiling water over the tea, and leave it to "stand," or infuse, as we do, but they drink it without any admixture of sugar or milk, some of them, however, holding a small-piece of sugar-candy in the mouth the while. The common people use a very coarse tea, and as its virtues are not very volatile, or easily extracted by infusion, they boil it for some time. A vessel filled with water is hung over the fire betimes, in the morning, into which the tea, enclosed in a bag, or small basket, is placed. When sufficiently boiled, they draw it off, as their common and frequent beverage during the day. The imperial, or best tea, is preserved in porcelain vases, or in leaden or tin canisters, covered with bamboo mats. The commoner tea is kept in narrow-mouthed earthen pots, and the coarsest kind, (the flavour of which is not easily injured,) is packed up in baskets of straw.

The Japanese use powdered tea, diluted with water to the consistence of thin soup. The box containing the powder is produced, and the cups are filled with hot water: a quantity of powder is taken upon the point of a knife, and thrown into the cup, and stirred briskly round. It is sipped while warm. Du Halde says the same mode is followed in some of the Chinese provinces.

J. C.

THE SALT MOUNTAINS OF ISCHIL,
IN UPPER AUSTRIA.

We landed at Ebens-see, a small village at the southern end of the Gmunden Lake, and in reply to our inquiries, they informed us that the salt was manufactured at this place, but that the salt-mines were several miles in the interior. I had supposed that the salt was dug in a solid state from the mountain, and was therefore surprised when they took us to a large building, in which was a sheet-iron pan, about sixty feet in diameter, and two in depth, with a brisk fire kept up beneath. Water was flowing into it from two large cocks, and workmen were employed in shovelling salt out from the bottom on to a draining board, from which it was afterwards removed to small cone-shaped vessels, with holes at the bottom for further draining. In these it was suffered to remain until it became solid, when it was turned out, and the moist end of the cone being cut off, it was ready for transportation. Each lump contained about thirty-three pounds.

From Ebens-see we followed the windings of a deep valley for nine miles, when we arrived at Ischil, a pretty little village, frequented by valetudinarians for the benefit of its salt baths. These are in a new and very handsome edifice, with a Grecian colonnade in front, and an inscription, *In sale et sole omnia existunt*. The salt mountains are about three miles to the southward of Ischil. They form part of a high and broken range extending eastward and westward, and in the exterior are not to be distinguished from other parts of the range, the vegetation on every part being equally luxuriant. About half-way to the summit, we arrived at the residence of

the superintendent, and having here obtained permission to enter the mines, were conducted to a house a few hundred yards below, and provided with suitable dresses. Here is one of the entrances, of which there are twelve in all: they informed us that salt is found in any part of the mountain when they take the trouble of digging for it. Our course, after entering, was along a narrow horizontal gallery, openings occurring at intervals, along which we heard the dashing of water: at our feet also were wooden pipes for water, with branches running off into the various lateral galleries. Having proceeded a quarter of a mile, we came to a halt just where some bare logs rose in a slanting direction, from a cavity whose depth we could not ascertain. A guide straddled this log, and directing me to do the same, and hold on by him, he raised his feet, and away we went, sliding, or rather darting down, on the smooth log, and, excepting the glimmering light from our lantern, enveloped in total darkness. The guide kept himself upright, and, holding fast to him, I presently found myself deposited in safety on a heap of soft earth, and turned to enjoy the equal astonishment and fright of my companions.

We were now at the bottom of a chamber of irregular shape, but averaging about one hundred and fifty feet in diameter, and from four to ten feet in height; the ceiling in some parts being supported by blocks of sulphate of lime, piled up in the form of rude columns. The *gangue* of the salt, if the word may be used, is composed chiefly of a clayey earth, mixed up with irregular blocks of sulphate of lime: the salt is mingled with these, usually in strata of from six inches to two feet in thickness, forming, however, every variety, shape, and direction. It was generally of a reddish colour, and though mixed with impurities, very strong. The strata were very distinct on the ceiling of the chamber, which looked not unlike marbled paper, the salt itself presenting a great variety of colours, and its *gangue* scarcely a smaller number. The surface of the salt presented to us was rough and honey-combed.

We now for the first time learnt the mining process, which certainly is very simple, and sufficiently economical. In the first place, a small chamber is formed by the pick-axe and shovel, and arrangements having been made, by means of pipes, for conducting water to and from it, the outlet is stopped up, and the chamber is filled with fresh water, of which the mountain-streams furnish them with abundance. In a few weeks the water in the chamber is saturated with salt: it is then let out, and conducted by aqueducts to Ebens-see, a distance of twelve miles, where the water is evaporated artificially, and the salt is shipped for the store-house at Gmunden. When the chamber has become sufficiently dry, the workmen descend into it, clear it from the stones and dirt which have been loosened by the water, and fallen from the ceiling, and the chamber is then ready for another flooding. The large chamber we were in, as the guides informed us, requires one month for the process of filling, and fifteen days more for completing the saturation. It holds 80,000 German emers; is filled four times a year, and has been in use thirty years: one hundred pounds of water furnish twenty-six and three-fourths pounds of salt. There are thirty-four chambers in all, in which two hundred men are employed, working night and day, six hours at a time. They work four days in a week, and get forty-eight cents per week. When the chambers are approaching, so as to threaten a breach from one into the other, the further encroachment of the water in that direction is prevented by a compound formed by the clay and pulverized rock, which is beaten against the wall, so as to form an effectual barrier. At intervals, in the descent of the mountain, are three reservoirs, into which the water is successively discharged, I believe for the purpose of breaking the violence of the descent.

There is a chain of six or seven very beautiful lakes in this neighbourhood, two of which we visited, after leaving Ischil, and on the 29th August stopped for a short rest at Salzburg. Our consul at Vienna had described, in glowing terms, the beautiful scenery at Berchtsgaden, a short day's journey to the south of Salzburg; and as it had also a salt mountain, I determined to pay it a visit. There are also salt-mines at Hallein, south from Salzburg, which I did not examine, but which I was informed are worked, and are about as productive as those of Ischil.

Berchtsgaden is now comprehended in the kingdom of Bavaria. The royal family were there on a visit at this time: they had just been inspecting the mines, and I found many parts of the interior ornamented in a fanciful manner, the richest crystals of the salt and gypsum having been collected and disposed so as to form grottoes, devices, &c. Some of the former were large and perfectly transparent, but a deep red or brown is the prevailing colour. This mine appeared to me to be richer than that of Ischil. In some parts the salt forms regular solid strata, several feet in thickness, and so free from foreign matter as to be fit for use without any purifying process. In these places it is mixed by the aid of gunpowder; and the guides, after placing us in secure places, allowed us to witness two or three explosions. Generally, however, the mine differs very little from that of Ischil. We entered by a horizontal gallery, a quarter of a mile in length, and then came to branching galleries, along which pipes were conducted, for filling the chambers with water, or emptying them. One hundred and ninety men are employed, and the yearly product, I was told, is 8134 tons.—SILLIMAN'S *Journal*.

PRAYER.

Go when the morning shineth,
Go when the moon is bright;
Go when the eve declineth,
Go in the hush of night.
Go with pure mind and feeling,
Fling earthly thoughts away;
And in thy chamber kneeling,
Do thou in secret pray.
Remember all who love thee,
All who are loved by thee;
Pray too for those who hate thee.
If any such there be.
Then for thyself in meekness
A blessing humbly claim;
For strength to aid thy weakness,
In thy Redeemer's name.
Through Him thy secret breathing,
Shall reach the realms above,
As sacred incense wreathing
Where all is Truth and love.

ANON.—*Ulster Times*.

INNUMERABLE are the diseases that arise from our busy fancy. We are all subject to the tyrannic sway of imagination's empire. Under this mighty influence man displays energies which lead him boldly to dare danger and complicated sufferings, or he is reduced to the most degraded state of miserable despondency. These diseases are the more fearful since they rarely yield to physical aid, and it is seldom that moral influence is sufficiently persuasive to combat their inveteracy. It is idle to tell the timid hypochondriac that he is not ill. The mere circumstance of his believing himself sick constitutes a serious disorder. His constant apprehensions derange his functions, until an organic affection arises. The patient who fancies that he labours under an affection of the heart disturbs the circulation, which is ever influenced by our moral emotions, till at last this disturbance occasions the very malady which he dreaded. These aberrations of the mind arise from various causes,—mental emotions, constitution, climate, diet, hereditary disposition, education. Tertullian called Philosophy and Medicine twin sisters: both may become powerful agents in controlling our imagination.—MILLINGEN.

ON CHESS. III.



THE KING.



THE QUEEN.



THE BISHOP.



THE KNIGHT.

ANCIENT CHESS-MEN DISCOVERED IN THE ISLE OF LEWIS.

IN the year 1831 an announcement made in the Scottish newspapers excited the attention of antiquaries to a curious discovery made in Scotland in the Isle of Lewis on the sea-shore, in the parish of Uig, of a considerable number of chess-men of excellent workmanship. They were discovered by a peasant of the island, whilst digging on a sand-bank, near to a ruin of some note, and having been purchased by the Trustees of the British Museum, these figures now form part of our national collection of antiquities, together with a bone or ivory fibula, and fourteen table-men, or draught-men, which were found with them. The chess-men are sixty-seven in number, forming the materials of six or more sets, but the pieces are of such various sizes, that it is difficult to select two sets which correspond exactly. Of the total number, six are kings, five queens, thirteen bishops, fourteen knights, ten warders, and nineteen pawns. The largest king is $4\frac{1}{2}$ inches high, and $6\frac{1}{2}$ inches in circumference; the largest queen $3\frac{1}{2}$ inches in height, and $5\frac{1}{2}$ in circumference; the largest bishop, knight and warder, (the latter holding the place of the rook or castle,) are respectively 5 inches in height; and the largest pawn $2\frac{3}{4}$ inches. For the sake of distinction, part of these pieces were originally stained of a dark red or beet-root colour, but from the action of salt-water for many centuries, the colour is in most cases nearly discharged.

There is little variation in the form or attitude of the **KINGS**. They are all represented as old men with large spade-shaped beards, moustaches, and hair falling in plaits over their shoulders. They have on their heads low quatrefoil crowns, either plain or ornamented with a border, and sit on square-formed chairs, having high backs richly carved with various scrolls, figures of animals, intersecting arches, and tracery-work in the best style of art of the twelfth century, as seen on monuments, and in manuscripts. Their dress consists of an upper and an under robe, the former of which, that is, the mantle or *clamys*, is thrown in folds over each arm, and left open on the right side as high as the shoulder, (where it is fastened by a clasp,) for the purpose of leaving the arm free. Each of the figures holds a sword, with both hands across his knees, as though in the act of drawing it, according to the old mode assigned to royal personages. The swords are broad and short; the scabbards are marked either with a simple longitudinal line, or with lines placed diagonally. In the different figures, there are some slight variations, and in one the hair is not plaited, but spreads over the back in six long wreaths: the ornaments of the chains are also diversified; one of them exhibits an intersection of

semicircular arches, as seen in some of our early Norman churches.

The **QUEENS**, who are also crowned, are represented sitting in chairs, ornamented in a style similar to those of the kings. From the back of the head of each hangs a species of hood, which spreads over the shoulders, and accords with what was universally worn by ladies of rank in the middle ages; as is proved by manuscripts and monuments of various nations. From the shoulders to the feet hangs a long mantle, which shows in front an under garment or gown. The sleeves of this, like those of the Saxons and Norman-French, are short, with a worked border; and from the elbows to the wrists are a series of plaits, resembling bands, which probably were worn round the arm. Most of these figures are represented in a contemplative posture, the head resting upon the right arm, which is supported by the left. One of them (represented in the cut) holds a curiously-shaped drinking-horn in the left hand. In the different figures there are some variations in the forms of the crowns and hoods: and in one a striped petticoat and the feet are visible, which are covered in other instances: the chair-back of the latter piece furnishes also another example of round and intersecting arches.

The **BISHOPS**. Five of these pieces are represented in ornamented chairs, and the remaining eight in a standing position. All the sitting figures, and four of the standing ones, wear the chasuble, dalmatic, stole, and tunic, of the form anciently prescribed, and corresponding with representations of much greater antiquity; the remainder have a cope instead of a chasuble, but the stole and dalmatic are omitted. The mitres are very low, and in some instances quite plain, but have the double band, or *infulæ*, attached behind. The hair is cut short round the head. They hold a crosier with one, or with both hands: and in the former instances the other hand holds a book, or is raised in the attitude of benediction: On the backs of the chasuble and stole are various crosses or ornaments. In the details both of the habits and other work, there are numerous minute variations.

The **KNIGHTS** are full-length figures mounted on horseback, and are probably the most interesting portion of the whole. They are habited in long coats or gambesons, which descend in folds to the feet; the sleeves have a cuff or border at the wrist. The leg has apparently a covering of some sort down to the ankle, where it is met with a species of half-boot without spur. Their helmets, with a few exceptions, are of a conical shape, and mostly with nasals and round flaps to protect the nose, ears, and neck. All the figures have moustaches and large round beards, except one, which has the beard separated into three forks. A long kite-formed

shield, suspended from the neck, hangs on the left side of each, ornamented with various devices, approaching in some instances very closely to heraldic distinctions. Beneath the shield appears the sword, which is fastened round the waist by a belt, and in the right hand each knight carries a massive spear. The horses are caparisoned in high saddles, plain or ornamented; saddle-cloths curiously bordered; stirrups and bridles; the mane is cut short, and the hair suffered to grow down on the forehead. On one side of the shields is a cross, bearing a lozenge, plain; on another is an ornamented lozenge; and the remainder are variously indented with crosses and other ornaments.

It is, I think, conclusive that mankind, from a very early period, have their minds prepared for supernatural occurrences by the consciousness of the existence of a spiritual world. But imagination is apt to intrude its explanations and inferences, founded on inadequate evidence. Sometimes our violent and inordinate passions, originating in sorrow for our friends, remorse for our crimes, our eagerness of patriotism, or our deep sense of devotion;—these or other violent excitements of a moral character, in the visions of the night, or the rapt ecstasy of the day, persuade us that we witness with our eyes and ears an actual instance of that supernatural communication, the possibility of which cannot be denied. At other times the corporeal organs impose upon the mind, while the eye and the ear, diseased, deranged, or misled, convey false impressions to the patient. Very often both the mental delusion and the physical deception exist at the same time; and men's belief of the phenomena presented to them, however erroneously, by the senses, is the firmer and more readily granted, that the physical impressions corresponded with the mental excitement.—SIR WALTER SCOTT.

THERE existed among the ancient Egyptians a singular custom of introducing, during or after their feasts, either a skeleton or a wooden image in the form of a human being, sometimes erect, and sometimes extended on a bier, as a solemn warning of the brevity of life, and the vanity of all sublunary enjoyments. The discovery of a skeleton-figure in the banquet-room after the close of a brilliant entertainment is thus described by one who is supposed to have been a stranger-guest at one of those olden feasts.

There was a female who particularly attracted my attention, on whose head was a chaplet of dark-coloured flowers, and who sat veiled and silent during the whole of the banquet. She took no share, I observed, in what was passing around; the viands and the wine went by her untouched; nor did a word that was spoken seem addressed to her ear. This abstraction from a scene so sparkling with gaiety, though apparently unnoticed by any one but myself, struck me as mysterious and strange. I inquired of my fair neighbour the cause of it, but she looked grave and was silent. . . . I returned to the banquet-room, which was now dim and solitary, except that there, to my astonishment, still sat that silent figure, which had awakened my curiosity so strangely during the night. A vague feeling of awe came over me as I now slowly approached it. Here was no motion, no sound of breathing in that form, not a leaf of the dark chaplet on its brow stirred. By the light of a dying lamp which stood before the figure, I raised, with a hesitating hand, the veil, and saw—what my fancy had already anticipated—that the shape beneath was lifeless, was a skeleton! . . .

This custom among the Egyptians, of placing a mummy, or skeleton, at the banquet-table, had been for some time disused, except at particular ceremonies; and even on such occasions, it had been the practice of the luxurious Alexandrians to disguise this memorial of mortality in the manner just described. But to me, who was wholly unprepared for such a spectacle, it gave a shock from which my imagination did not speedily recover. This silent and ghastly witness of mirth seemed to embody, as it were, the shadow in my own heart. The features of the grave were now stamped on the idea that haunted me, and this picture of what *I was to be* mingled itself with the sunniest aspect of what *I was*.—FLINT.

To think too meanly of mankind is dangerous to our reverence of virtue.

A GIPSY VILLAGE.

AFTER advancing some little way through the defile, our attention was attracted by a tremendous uproar, and on turning a curve of the road, we came at once upon a gipsy village, presenting a scene not easily paralleled. Bears were bellowing, monkeys and children screaming, dogs barking, drums beating, pipers playing, women scolding, men fighting, and smiths and tinkers hammering,—altogether forming a *charivari*, which, fortunately for men's ears, does not often assail them. Nor was the appearance of these people less remarkable than their noise. The majority of the children were entirely naked, and their parents nearly so, having no covering but a pair of wide trousers, those of the women differing but little in form and colour from those of the men. The whole, whether basking in the sun, or at work, were incessantly smoking from little short pipes made of box-wood. In short, they exhibited a picture of human degradation and misery, such as I have not often witnessed, even among the most savage tribes. Their dwellings consisted merely of scattered tents, and holes burrowed into the sides of the soft limestone rocks that towered above them. Their habits appeared filthy in the extreme, for besides the stench arising from the numerous animals with whom they lived in common, the immense volumes of tobacco-smoke, and the smell of onions and garlic, formed an odour altogether so unavoury, that we heartily wished ourselves out of its vicinity.

On hearing the sound of our horses, the whole motley multitude started on their legs and rushed towards us; when pipers, drummers, fiddlers, dancing dogs and bears, tumbling monkeys and naked children, young fortune-tellers and old witches,—all performed before us in their respective characters. A few handfuls of kopecks, for which they most reverently kissed the hem of our garments, and wished us a happy journey, delivered us from their importunities.

In the midst of all this wretchedness, I could not help remarking the well-formed proportions of the men,—their fiery eyes and animated countenances. Nor were the fine features of the women—the large, full, dark eye, and jet black hair, hanging down in natural curls on their shoulders—less admirable; and although, from continual exposure to the weather, they were nearly as dark as Indians, yet those still young were really beautiful. But this distinction does not long characterize the women of the East, particularly this migratory people, for those more advanced in life were the veriest personifications of what you might imagine witches to be,—haggard, withered, and wrinkled.—SPENCER'S *Travels in Circassia, Krim Tartary, &c.*

RURAL SPORTS FOR THE MONTHS.

JANUARY.

THE most ancient of all bodily exercises were probably field sports. In the early ages of the world, man was compelled, as a necessary matter of self-defence, to maintain a continual warfare with such of the animals as were in a state of hostility to him; nor could he preserve the fruits of his industry, the crops he had planted, the flocks and herds he had reared, without such continued warfare.

This practice, at first urged on him by imperious necessity, was soon found to have its advantages. The flesh of many wild animals was found to supply wholesome food, and the skins of nearly all were valued as clothing, so that self-interest would not fail to prompt him to the pursuit of such animals as best supplied his wants. His reason and ingenuity were now employed to devise the most successful methods of entrapping his prey. The rude pit-fall, the trap of simple form, the noose or snare, the club, the javelin, and the spear, the simple sling, the various kinds of bow, gradually succeeded each other, until the comparatively recent period when the invention of fire-arms threw all other weapons into the shade, and presented a more certain and death-insuring method of procuring game.

It is worthy of remark that the destruction of animals, during the early age of the world, does not appear to have been followed as a *pastime*. It was a matter of necessity, and in so far as it supplied mankind with food, was in accordance with the Divine command.

After the deluge, man was encouraged to take and eat of the animals around him: "Every moving thing that liveth shall be meat for you, even as the green herb have I given you all things." (Gen. ix. 3.)

On Noah, and in him on all mankind,
The charter was conferred, by which we hold
The flesh of animals in fee, and claim
O'er all we feed on power of life and death.
But read the instrument, and mark it well:
The oppression of a tyrannous control
Can find no warrant there.

Among the ancient Greeks and Romans very different opinions prevailed at different times as to the utility of field sports. Xenophon wrote a treatise, enlarging upon the advantages of these exercises, as inuring the body to hardships and privations, and promoting courage, strength, and swiftness. In the time of Sallust, hunting was held in sovereign contempt, and abandoned to slaves. Solon forbade the Athenians to hunt, because it enticed them from more useful pursuits. When the Goths and Vandals over-ran and subjugated the Roman empire, they appropriated the privilege of hunting to their own chiefs and nobles, and ceased to acknowledge the natural right which all men were previously considered to have, of participating in field sports.

It seems likely that the earliest animals subjugated to the use of man were sheep and kine, and that their skins formed his clothing; while the milk derived from them proved an abundant source of nutriment. Yet these highly valuable animals were of no assistance to him in the conquest of other and more ferocious creatures. The exquisite powers of scent and vision, with other remarkable qualities possessed by the dog, seem to have pointed him out at a very early period as man's assistant in the pursuit of wild animals.

It is not our purpose to proceed with the history of the successive appropriation of different animals by man to the objects of the chase; or of the modes by which the capture of animals was facilitated from time to time; far less shall we attempt to show, that, in an age of refinement like ours, when the necessity imposed upon barbarians no longer exists, the enthusiasm with which field sports are followed, and inoffensive creatures preferred for the express purpose of being hunted to death, is worthy the national character for intellectual superiority and generous feeling. Yet, taking advantage of the very general interest which such subjects are wont to excite, we propose to give, in this and the following articles, notices of the sports prevalent during the month, with an especial reference to the natural history of the animals forming the objects of pursuit. It cannot be expected that we should select on all occasions the sport which is the most universally followed at the time we write, for many favourite pastimes of this nature, prevail for several months in succession, and we should, in consequence, be bound to keep to one subject for a corresponding length of time: we shall therefore take such particular sports for description as our attention may be directed to at the time, and as are more or less followed during the month.

In the present cold and bleak season of the year, when some of our field sports are necessarily suspended, there is yet an occupation for the gunner, which is considered to possess peculiar attractions, and which has drawn many a sportsman from his home for weeks together. This is the shooting of *wild-fowl* of various kinds; an occupation fraught with much difficulty, and even danger, and in the pursuit of which, the miseries of cold and hunger, the necessity of traversing half-frozen marshes and ditches, the pelting of storms of hail or snow, are all cheerfully endured by the zealous lover of the sport.

The capture of wild ducks is that of which we shall at present speak, as being the chief branch of the sport. Many of the rivers of our southern shores present, at

their junction with the sea, extensive deposits of soil and of animal matter which are alternately covered and left dry by the tide. The autumnal rains sweep a vast quantity of little animals and animal remains from the upper country, while numerous aquatic animals of a minute kind also resort to the brackish waters of such situations, on account of the warmer temperature which those waters possess over both the sea water, and fresh running streams. Where the soil of the surrounding country is rich, and the descent of the river gradual, these deposits present to the whole race of dabbling birds the grandest attractions. Where the stream comes dashing from a rocky soil, or is very limited in its course, its termination is never found to be an estuary favourable to the birds in question. On looking at the map of England, we shall see that several of our southern rivers are, as it respects the length of their course, and the nature of the country and of the soil they traverse, especially calculated for the resort of wild-fowl. In consequence, the capture of these birds is carried on to a great extent, and in a systematic manner, and the quantity taken is very considerable. The most successful method of catching is by the *decoy*, which is a pond sheltered by reeds, and containing a permanent net in which the birds are entrapped. Tame birds are trained to entice the wild ones, and are called decoy-ducks. Into the details of this mode of bird-catching we cannot now enter. A more hazardous method is pursued by men who partly depend on wild-duck shooting for their subsistence, and also by sportsmen who consider the pleasure rather enhanced than lessened by the difficulties and risks they incur. These pursue their occupation principally in small punts or boats, and are called punt-shooters, or punt-gunners. Sea-fowl usually come down to feed by night in the oozy ground before described. Towards evening, therefore, the fowler runs up his boat into a creek, and lies in patient expectation of his prey. Gilpin, describing the coast of Hampshire and the fowler's employment there, says that the flight of wild ducks as they approach the feeding-place, may be compared to a pack of hounds in full cry, so noisy are they in their language. The gunner listens attentively to ascertain which way they bend their flight, and has perhaps the mortification to find that they have alighted at too great a distance to allow of his getting a shot at them; but if he happens to be more fortunate, and finds them alighting on the plain, to the edge of which he has moored his little boat, he primes both his pieces,—for he generally carries two,—and again endeavours to find out the situation of the birds by listening, the nights favourable to the fowler's sport being exceedingly dark. The birds are silent while feeding, but the motion of such a number as generally feed together is sufficient to produce certain indistinct sounds, by which the fowler is guided where to take aim. He fires at a venture, and immediately takes up the other gun and discharges it where he supposes the affrighted flock to be rising on the wing. This concludes his chances of success for that night, and he has now nothing more to do than to tie to his feet flat pieces of board, called mud-pattens, and, thus protected from sinking in the ooze, to grope about in the dark in quest of his booty, which may consist of many birds, or may be almost nothing. The danger attending this employment is, lest the fowler should get fixed in the mud so as to be unable to extricate himself, and thus get overtaken by the returning tide. The cold is also so severe as to expose the less inured follower of the pursuit, to ill consequences to his health. Even in the day-time, the risk of such expeditions is considerable, as the following anecdote will be sufficient to show:—

Mounted on his mud-pattens, a fowler was once traversing one of these oozy plains in search of ducks, and, being intent only on his game, suddenly found the water, which had been accelerated by some peculiar circumstance

affecting the tide, had made an alarming progress around him, and he found himself completely encircled. In this desperate situation an idea struck him as the only hope of safety. He retired to that part which seemed the highest, from its being yet uncovered by water, and striking the barrel of his long gun deep into the ooze, he resolved to hold fast by it, as well for a support as a security against the waves, and to wait the ebbing of the tide. He had reason to believe a common tide would not have flowed above his middle; but in the midst of his reasoning on the subject, the water had now reached him. It rippled over his feet, it gained his knees, his waist, button after button was swallowed up, until at length it advanced over his shoulders. With a palpitating heart he gave himself up for lost. Still, however, he held fast by his anchor; his eye was eagerly in search of some boat which might accidentally be passing, but none appeared. A head upon the surface of the water, and that sometimes covered by a wave, was no object to be descried from the land, at the distance of half a league; nor could he exert any sounds of distress that could be heard so far. While, as the exigence would allow, he was thus making up his mind to certain destruction, his attention was caught by a new object. He thought he saw the uppermost button of his coat begin to appear. No mariner floating on a wreck could behold approaching succour with greater transport than he felt at this transient view of the button; but the fluctuation of the water was such, and the turn of the tide so slow, that it was yet some time ere he durst venture to assure himself that the button was fairly above the level of the flood. At length a second button appearing at intervals, his sensations may rather be conceived than described, and his joy gave him spirit and strength to support his situation four or five hours longer, until the waters had fully retired.

It might have been imagined that dangers such as these, would cause excursions of this nature to be undertaken by those alone, who get their livelihood by selling wild-ducks; but this is so far from being the case, that we find a practiced sportsman referring with enthusiasm to what he calls his "wild-fowl shooting mania," when he used, after spending many hours of the day on Lewes Levels, and pursuing his sport with an ardour which he confesses himself unable to defend, inasmuch as it risked the health and life of both him and his servant, to return again in the evening to watch the night-flights, and still to carry on his sport. Nay, so fascinating is the pursuit of these birds, that he assures us from his own knowledge, that some persons, in order to enjoy the sport in greater perfection, have fitted up a small sailing smack with sleeping berths, cooking conveniences, suitable attendants, a row boat for creeks, a punt for oozes, two or three water-dogs, &c., and thus equipped have made a coasting voyage half round our island. When we remember the season of the year during which this sport is chiefly practised, viz, from about the middle of October to the end of February, we shall be able to appreciate the extraordinary degree of enthusiasm necessary to carry a man through such an expedition. By a recent Act of Parliament, it is made illegal to kill wild-fowl, either young or old, from the last day of March to the first day of October.

The common wild-duck is the largest in size of the species that frequent this country. The general name *duck* is taken from the female, the male being the *mallard*, or drake, and the young birds, *flappers*. The length of a full-grown mallard is nearly two feet, the stretch of the wings three feet, and the weight about two pounds and a half. The head and neck are of a fine dark glossy green colour; a white collar encircles the throat; and below it, the neck, breast, and shoulders are of a purplish brown. The scapular feathers are a mixture of silver-white and rust colour, streaked with brown. The wing-coverts are ash-coloured with black and white tips. The wing-spot is rich purple, with reflections of blue and green. The lower part of the back is black, and the four middle tail-feathers are curled up in the mallard. The under part of the body is whitish grey, with slight mottlings of brown. The duck is considerably smaller than the mallard, and has not the

green and white on the head and neck. She is also without the curled feathers on the tail.

Wild-ducks are not inferior to many other birds in a remarkable instinct for the preservation of their young, or of their mates. Captain Back relates, in his *Arctic Land Expedition*, that one of his companions having killed a female duck, fired again, and as he thought disabled its companion, a fine drake. Accordingly, leaving the dead bird, which he had the mortification of seeing, in a few minutes afterwards, carried off by one of the white-headed eagles, he waded after the drake, which, far from being alarmed, remained motionless, as if waiting to be taken up. As he drew nearer, it glided easily away, through innumerable little nooks and windings. Several times he extended his arm to catch it; and having at last with great patience managed to coop it up in a corner, from whence there appeared to be no escape, he was triumphantly bending down to take it, when to his utter astonishment, after two or three flounders, it looked round, cried "quack," and flew off so strongly that he was convinced he had never hit it at all. The object of the bird had evidently been to draw away his attention from its companion, of whose fate it was ignorant.

The nest of the wild-duck is in general artfully concealed among herbage, in the vicinity of water. It has been known, however, to build in trees, and in bushes. The ducklings are numerous; often as many as sixteen are hatched at once, and unless some casualty happens to the nest, there is only one brood during the season.

There are about twenty-eight species of ducks which are seen more or less frequently in different parts of Great Britain and Ireland, and principally during the winter season. Many of these visitants are evidently natives of northern countries, and appear in great numbers on our northern coasts; but of the flights which appear still more abundantly in the fenny districts, such as those of Lincolnshire, Cambridge, and Martin Mere in Lancashire, on the borders of many rivers in Wales, and on the southern flat shores and estuaries of England, we are not well informed as to their retreats when they quit our shores.

In this family of birds there are many species besides the wild-duck commonly so called, which deserve to be spoken of particularly. These we must leave for a future occasion, together with several other notices, relating to wild-fowl in general.



THE MALLARD, (*Anas boschas*, LINN)

THE force of an argument is not increased by the excitement of the feelings or the display of temper.—MACCULLOCH.

LONDON:

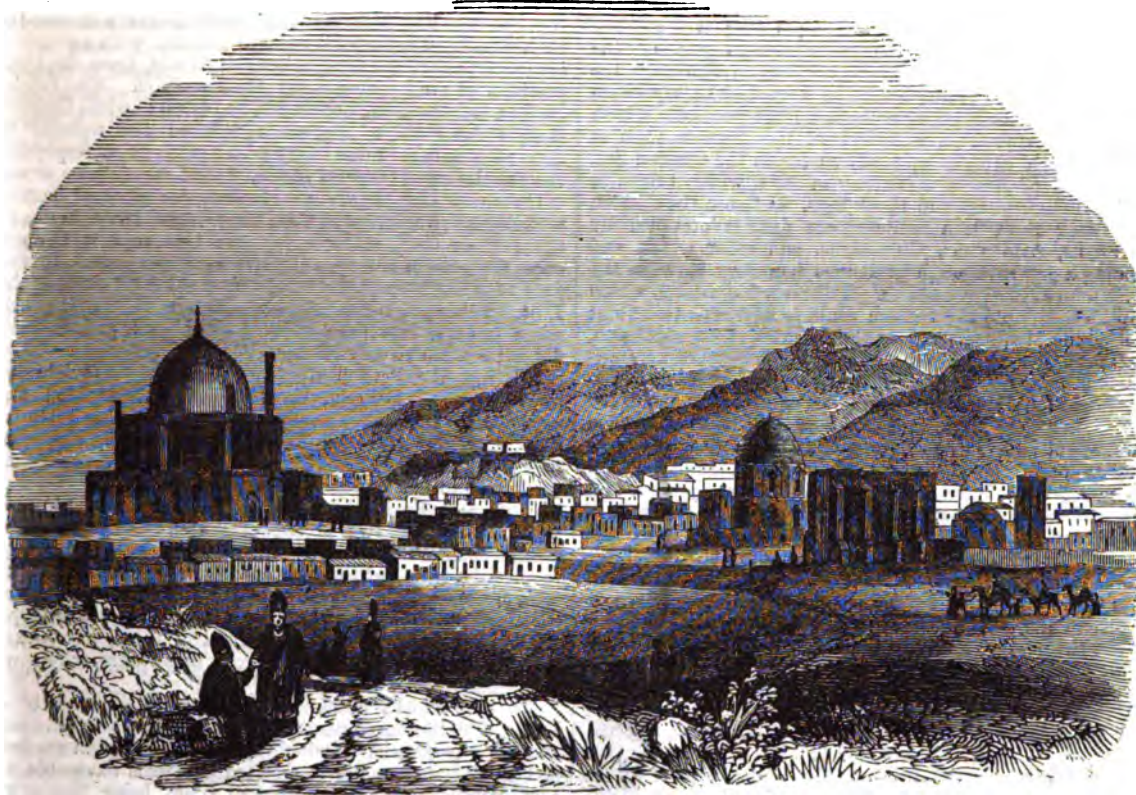
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OVERLAND JOURNEY FROM INDIA TO ENGLAND.



SULTANIK, IN NORTHERN PERSIA.

FIRST ROUTE.

BY WAY OF THE PERSIAN GULF, THROUGH PERSIA AND RUSSIA, TO ST. PETERSBURGH.

ONE of the most extraordinary features in the political geography of the present age, is the possession by Great Britain of a vast empire situated many thousand miles from the parent country, and separated from it by countries, some of which are mountainous and inhospitable,—others parched and sandy,—and others inhabited by nations and tribes hostile to British interest. Such is *India*, or the *East Indies*. The British empire in India is incomparably larger and more populous than the whole of the British Isles; and it may well be supposed that the establishment of a rapid mode of communication from India to England, is regarded as a matter of high importance by the government. This communication, so far as regards the transport of troops, of military stores, of articles of commerce, &c., must obviously be made by sea; since such conveyance cannot be made through the territories of other nations. The establishment of steam navigation round the coast of Africa;—the project for connecting the Persian Gulf with the Mediterranean, by cutting a canal from the last-named sea to the river Euphrates;—and for connecting the Red Sea with the Mediterranean, by cutting a canal across the Isthmus of Suez;—all have for their object the attainment of a more speedy water-conveyance from India to England.

But it has often happened in the past history of our Indian affairs, that British officers have been despatched overland from India to England, either for the sake of greater expedition, or for diplomatic services at the court of some one of the Oriental princes whose dominions lay in the line of route. These overland travels are among the most

interesting narratives which we have of the appearance of the Asiatic towns and cities, and of the manners and customs of the inhabitants; and we have long thought that the readers of our Magazine would welcome a brief and popular account of such routes. The modes in which various officers have proceeded from India vary greatly. Sir Alexander Burnes proceeded from the north-west of India to Bokhara, and from thence to the southern shore of the Caspian Sea:—Sir James Alexander went by sea from Bombay to the Persian Gulf, and from thence through Persia and Asia Minor to Constantinople:—Captain Keppel likewise went by sea from Bombay to the Persian Gulf; but proceeded thence through Persia, Georgia, and the Russian empire to St. Petersburg:—Lieutenant Lumsden, after landing on the shore of the Persian Gulf, proceeded through Persia and Armenia, round the northern shore of the Black Sea, and through Austria and France to England:—Colonel Fitzclarence (now Earl of Munster) went by sea from Bombay to the Red Sea, landed at Cosseir, and travelled through Egypt to the Mediterranean; a similar route to that pursued a few years afterwards by Mrs. Charles Lushington. Other travellers and officers have gone westward from India to Persia, through the imperfectly-known regions which separate them. From this it will be seen that the term "overland journey to England" is capable of many significations.

We propose to select some one particular route, and conduct the reader through it, describing the most interesting objects which occur by the way. By this arrangement, each Supplement will be complete in itself; and we may devote as many Supplements to the topography of Central and Western Asia (for such in reality is the nature of the subject) as the interest of the details will

warrant. On the present occasion we will select the route by sea from Bombay to the Persian Gulf; and thence overland through Persia, Georgia, and Russia, to St. Petersburg; from whence a ship conveys the traveller to England by way of the Baltic Sea.

It will be necessary for the reader to have a tolerably clear idea of the situation of India with regard to the western parts of Asia; and the inspection of a map will greatly aid him in forming this idea. Africa is separated from the south-eastern point of Asia by the Indian Ocean; and into the northern part of this ocean juts the peninsula of India, or Hindostan, which extends northward to the Himalaya mountains. Westward of India are the countries of Beloochistan, Caubul, Bokhara, &c., forming the western boundary of India, and separating it from the Persian empire. From the north-western part of the Indian Ocean, issue two seas, the Persian Gulf and the Red Sea, each proceeding nearly in a north-westerly direction, and including between them a large peninsula which constitutes Arabia. Northward of the Persian Gulf is Persia, which extends upwards as far as the Caspian Sea. Northward of Arabia is Turkey in Asia, which brings us to the Mediterranean and Black Seas. Between the Caspian and Black Seas, is a mountainous district occupied by Georgians, Armenians, Circassians, and other tribes, and forming a general though ill-defined boundary between the Persian and Russian empires. The river Euphrates, which empties itself into the Persian Gulf, is navigable to a point so near the Mediterranean, in the neighbourhood of Aleppo, that proposals have been made to cut a canal of communication from one to the other. From the Caspian Sea to the nearest point of India, in a straight line, is about one thousand miles; from the northern part of the Persian Gulf, about twelve or thirteen hundred; from the easternmost point of the Black Sea, about two thousand miles. To travel from India to Turkey, therefore, by land, is a long and wearying journey, even if the political situation of the interjacent countries offers no obstacle. It is for this reason that the greater number of "overland" travellers proceed by ship either to the Persian Gulf or to the Red Sea; and from thence reach Europe by land.

Where the passage from India to Persia is made by water, the point of embarkation is generally Bombay. The British empire in India, being too extensive to be governed by one officer, is divided into three *presidencies*, of which the chief cities are Calcutta, Madras, and Bombay. Each presidency is under one governor or chief officer, but the governor of Calcutta is superior in authority to the other two, and possesses the title of Governor-general of India. Of the three principal cities just named, Calcutta is at the north-eastern extremity of the peninsula of Hindostan; Madras is on the eastern shore of the peninsula, opposite the Burman empire; and Bombay is on the western shore, and consequently nearer to Europe than either of the other two presidencies. Shipping is found in considerable extent at Bombay; and this is the port from whence the "overland" travellers proceed to the Persian Gulf or to the Red Sea.

From Bombay to the mouth of the Persian Gulf is a distance of about thirteen hundred miles in a straight line; and probably fourteen or fifteen hundred in the direction which a ship would take. We will therefore imagine ourselves to be embarked on board a ship at Bombay, and to have traversed the Indian Ocean which separates India from the Persian Gulf.

The first land at which we arrive is Arabia, which forms the western margin of the entrance to the gulf. This margin proceeds in a tolerably straight line for about four hundred miles in a north-western direction, when it brings us to the narrow strait which forms the immediate opening into the gulf, having Persia on the right hand, and Arabia on the left. About midway on this north-western coast is the Arabian port of *Muskat*, one of the most important belonging to that country. Muskat is the capital of the Arabian province of Oman, which, if not the most celebrated, is the most flourishing and prosperous part of the country. Muskat was taken by Albuquerque in 1507, and remained subject to Portugal till 1648, when the natives drove out the Portuguese. The province is now governed by an Imaum, or spiritual chief, who seems to exercise his power in a very judicious manner; and the port of Muskat is said to be the best managed of any in Arabia or Persia; for the merchandize of the East may be left undisturbed, or its wharfs and quays without molestation,—a degree of security due to the excellent police of the

place. All the ports upon this coast are tributary to the Imaum of Muskat; and he has also established a considerable trade with the interior by means of caravans. High rocks on one side, and the island of Muskat on the other, form a spacious and secure harbour. The town is surrounded by a strong wall, within whose precincts none but Arabs and Banians are allowed to reside; all strangers being obliged to remain in houses outside the wall. The town contains a bazaar or market, covered in at the top to protect the wares, which are exposed for sale on open platforms in front of the shops. A large colony of Indians, principally from the banks of the Indus, carry on the wholesale and retail trade. The houses are flat-roofed, and built of unhewn stone. The streets are extremely filthy, and so narrow, that by extending the arms across, both sides may frequently be touched. The inhabitants are affected with a peculiar inflammation of the eyes, arising, it is said, from the light particles of sand blown from the sea-shore. Mr. Buckingham estimated the population at 10,000; while Captain Keppel some years afterwards reduced the number to 2000;—such is the uncertainty which often exists respecting the population of Oriental towns.

On embarking again at Muskat, we proceed north-westerly till we arrive at Cape Musseldom, the entrance to the Persian Gulf. Nearly opposite this cape is Ormuz, once the seat of a very extensive commerce, and, in the time of Albuquerque, one of the most splendid cities of the East. Subsequent conquests completely ruined it; and when it came into the hands of the present possessors, it did not contain twenty houses.

Entering the Persian Gulf, we pass by the celebrated pearl banks of Bahrein, near the coast of Arabia; and opposite to this, on the Persian coast, is the town of Bushire, where travellers often land who wish to proceed to the eastern parts of Persia. As our route, however, carries us to the regions of the Tigris and the Euphrates, we will leave Bushire, and proceed up the gulf which leads to them. These two rivers, of which we have earlier records than of almost any other rivers in the world, empty themselves into the Persian Gulf by mouths common to both rivers, and thereby form a delta, similar to those at the mouths of the Ganges, the Nile, and the Mississippi. Proceeding a little way up the largest of these, we come to Bassora, a town of much commercial importance, where we will land.

Bassora absorbs nearly all the foreign commerce of Persia and the Euphrates. It is seven miles in circumference, a great part of which space is laid out in gardens and plantations; and is intersected by canals navigable for small vessels. Its most important trade, being that with India, is carried on partly by British, but chiefly by Arabian vessels, of which those of five hundred tons burden can ascend the river to this point. The inhabitants are estimated at 60,000; a heterogeneous mixture of Arabs, Turks, Indians, Persians, and all the people of the East. They have not expended much of their wealth in the embellishment of the city; for travellers describe it as having, generally speaking, a mean and dirty appearance.

In order to give an idea of the appearance, the costume, &c., of the inhabitants, we will describe the public entrance of a Pacha, which took place while Captain Keppel was in Bassora. A body of armed men, forming an advanced guard, announced their approach by a continued discharge of muskets, and passed at a slow trot. Then came another party, who occasionally halted, and danced in a circle; beating time by striking their swords against each other's shields. These were followed by large parties of Desert Arabs, of the Zobeir tribe, preceded by their immediate petty chiefs, on horseback: each of them had carried before him a large red and green flag. The Zobeir Arabs are mercenary troops, and acknowledge a kind of subjection to the governor. They are small mean-looking men, with an Indian cast of features; they carried either fire-arms, or swords and shields; and were habited in various ways—some having on robes bound at the waist with a girdle, others a loose shirt. After these Arabs came the *Toofungees*, or personal troops of the Pacha, distinguishable by fur caps nearly a yard in diameter. Then the Pacha's led horses, richly comparisoned; and after these a troop of mounted Tschousses, or messengers, beating small drums placed at the saddle-bow. These were followed by the native officers of the English factory, mounted. Then came the Captain Pacha, the Cadi, and the Mufti; and lastly, the Pacha himself, who, with his hand on his breast, acknowledged the shouts of the by-standers. A troop of Janissaries

brought up the rear, amid the firing of muskets, the beating of tontoms, the rude singing of the soldiery, the music of the Janissaries, and the shrieking of groups of women.

From Bassora we proceed along the Tigris to the famed city of Bagdad, the scene of so much legendary interest. The usual mode of proceeding from one town to the other, is on board one of a fleet of boats which go in company, in order to protect the passengers from the attacks of the tribes of wandering Arabs who infest the banks. Sometimes, however, a party of travellers hire a Bughalow, which is a vessel sixty feet long, fourteen wide at the broadest part, and having a low cabin about ten feet square.

Proceeding up the river by either one of these modes of conveyance, we come to the point of confluence of the Tigris and the Euphrates, the former being the easternmost of the two. The banks of the river, between Bassora and Bagdad, a distance of between three and four hundred miles, are occupied by tribes of Arabs, in the same state of primitive simplicity as these remarkable people have ever shown; living in mat huts, capable of being moved at a short notice; dressed in a brown shirt with open sleeves, and bound round the loins with a leathern girdle; almost as unacquainted with Europeans as the inhabitants of Central Africa:—such are the Arabs on the banks of the Tigris.

Farther up the river we come to a tract of country which, though now a desert, was once beautified by large and populous cities. Among these we find the ruins of Seleucia and Ctesiphon. The former of these founded its grandeur on the ruin of the more ancient city of Babylon, and contained at one time 600,000 inhabitants. Seleucia was, in its turn, superseded by Ctesiphon; but both have been since so utterly destroyed, that nothing but ruins attest what they once were. These ruins, together with sandy deserts, and occasionally a jungle tenanted by wild beasts, fill up the interval from Bassora to Bagdad: we will therefore suppose ourselves now to have arrived at the last-named city.

The tract of land which separates the Tigris from the Euphrates, during the lower portion of their course, is rather narrow, and very flat and level; so that in the rainy season the two rivers frequently overflow, and irrigate the land, whereby it becomes very luxuriant. It is probably this circumstance which gave to this strip of land so high importance in ancient times. Under the names of Babylonia, Chaldea, and Mesopotamia, it was a region covered with famous cities, which were celebrated both in sacred and profane history. Of these large cities, the only one which is at present a place of much importance is Bagdad, a spot which is not connected with the times mentioned in the Sacred Records, but which some centuries afterwards became the seat of the Caliphs.

The city of Bagdad stands on both sides of the Tigris, the western or ancient part being now regarded as a kind of suburb to the more modern part, which stands on the eastern bank of the river. The form of the new city is an irregular oblong, about 1500 paces in length, and 800 in breadth; and a brick wall, five miles in circumference, encloses the two towns, which have a wretched bridge of communication between them, formed of pontoons. At the principal angles of the wall are round towers, with smaller towers intervening at short distances: and on these towers batteries of cannons are placed. There are three entrance-gates through this wall to the town; one on the south-east, one on the north-east, and a third on the north-west. Intricate as are the streets in most Oriental towns, they are still more so in Bagdad; for, with the exception of the bazaars and some open squares, the interior is little else than a labyrinth of alleys and passages. The streets are unpaved, and in many places so narrow that two horsemen can scarcely pass each other; and as it is seldom that the houses have windows towards the street, and as the doors are small and mean, they present on both sides the gloomy appearance of dead walls. All the buildings, both public and private, are constructed of furnace-burned bricks, of a yellowish red colour, taken chiefly from the ruins of the neighbouring ancient cities. A house is generally laid out in ranges of apartments opening into a square interior court, and furnished with subterranean rooms, into which the inhabitants retreat during the day for shelter from the intense heats of summer. The tops of the houses have terraced roofs, on which the inmates take their evening meal, and often sleep in the open air. As the houses are but thinly scattered over the area enclosed by the city wall, there is a large extent of garden ground, which produces pomegranates, grapes, figs, olives, dates, and other Oriental fruits in great perfection. As in

all Mohammedan cities the mosques are conspicuous, so are they in Bagdad, where the number is said to amount to as many as one hundred. These mosques are, in their external and internal features, much like those of Turkey generally; but a deficiency of splendour is observable in most of them. The khans or caravanserais amount to about thirty in number; the baths or hammams to about fifty; and there are several bazaars.

The manners and customs of the inhabitants closely resemble what we are accustomed to meet with in Oriental cities. An English officer and his friends having solicited the honour of an interview with the Pacha, the Pacha's secretary sent some of his servants to accompany the visitors. On entering the gates of the palace, they came into a spacious court, where the Pacha's troops were drawn up, to present arms to the English visitors. On arriving at the gates of the inner court, they dismounted; the principal officers of the palace then ushered them through a double row of Janissaries, into the presence of the Pacha. The hall of audience was fitted up in the usual Oriental style, and decorated with numerous small looking-glasses. In one corner of the room was seated the Pacha, supported by cushions. Chairs were placed for the visitors; who were likewise favoured by being allowed to keep on their huts and shoes. With regard to this latter custom we may remark, that the removal of shoes from the feet on entering an Eastern apartment is not so wholly ridiculous as Europeans are sometimes apt to suppose; for as the meals are served up on trays laid on the floor, there is obviously a reason for keeping the floor as clean and unsoiled as possible. The visitors were then regaled with the usual delicacies of an Eastern city; and took their leave after a courteous reception from the Pacha.

We must now leave Bagdad for the north, and will take the same route as Captain Keppel, who went some distance eastward of the direct course, in order to visit the royal city of Teheran, near the southern coast of the Caspian Sea. The manner in which Captain Keppel and his friends travelled, was to form a kind of caravan among themselves. They purchased three tents, hired twenty-four mules to carry their servants and baggage, and provided themselves with two saddle-horses each. They then proceeded on their journey, having received a *firman* from the Pacha, exempting them from all tolls and exactions till they reached the frontiers of the Persian empire.

After leaving Bagdad, we arrive at the ruins of the ancient city of Artemita, the favourite city of Chosroes, king of Persia, in the time of Heraclius. The first ruin seen, is a square mound of bricks, facing the cardinal points, which was probably the site of some temple in the suburbs of the city. A mile beyond this mound are numerous others, arranged with such regularity as to seem to indicate a succession of streets at some former period. At the western extremity of these ruins is a mound larger than the rest, supposed to have formed the foundation for the royal residence. Before and about this mound are several large grassy plats, which appear not to have been built upon, and which were probably gardens belonging to the palace. The whole of the mounds are surrounded by what appear to be the vestiges of a wall, with circular bastions, and here and there vacancies which were probably occupied by gates. This place is now called by the Arabs Kurustur.

Proceeding northward from Kurustur, we come to Shehrehban, a town situated in such an unprotected plain, that it is liable to repeated attacks from the marauding Arabs and Koords living in the neighbourhood. The city, therefore, which had been some time previously one of the most flourishing in the Pashalic of Bagdad, contained only three families at the time Captain Keppel and his friends visited it. Near Kurustur is a singular-looking building, formed of bricks about fourteen inches square, and connected together by a hard and beautiful cement. The eastern side of this building presents sixteen well-formed bastions, twelve of which are yet entire; and the eastern face shows a flat wall, with a regular ascent up to each bastion. Each bastion is about thirty feet high; and the spaces between the bastions are fifty-eight feet. What was the original purpose of this building we cannot now learn: the Arabs, with their usual love of the supernatural, state that it is inhabited by *genii*, who cut off the heads of all who presume to enter within certain loop-holes which are visible in the walls.

Shortly after passing this place, we arrive at the boundary between the Turkish and Persian empires, and which was likewise the boundary between the celebrated empires of

Assyria and Media, upwards of 2000 years ago. Here an incident occurred to the party of Captain Keppel, which, as it illustrates the predatory habits of the inhabitants of those districts, and the nefarious agreements often entered into between them and the governors of Turkish or Persian provinces, we will relate in that gentleman's own words:—"Soon after daybreak, as Mr. Lamb and I were riding together, some hundred yards in advance of our party, three men on horseback came suddenly into the road from among the rocks, at one of the narrow passes of the mountain, fifty paces in advance of us, and seemed to regard us with no small degree of attention. He who appeared to be the chief of the party, was mounted on a black horse. They continued to march a short distance before us for several miles, frequently slackening their pace till we came up, and then moving on more briskly.

"When we arrived near the end of our stage, they turned back, and allowed us to pass, giving the usual traveller's salutation of 'Peace!'—a phrase little in consonance with their hostile intentions. After we had passed them some distance, they struck into the mountains, and were soon out of sight.

"Our conjectures respecting them, as it afterwards appeared, were not without foundation. On our arrival at Kermanshah, a young Arab chieftain informed us, that twenty Koords of the Calor tribe, one of the most numerous and powerful of Koordistan, had followed us from Khanaki, for the express purpose of plundering our party, and of murdering us if we made any resistance; of this party twelve were on horseback, and eight on foot, armed with matchlocks. The chief, who he told us rode a black horse, exactly coincided in description with the person we had seen. The Arab said they had been watching night and day for a favourable opportunity to put their plan into execution; but always finding us so much on our guard, had never thought fit to make the attempt, and had been ultimately obliged to abandon their purpose, on arriving at the mountain pass of Pac-Tackht, where a military force was stationed.

"Their chief inducement to attack us, was the intelligence they had received from Bagdad, that our party consisted of an ambassador and his suite, travelling with a large treasure; the danger we were led into by this honour is another of the obligations we owe to Aga Sakeis. They were deterred from attempting their purpose, by the dread of the European officers at Kermanshah, revenging our deaths, and their extravagant notions of European prowess and skill in arms; which (notwithstanding their numbers) made them consider the result of an attack too doubtful to hazard, even for the abundant harvest they expected to reap." On questioning the informant farther, it was found that he was himself an intimate friend of the leader of the band, but had divulged their secret from a sense of gratitude to the English for services received from Mr. Rich, British resident at Kermanshah; and also that the band was under the protection of one of the principal courtiers at Kermanshah, who shared in its booty, and shielded it, through his influence in that corrupt government.

We now approach the city which we have lately frequently mentioned, and proceed to give a description of it, chiefly from the observation of Mr. Buckingham.

Kermanshah is situated on three or four gentle hills, at the foot of a range which is passed on approaching it from the west; so that it contains within its walls some slight and some steep ascents, with eminences of different heights, and their corresponding valleys. To the north and east it is bounded by a beautiful and extensive plain; and on the other side it is enclosed by a range of mountains. The form of the town is irregular, approaching to a circle of about a mile in diameter. The wall which surrounds it is flanked with circular bastions, with turrets, loop-holes, ports, &c.; and this wall is pierced with five gates. One of these gates has the name of Durwazé Nedjef Asheref, meaning the "gate at which a saint dried up the sea." The legend connected with this name, and believed by the ignorant inhabitants of the town, is this:—In the time of Imaum Ali, there was a large lake here, by the side of which a poor man was sitting, shaving the hair from his legs and body, when his razor and stone fell into the water. The Imaum coming by at the time, and witnessing his distress, inquired into the cause of it; and finding that the Faqeer was a holy man, ordered the lake to be dried up, which it instantly became at his word, and has remained dry land ever since.

Sixty years ago, Kermanshah was nothing more than a

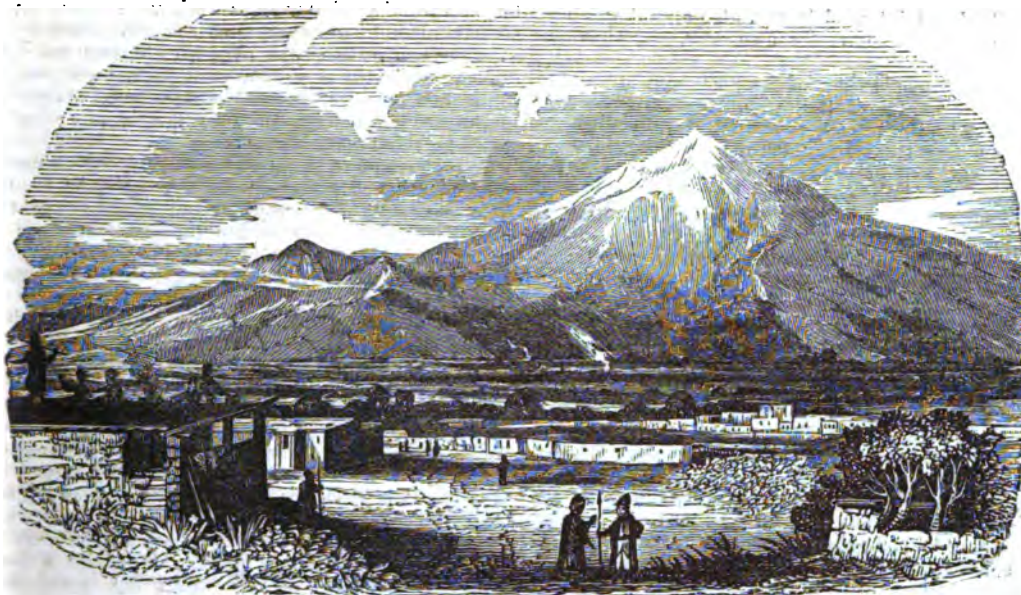
large village, the inhabitants of which subsisted chiefly their agricultural labours in their own plain, and by the feeding of their cattle on the neighbouring pastures. As a frontier town in the west was wanting, however, as a safeguard in case of a war between Persia and Turkey, Kermanshah was fixed upon as the residence of one of the Shah of Persia's sons. Since that period the town has gradually increased in size, in population, and in affluence. During the visit of M. Rousseau, French consul at Kermanshah, in 1807, he estimated the inhabitants at sixteen or eighteen thousand. Twenty years afterwards Mr. Buckingham estimated them at more than thirty thousand.

The prince holds sovereign sway over the neighbouring territory; and is said to be as powerful a governor as the Shah himself. Being in a manner the founder of the town in its present state of opulence, he takes a pride in embellishing it with public works. A large palace, near the centre of the city, for himself, a country-house surrounded by gardens, for his harem, and a spacious mosque near his own palace for the public use, have been built from his own funds, without any extraordinary contributions. The whole range of streets, bazaars, caravanserais, baths, &c., recently erected, are, however, built from funds advanced by their future occupiers, in loans to the prince, on the faith of his promise that the sums shall be accounted for in their annual rents. The prince is therefore the great owner of the land and buildings; and, as his will is law, there is little doubt, as Mr. Buckingham remarks, that the rents will be so regulated as to return him an enormous profit; in which case, instead of a munificent adorer of a city of his own founding, he can only be regarded as a monied speculator, in possession of an unrestrained monopoly.

The prince's palace is situated on one side of a large maidan, or open square, the other three sides of which are occupied by shops, stalls, and entrances to bazaars. The palace front is about a thousand feet in length, and the ascent to its centre is by an inclined plane. Leading off from the top of this ascent are two long causeways or galleries, going all along the front of the building, at the height of fifteen or twenty feet from the level of the square below. The whole of the front is a plain brick wall, excepting only the centre, where two or three stories rise over the door of entrance. Above this entrance is the public divan, which has an open balcony, looking out on the square, and from which the view of the town and the country is commanding and agreeable. Here the prince sits for an hour or two early in the day, to transact public business and receive visits; but as the sun shines strongly on it at that period, it is then always covered by a perpendicular awning or curtain.

The interior fittings of the palace; the baths, with the process (so long and complicated to an European) of bathing; the mosques; the bazaars, &c., at Kermanshah, so nearly resemble what we are accustomed to read of Oriental towns generally, that we pass over those details, quit the town, and conduct the reader onward in his journey.

The direct route from Kermanshah northward would leave Teheran on the right; but as that city is the residence of the Persian Shah, we will accompany Captain Keppel in the route to Russia *via* Teheran. At about five days' journey from Kermanshah, we arrive at Hamadan, another considerable town, the inhabitants of which may be characterized by a brief description of the chief visitors who came to welcome Captain Keppel's party, on the morning after their arrival. The first was the Prince of Hamadan's physician, an elderly man of very amiable manners, and possessing a degree of liberality of opinion and general information rarely to be met with in an Oriental physician: he frankly acknowledged the superior skill of the European physicians, and begged a medical gentleman forming one of the party to prescribe for him. A Jewish Rabbi then paid them a visit, and gave an affecting detail of the persecutions which the Jews suffered from the Mohammedans: his bitter complaints were directed, not so much against the sovereign authority of the place, as against the petty and incessant ill-usage of the mass of the Mohammedan people. Then came the chief of the Armenians resident in the town: the Armenians, as the reader is probably aware, are Christians belonging originally to the districts at the south-east of the Black Sea; and this visitor gave a detail of ill-usage and cruelty similar to that of the poor Jewish Rabbi,—for the "unbelieving Jew," and the "Christian dog," are equal objects of hatred among the Mohammedans,



MOUNT ARARAT.

except that the temporal power and influence possessed by the European Christians make them objects of fear to the Mohammedans. The next visitor was a distinguished Persian, who had been busily engaged in a search for the "philosopher's stone;" and who fancied that the English travellers were engaged in a similar pursuit; since he heard that they had been exploring old ruins, and had by them certain acids and chemical tests with which they determined the geological character of fragments of rock which they from time to time collected. They soon undeceived him; and endeavoured to convince him of the utter worthlessness of the pursuit in which he was engaged. The last visitor we shall name was a money-lender, whom we shall introduce to show the estimation in which the English character is held in Persia for probity and honour in commercial dealings. One of the party wishing to draw a bill on Bagdad, and to get it cashed at Hamadan, sent to inquire how that might be done. A miserable-looking man soon appeared, who from beneath his tattered garments drew forth a bag containing the requisite quantity of gold coin. This he readily gave, and received in exchange nothing more than a piece of paper with an order (in English) for payment at Bagdad. The party wondered at such a proof of unlimited confidence, for the man could not read a word of the order; and were not a little gratified to hear him say in explanation:—"The Ingrees (English) have never been known to deceive." Sir John Malcolm had been some time resident in Persia, and had, by his high personal character, contributed greatly to this favourable impression concerning the honour of an Englishman. We may say in connexion with this subject, that British officers resident in Persia, recommend English travellers in that country to wear English costume, as it generally meets with respect.

From Hamadan a pleasant district conducts the traveller to *Teheran*, the usual residence of the court of the Shah of Persia. This city occupies a position once forming part of the ancient empire of the Medes, near the southern shores of the Caspian Sea. Its political importance as the seat of government is more striking than the beauty of its situation; for the numerous spring torrents, which pour from the adjacent heights at the beginning of the warm season, saturate the low ground about the town, sink into its vaults, and send up such vapours and dampness as to render the spot very insalubrious during that season of the year.

Teheran is surrounded by a deep ditch, towers, and a mud wall, embracing a circuit of about eight thousand yards. There are four entrance gates, leading respectively to Ispahan, Tabriz, and two mountainous districts: they are plain in structure, with the exception of a few ornamental blue and green tiles. The streets of the city are extremely narrow, and full either of dust or mud, according to the season; the limited width, too, is rendered more inconvenient by the prevalent custom of the nobles to ride through them attended by thirty or forty servants on horse-

back; and by the frequent passage of loaded camels, mules, asses, and sometimes the royal elephants. The imperial palace splendid as it is within, presents a similar want of external elegance to most other Persian dwellings; it is situated in the citadel, a distinct quarter of the city, occupying a square of twelve hundred yards, and surrounded by its own bulwarks, which adjoin the north wall of the town. At one particular part of the city is a large open space or square, full of wide and deep excavations, or rather pits, sunk in the ground. Within the shaft of these well-like places, and round its steep sides, are numerous apertures, leading to subterraneous apartments; some the sojourn of poor houseless human beings, and others, a temporary stabling for beasts of burden.

After illustrating the extremely narrow and confined arrangement of the streets, Sir Robert Ker Porter observes: "Where any place does present a little more room than ordinary, or under the covered ways attached to the shops, we generally find one of the national story-tellers, surrounded by groups of people, some well clad, others in rags, and not a few nearly naked, attending with the most lively interest to tales they must have heard a thousand times before. He recounts them with a change of gesticulation, and a varied tone of voice, according to his subject; whether it be the loves of Khosroo and Shireene, the exploits of Rustum their favourite hero, or any number of historic couplets from Terdousi, the Homer of their land. From the humblest peasant, to the head that wears the diadem, all have the same passion for this kind of entertainment."

On leaving Teheran, the route conducts us along a considerable portion of the western shore of the Caspian Sea, through a district of a very mountainous character, and inhabited by rude mountaineers, who have cost Russia more trouble and campaigning than any other of her subjects.

There is no particular town after leaving Teheran till we arrive at Casbin, about a hundred miles distant. This town is the residence of a Prince Governor, and was once the capital of the kingdom; it has undergone a great change of fortune, but is sufficiently populous to carry on a tolerably extensive trade. We have taken a few opportunities of illustrating the manners and customs of the Persians as we proceeded; and the following account of the visit of an English officer to the Prince of Casbin will illustrate the fondness of the Eastern courtiers for flattery and adulation. "I did not stipulate for my privilege, as an Englishman, to be seated in the prince's presence, fearing that, if I did, I should not obtain an interview; so I was obliged to stand before him. I was presented by his mehmandar, whose motions of reverence I imitated. His highness's manner was haughty, but it seemed habitual and not assumed. He asked me several questions, mostly respecting himself. To these I always tried to give a reasonable answer; but the mehmandar, pretending to attribute my plainness of language to ignorance of idiom, turned everything I said into extravagant compliment to the prince, and then asked me if

that was not what I intended to say. To dissent was impossible; so I let him have his own way, and thus all parties were pleased."

Proceeding onwards in the road from Teheran to Tabriz, we arrive at the ruins of Sultameh. This was once a considerable and beautiful city; but nothing now remains of it but ruinous vestiges, of which the chief is the palace of the Sultan Khodabundah, by whom the city was built 600 years ago. A little further northward is Zinjain, a large and populous town, forming the capital of the district of Khumseh, and governed by one of the king's sons. This town is provided with bazaars equal to those of almost any town in the Persian empire; one of them extends from the eastern to the western gate, and is covered throughout the whole length; the shops and stalls being provided with all the usual articles of consumption. From this bazaar another branches out, and terminates at the other end in the maidan, or great square.

We now approach that mountainous region which separates the Caspian from the Black Sea. A few miles beyond Sultameh a brick bridge crosses the river Kizil Oozan, which separates the provinces of Irak Ajemi and Azerbaijan. The scenery in the neighbourhood of this bridge is exceedingly wild and rugged; immediately below the bridge, the river passes by a narrow channel between lofty precipitous mountains, which rise almost perpendicularly in rude rugged masses. At a little distance below the bridge are the remains of an ancient fort, standing on a detached rock of an irregular form.

In this immediate neighbourhood is Mount Ararat, certainly the most celebrated mountain in the world, since it is that on which the Sacred Record informs us the Ark of Noah rested when the waters of the Deluge had partly subsided. In the present day, this mountain is remarkable as being a point where three of the most extensive empires in the world meet each other:—the Russian empire, which spreads to the frozen regions on the north;—the Persian empire, which extends almost to the frontiers of India;—and the Turkish empire, which brings us to the central states of Europe; all meet at Mount Ararat, the only point where this confluence occurs. Mount Ararat is described as being most difficult of access. A Pacha of Bayazid, some years ago, tried to make the ascent to the highest summit. He departed from Bayazid with a large party of horsemen, at the most favourable season; and ascended the mountain on the Bayazid side, as high as he could on horseback. He caused three stations to be marked out on the ascent, where he built huts and collected provisions. He had no difficulty in crossing the region of snow near the upper part of the mountain; but when he came to the great cap of ice that covers the top of the cone, he could proceed no farther, because several of his men were there seized with violent oppressions of the chest, from the great rarefaction of the air. He had before offered large rewards to any one who should reach the top; but though many Koords who live at its base have attempted it, all have been equally unsuccessful. Besides the great rarefaction of the air, his men had to contend with dangers arising from falling ice, large pieces of which were constantly detaching themselves from the main body and rolling down. An immense chasm extends nearly half way down the mountain, in the deep recesses of which are vast masses of ice.

We have gone somewhat out of the route, for the sake of mentioning a spot so celebrated as Mount Ararat. We must now transport ourselves somewhat eastward, where the town of Tabriz lies in our line of route. Tabriz is about three miles and a half in circumference, and is surrounded by walls built of sun-burnt brick, with towers of kiln-burnt brick, placed at irregular distances along the walls. There are seven gates, at each of which guards are stationed; and they are closed an hour or two after sunset, and not opened again till the morning. Tabriz was formerly the second city of Persia, in size and importance; but it is now greatly diminished in wealth and population. The Ark Ali Shah (citadel of Ali Shah) is a structure, which was originally intended for a palace; but the prince afterwards converted it into a citadel. It contains within its limits, the remains of a mosque about eighty feet high, at the top of which are three small chambers, from whence a panoramic view of the surrounding country is obtained. When Mr. Morier was at Tabriz, a number of European workmen were fitting up the Ark Ali Shah as an arsenal. In the front yard was a range of guns and all the accompaniments of artillery. A numerous body of carpen-

ters and wheelwrights were at work with European tools, superintended by an European mechanic. Farther on was a blacksmith's forge, worked with charcoal for want of coal. Then in another yard were piles of shot, with men filling cartridges, &c. Next succeeded a range of apartments, in which were saddlers, and workers of leather; and store-rooms for articles of various kinds.

To understand the motives for such an establishment, we must bear in mind that we are now near the frontiers of Russia, between which country and Persia frequent hostilities have taken place within the last twenty or thirty years; insomuch, that the effeminate habits and proceedings witnessed in Southern Persia would be utterly unable to compete with such a vigorous nation as Russia.

As we shall soon take leave of Persia, we will give Mr. Morier's description of one or two features characteristic of most Persian towns:—"There are noises peculiar to every city and country; and none are more distinct and characteristic than those of Persia. First, at the dawn of day, the *muezzins* are heard in a great variety of tones, calling the people to prayers from the tops of the mosques; these are mixed with the sounds of cow-horns, blown by the keepers of the *hummums*, to inform the women, who bathe before the men, that the baths are heated, and ready for their reception. The cow-horns set all the dogs in the city howling in a frightful manner. The asses of the town, generally beginning to bray about the same time, are answered by all the asses in the neighbourhood; a thousand cocks then intrude their shrill voices; which, with the other subsidiary noises of persons calling to each other, knocking at doors, cries of children, complete a din very unusual to the ears of an European. In the summer season, as the operations of domestic life are mostly performed in the open air, every noise is heard. At night, all sleep on the tops of their houses, their beds being spread upon their terraces, without any other covering over their heads than the vault of heaven. The poor seldom have a screen to keep them from the gaze of passengers; and as we generally rode out on horseback at a very early hour, we perceived, on the tops of the houses, people either still in bed, or just getting up; and certainly no sight was ever stranger. The women appeared to be always up the first, while the men were frequently seen lounging in bed long after the sun had risen." We may remark that there are many passages in Scripture which seem to indicate that the custom of sleeping on the housetop prevailed in the Jewish nation, and in other parts of Western Asia.

When Captain Keppel was at Tabriz, he once dined at the house of the Russian Chargé d'Affaires; and mentions it as a singular instance of the way in which natives of different countries find their way into foreign lands, that although all the party were Christians, and did not exceed twenty, there were present natives of France, Spain, Italy, Germany, Holland, Russia, England, Greece, Slavonia, Armenia, Georgia, Arabia, and Persia; and among the servants in attendance were a Russian, a Persian, an Indian, a Turk, and a Kalmuk Tartar.

From Tabriz, different routes may be, and frequently are, taken to Europe; but that which we shall follow approaches pretty near to the Caspian Sea, and touches it at two points, Baku and Astrakhan.

The river Araxes forms the boundary between the Russian and Persian empires, at that part where Captain Keppel and his party crossed it. The river is here about a hundred yards in width; over which the party crossed in a boat made of the hollow trunk of a tree, the fibres of which formed a rope to secure it to the bank. In this frail bark the men and the baggage were transported over the river, while the horses were made to swim over. On crossing the river the party entered a tent, before which a number of women were busily engaged, some in manufacturing carpets, others in milking cattle, and others in making bread.

About half-way between Tabriz and Baku, is the town of Sheesha, containing about two thousand houses, of which three-fourths are inhabited by Tartars, and the remainder by Armenians. The present town was built about a century ago by a Tartar prince, but the remains of an older town are visible at the foot of an opposite hill. The lower parts of the houses are built of stone, and have shelving roofs of shingle. The town and fort are surrounded by a wall; but the natural advantages of the situation, on the top of an almost inaccessible rock, have left little occasion for artificial defence. The language spoken is a kind of Turkish dialect; but the inhabitants read and write in Persian; the costume also bears a nearer resemblance to the Persian.

Baku is situated on a small promontory which juts out into the Caspian Sea. It is a neat, though small sea-port town, built entirely of stone; and surrounded by a deep ditch and double wall of stone. The roofs of the houses are flat, and covered with a thick coating of naphtha. The town contains one Armenian church, and twenty mosques, with only one Russian church. The bazaar is small, but neat, and is much more cleanly than the generality of Asiatic bazaars. The population is computed at about four thousand persons, of whom nearly all are Tartars. The principal articles of commerce are common silk and various small wares of Russian manufacture. On the site of this town once stood a city, celebrated in the time of the Persian fire-worshippers for its sacred temples, on the altars of which blazed perpetual flames of fire, produced by ignited naphtha. Thousands of pilgrims used to pay an annual visit to this place, before the rapid spread of Mohammedanism had reduced to insignificance the religion of ancient Persia. Captain Keppel found at this spot the remains of a temple of this kind, attended by tribes who presented a singular mixture of Tartar and Indian habits. Enclosed within a pentagonal wall, and standing nearly in the centre of a court, was a fire temple,—a small, square building, with three steps leading up to it from each face. Three bells of different sizes were suspended from the roof. At each corner was a hollow column, higher than the surrounding buildings, from the top of which issued a bright flame; and in the middle of the court was a large fire of ignited naphtha. The pentagon, which on the outside forms the wall, comprises in the interior nineteen small cells, each inhabited by a devotee. These devotees were Hindoos; but their language and manners had such a strong tinge of the Tartar race, that their Hindoo origin was almost concealed. A Brahmin was found engaged at his devotion in one of the cells; in another cell was an officiating priest of a particular sect of the Hindoos. These devotees were pilgrims who came from different parts of India, and who were accustomed to relieve each other every two or three years in watching the sacred fire, as they deem it. We may remark that every part of the soil in the neighbourhood is strongly impregnated with naphtha.

The next town of any note is Kuba, once the residence of a Tartar khan, but now garrisoned by the Russians. It contains about five thousand inhabitants, one third of whom are said to be Jews. Still farther to the north is the town of Durbund, the capital of one of the Russian provinces. The walls, which are very ancient, divide the town into three portions, of which the higher comprises the citadel, the middle constitutes the town; and the lowest is principally occupied by gardens. Here is shown the foundation of a house built by Peter the Great, who visited the town soon after it had come into the hands of Russia. The walls of the city are built of a compact stone of a dark colour; and sixty bastions protrude at regular intervals. One of the gates has an inscription in Russian; another has an inscription in Persian; one among many proofs of the mixed character of the place. Durbund has been successively in the hands of Turks, Tartars, Arabs, Persians, and Russians, and manifests the heterogeneous effects resulting from this circumstance. Here one of our English travellers paid a visit to the Russian commandant and his lady; and says:—"On my return to the room, the company, consisting of the officers of the regiment and the staff-officers of the garrison, were thronging in. I here saw, for the first time, the Russian salutation. Every officer, on entering, took the right hand of the hostess and pressed it to his lips; while she at the same moment kissed his cheek. Dinner was prefaced by a glass of brandy and a piece of salt fish. The ladies, of whom there were several, seated themselves together; the post of honour next our fair hostess was assigned to me as the stranger. The band played during dinner; after which the company (with the exception of myself, who took a siesta) sat down to cards."

Farther northward we come to Kizliar, standing on the banks of the river Terek, at about forty miles' distance from the Caspian. This town and the dependant villages contain about twenty thousand inhabitants; of whom the greater numbers are Tartars, and nearly all the remainder Armenians, (for we have now pretty well lost all traces of the Persian race.) This town is a kind of limit between two different districts, as respects the mode of travelling; for the routes just described have been performed almost wholly on horseback, whereas the journey northward from Kizliar to St. Petersburg, by way of Astrakhan, is performed by carriage. These carriages—at least those em-

ployed between Kizliar and Astrakhan,—are four-wheeled open carriages, without springs, about five feet and a half long, three feet broad, and three deep; and drawn by three horses abreast, generally in as rude and inelegant a condition as the carriage itself.

The district from Kizliar to Astrakhan is, for the most part, dreary and sterile; over which the Tartar drivers conduct their vehicle in a fearless and vigilant manner. Arrived at Astrakhan, the English party whom we have hitherto accompanied, and whom we shall now leave, were ushered to the residence of a Scotch missionary, the Rev. Mr. Glen, whose pious and benevolent demeanour made a deep impression on Captain Keppel, who remarks:—"At no period of my life do I remember to have been impressed with so strong a feeling of devotion as on this evening. Few persons of the same general habits will understand my particular feelings. Few have ever been placed in the same situation under similar circumstances. Quitting countries once the most rich and populous, now the most desolate and lone, fulfilling in their calamities the decrees of Divine Providence; safe from the dangers of the desert, and from the barbarian tribes with whom every crime was common, I found myself in a religious sanctuary among my own countrymen, in whose countenances, whatever were the trivial errors of their belief, might be traced the purity of their lives, and that enthusiasm in the cause of religion, which has caused them to become voluntary exiles: whose kindness promised me every comfort, and whose voices were gratefully raised to Heaven in my behalf."

The city of Astrakhan is the most celebrated in the southern part of the Russian empire, being so situated as to command the commerce of the Caspian Sea. It is situated near the mouth of the great river Volga, at a distance of about eight hundred miles south-east of Moscow; and from it there is an uninterrupted water conveyance to St. Petersburg, twelve hundred miles distant. It ranks as the eighth city in the Russian empire, having a population of forty thousand persons. The town is irregularly built, and the houses present a singular medley of European and Asiatic taste; they are constructed principally of wood, and are between four and five thousand in number. There are four Armenian churches, twenty-five Greek churches (the national church of Russia), nineteen Mohammedan mosques, besides places of worship for various sects, both European and Asiatic. There is an academy for marine cadets; a Greek seminary for ecclesiastics; a high school; a district grammar school; and four inferior schools. The Kremlin, or citadel, is a large and beautiful building, containing the cathedral and the barracks; the former of which, like most ecclesiastical edifices in Russia, consists of a massive parallelogram with four small cupolas on the roof, and a large one in the centre, from which the building receives its light: the interior is splendidly decorated; and is prized among the Russians for containing a costly effigy of the Virgin,—six mitres inlaid with pearls and precious stones of large size,—a baptismal font of massive silver, ninety-eight pounds in weight,—and other costly articles. One of the most remarkable buildings is a mosque recently erected by a private wealthy Mohammedan, but shaped like the Christian churches of the East.

No city of Asia presents more striking features of Europe and Asia combined, than Astrakhan. The Russians form a considerable amount of the population, and are engaged in trade. The Tartars, belonging to three different classes or races, amount to about 10,000, and take up their abode in distinct suburbs of the city. The Armenians are among the most wealthy of the population, and have now nearly abandoned their peculiar national mode of dress, and have adopted the costume of Europe. The women, however, still walk abroad, covered from head to foot with an enormous white veil, which conceals the whole person, except a small part of the face. The Georgians of Astrakhan are mostly mechanics, or persons filling humble stations in life. The Hindoos and Chinese to be found at Astrakhan are only occasional visitors, with the exception of three or four hundred of the former, whose occupation is to lend out money at usurious interest; and as their accumulations are seconded by the utmost simplicity and parsimony in their mode of living, these Hindoos rise quickly into affluence. Although the regular population of Astrakhan is estimated at 40,000, yet it is supposed that at one particular season of the year, *i. e.*, the fishing season, there are no less than 30,000 additional visitors at Astrakhan, drawn thither principally on commercial pursuits. At this season the city presents a highly interesting scene of gaiety and bustle.

Having thus brought our fellow-travellers to Astrakhan, we may make a few remarks on the extraordinary district which separates it from the central parts of Persia. If we draw a straight line from Astrakhan to the south-west corner of the Caspian Sea, another straight line from this last point to the easternmost point of the Black Sea, and a third from the Black Sea to Astrakhan, we shall enclose a triangular district, whose longest side (along the Caspian) is about 700 miles, and the other two about 500 each. This district is, in a political sense, one of the most remarkable in Asia. It contains the boundary-lines between the extensive empires of Russia, Turkey, and Persia, and contains a population who care but little for the supreme authority of either of those countries. Georgians, Mingrelians, Circassians, Armenians, Tartars, Koords,—all are to be met with in this district, forming a kind of boundary between the more effeminate Persians on the south, and the rude Cossacks and Tartars on the north. Their religion varies as much as their origin and habits; Mohammedans, Armenian Christians, Russian Christians, Fire Worshipers, Worshipers of the Great Lama of Thibet,—all are to be found here.

These circumstances give a strangely mixed character to the towns situated in this district. Gradually they are losing their Persian or Turkish character, and are becoming every year more and more Russian, occasioned by the steady progress of this power in that direction. Still, however, the old institutions and habits are not done away with. A mosque may be found next to a Russian guard-house, or a flat-roofed Persian house may be near a Russian church; while both Russians and Persians are required to be constantly on the alert, to repel the bold mountaineers who repeatedly attack them, and who, deeming themselves the rightful owners of the country, look upon both the others as enemies. The persevering energy of the Russian government has, however, overcome so many difficulties and obstacles in this quarter, that the boundary between Russia and Persia does not differ widely from the line which we have supposed to be drawn from the east end of the Black Sea to the south-west extremity of the Caspian. Whether or not this boundary will be driven still farther southward, is a question which the future history of Central Asia can alone determine.

From Astrakhan to St Petersburg is, as we have said, a distance of about twelve hundred miles. There are two reasons why it will not be necessary for us to follow our travellers along this road: 1st. We have made a point, in

our details hitherto, to avoid entering on subjects which have already been described in the *Saturday Magazine*: and in pursuance of this plan, we will refrain from entering at any length into Russian topography, since a considerable number of articles were devoted to that subject in our early volumes. 2nd. There is no country in Europe or Asia, presenting fewer points of interest than the flat country from Astrakhan to St. Petersburg. No great city, except Moscow, is met with in this immense distance; and the inhabitants are so extremely scanty that nothing can be more dreary than many parts of this route. Nearly all English travellers who take this route try to get through it as rapidly as possible, knowing that there is little to interest them on the way. Colonel Conolly, a few years ago, in making the overland journey, hired a carriage for the Russian route, which he fitted up for day or night travelling; stored it with provisions; provided himself with furs and warm clothing, and lived, boarded, and slept in his carriage during the greater portion of a very rapid journey from St. Petersburg to the Persian frontier. Inns are so few on the road, and provisions so bad, that some such plan as this is necessary to keep the demon of hunger away. Capt. Keppel, during a good portion of his journey, adopted a plan which he had many occasions to be thankful for: he fastened a *tea-kettle* to the saddle of his horse; and whenever he could not obtain warm beverage any other way, he would put a little tea and sugar into his kettle, obtain some milk if possible, add a requisite quantity of water, and manage to boil a cup of tea in a very few minutes: quite willing to dispense with the numerous conveniences of a tea-service. Overland travellers must, indeed, reckon on being deprived of many of the comforts found on ship-board; but the excitement attending scenes of travel frequently more than compensates for this deprivation.

We thus end our first overland route; which may be thus summed up. From Bombay across the Indian Ocean, to the Persian Gulf is about thirteen hundred miles:—from the south to the north of the Persian Gulf, six or seven hundred;—from the Persian Gulf to Mount Ararat, seven hundred;—from thence to Astrakhan, probably five hundred;—from Astrakhan to Moscow, eight hundred;—and from thence to St. Petersburg, four hundred:—making about four thousand five hundred miles. These distances are estimated very roughly; and do not take in the turnings and windings of the roads necessarily taken; but they may serve to convey something like an idea of the real distance gone over.



EASTERN DORMITORY ON THE HOUSE-TOP.

THE
Saturday Magazine.

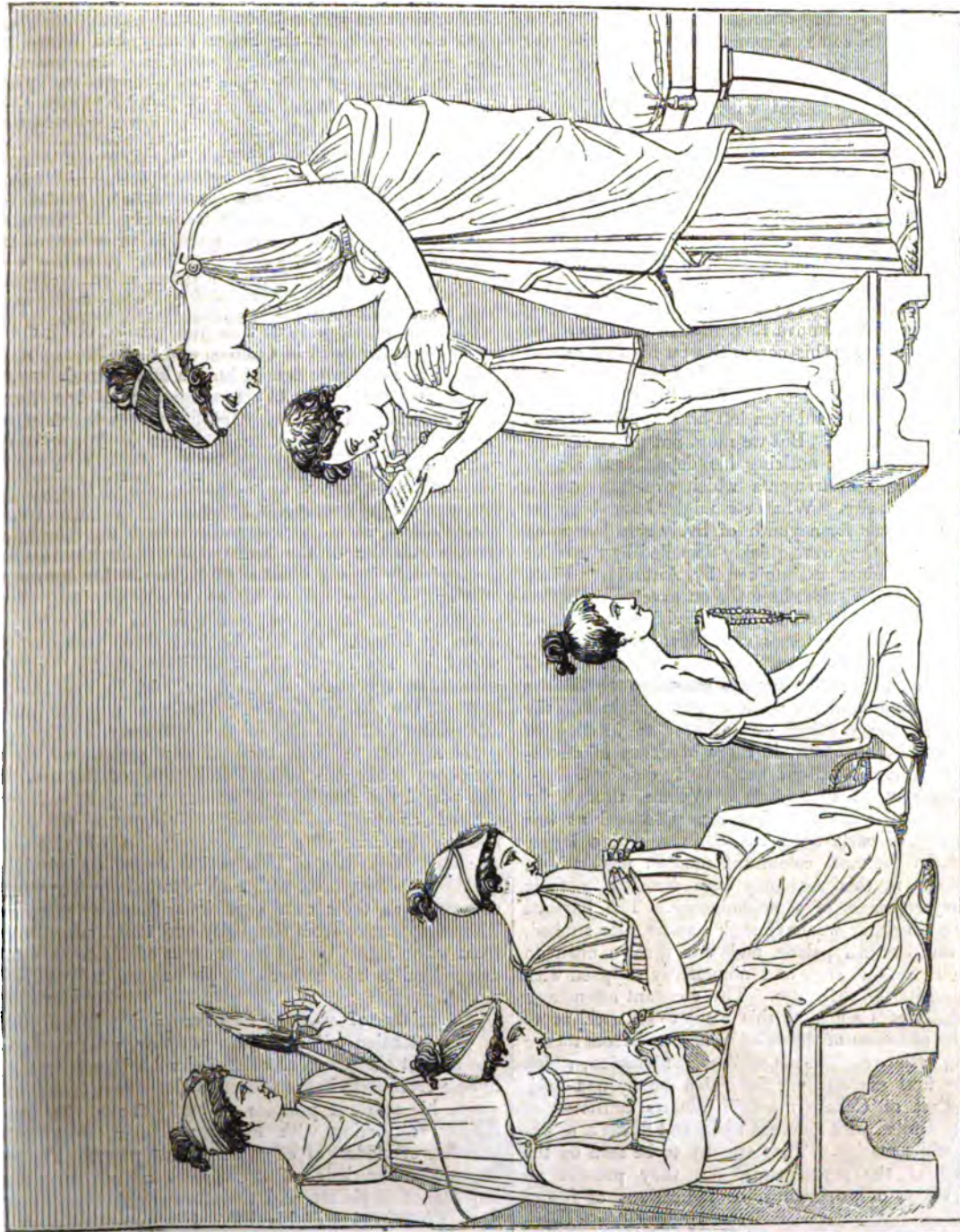
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ONE PENNY.



INSTRUCTION. FROM A BASSO RELIEVO BY CANOVA.

CANOVA AND HIS WORKS.

II.

WE left our young artist at that period of his history when his eager aspirings after distinction in his profession were encouraged by the invitation of his benevolent patron, the senator Falier, to repair immediately to Venice. The reception he met with at the Falier palace was most kind and hospitable, and he thus found himself, at the age of fifteen, in a situation which opened a new and ample field for observation and improvement. The love of independence, which had ever strongly marked the character of Canova, would not, however, permit him to be entirely dependent on the bounty of others. He justly considered himself sufficiently advanced in the mechanical department of his profession to entitle him to some recompense in labouring for another; he therefore resolved to engage himself as assistant to some eminent master, and was not long in entering into an agreement with *Giuseppe Ferrari*, the nephew, or grand-nephew, of his former friend Toretto, and sometimes known by that surname. Canova engaged, for a very slender consideration, to work during the latter half of each day for Ferrari. "I laboured," says Canova, in a letter to a friend, "for a mere pittance,—but it was sufficient. It was the fruit of my own resolution; and, as I then flattered myself, the foretaste of more honourable rewards, for I never thought of wealth." It is evident, therefore, that, young and inexperienced as Canova then was, his own exertions did in part minister to his necessities on his first arrival at Venice.

Canova remained under the direction of *Giuseppe Ferrari* nearly a year, and then left his employment, and became his own master. But we must not pass over his space of time without noticing his deportment amidst the novelties and allurements which presented themselves in a great city. Whatever might have been the fears of his friends for a youth of lively sensibility and little experience, they were quickly dispelled by the strict propriety of conduct maintained by Antonio. From his first arrival in Venice, he made an exact distribution of his time, and allotted to each division its proper employment. The mornings were devoted to the studies of the Academy, or to those of the *Farsetti* gallery; the latter part of the day was passed in the labours of the workshop; and after these were concluded, the remainder of the evening was allotted to intellectual pursuits, and improvement in those branches of education in which he felt himself particularly deficient.

The Academy of Fine Arts at Venice, though far inferior to what it has since become, possessed at this time some good casts from the antique, and a larger number from the most celebrated modern productions. The students in this Academy were directed in their studies by professors of some eminence. The *Farsetti* gallery, in which, as we have said, Canova also studied, was in the *Farsetti* palace, and was thrown open to students in the fine arts, and abundantly supplied with every requisite for their use. The constant attendance and assiduity of Canova at this place were such as to attract the attention of the noble owner, and from thence the young artist received his earliest commission, which led to the first performance for which money was paid. This earliest of Canova's public labours consisted of two baskets filled with different fruits and flowers, sculptured in white marble. They are still to be seen on the balustrade of the grand stair, but they present no striking marks of proficiency, or indications of future talent.

An undertaking of greater importance had for some time occupied his leisure hours. This was commenced at the instigation of Falier, and was to comprise a group on the subject of Orpheus and Eurydice. The model for the statue of Eurydice was first executed, and as

the Falier family were about to leave town, for their usual summer retreat at Asolo, Canova accompanied them, carrying with him everything necessary for the completion of that part of his work. At the Villa Falier, therefore, was Canova's first statue completed, when he was in his sixteenth year. It was executed in *pietra di Costa*, a species of soft stone, found near Vicenza. Canova is said to have been but little satisfied with this first effort; but his Eurydice was generally applauded as a work of great merit, and gave so much satisfaction to his patron that the young sculptor was declared sufficiently instructed in his profession to present himself, without fear, on the public stage of life. We may here relate a pleasing anecdote, illustrative of the kindness of Canova's disposition. During the time he was labouring at the statue of Eurydice, a domestic of the Falier family had waited on him, and rendered occasional assistance, in connexion with the object of study, thus becoming for the time a friend and companion of the young artist. Nearly forty years afterwards, when Canova, loaded with honours, and bearing the title of Marquis of Ischia, visited the Villa Falier, he recognized the same domestic, now aged and infirm, as he entered the apartment, in attendance upon the company. Canova immediately rose from his seat, and going up to the old man, in presence of the assembly, most cordially embraced him, recalling with delight every little incident of their early acquaintance, and suggesting many endearing recollections. True nobility of mind, united with the gentle virtues was remarkably displayed in Canova, and made him as much beloved as his talents caused him to be admired.

But we must return to the completion of his Eurydice, and the commencement of his professional career on his own account. Canova's first workshop was a vacant cell in the monastery of the Augustine Friars, attached to the church of St. Stefano, which through the kindness of the monks was gratuitously assigned for his use. There, in an indifferently lighted apartment, on the ground-floor of the inner cloister, Canova worked industriously for the space of four years. An apartment was still appropriated to his use in the dwelling of his patron, so that he did not remain in his cell after the hours of labour. During the first three years of this period he was employed, in addition to his ordinary studies, on the statue of Orpheus, and in executing a bust of the *Doge Renier*. He was regular in his attendance on the studies of the Academy, but his progress appears to have been chiefly promoted by his assiduous study and faithful imitation of nature. At this period the simplicity of nature was generally considered as poverty,—devoid of elegance or grace: instead, therefore, of a faithful imitation of the object of study, the artists of that period drew, or modelled, the figure before them, with such additions or corrections of nature as their own capricious fancies suggested. These departures from simplicity and truth were turned from with disgust by the better taste of Canova, and he determined to take nature—simple nature only—for his model.

The science of anatomy now occupied a large portion of the attention of our young sculptor, and though he was at first obliged to rest satisfied with the information to be derived from books and public lectures, it was afterwards his constant practice to study from the human subject, dissecting with his own hands, and making sketches or models of every important part. He justly regarded a knowledge of this science as of the greatest importance to his art, and therefore continued to study it to a late period of his life. His profession so constantly engaged his thoughts that even when walking in the streets, where that exercise could be enjoyed in Venice, he was always ready to mark whatever he saw that was interesting in expression, or striking in attitude. "He would often stop before the workshop of some

artisan, to remark the forceful yet easy position into which the body was thrown in different occupations." His steps were frequently arrested, as he traversed the long succession of wharfs which formed a favourite place of exercise to him, to observe with admiration the well-formed trunk or sinewy limbs of a porter in powerful exertion. Yet so much did he love simplicity, that, on being observed by those who had been the objects of his contemplation, he immediately passed on, knowing that his attentive regard would produce constraint in their actions. Appearances, thus hastily caught, were so cleverly retained, and fixed by the sculptor in his mind, that when his subject required it he could make use of them in a way seldom perceived in the artificial and studied positions of academical figures. His application was at this period unremitting; and none could witness such unwearied exertions, united with so much talent, without anticipating for our artist a high degree of future excellence and eminence. Nor did he, while closely engaged in studies immediately connected with his profession, pass by in disregard those collateral branches of knowledge which might give correctness to the subordinate embellishments of sculpture. To use the words of his friend, the younger Falier,—"He knew how to instruct himself in every kind of information connected with literature and the arts, at the very moment when his heart and hand were occupied with such exquisite address in giving to marble life and movement." He studied ancient and modern history, especially the former. Through the medium of translations, he became acquainted with most of the classic writers of Greece and Italy; he was well read in works of antiquity, taste, and the philosophy of the arts, and is said to have been well acquainted with the Spanish and French languages. Respecting the former there appears some doubt, but the latter he studied with assiduity, and spoke with fluency and elegance.

This general plan of professional study was followed by Canova during nearly seven years, three of which had now elapsed since the production of his statue of Eurydice. As might have been expected, the progress in knowledge and experience of the artist, was strongly marked in the completion of the group. His Orpheus which now appeared, was evidently superior to its companion, and exhibited wonderful correctness, with the utmost simplicity and closest imitation of nature. It was wrought in soft stone, but the execution was such that it might easily have been taken for marble tinted by age. There was a custom at Venice for such artists as had recently finished any meritorious performance, to exhibit it publicly in the square of St. Marks, at the annual festival of the Ascension. Induced and encouraged by his friends, Canova so far overcame his natural diffidence as to present here his statue of Orpheus. As this was his first attempt to bring himself into public notice, his feelings were proportionably agitated; but his apprehensions as to the result of this step, were soon dissipated. Though the style of his production was altogether different from that which was generally followed at that period, yet the simplicity and truth conspicuous in it, called forth the approbation of every person of genuine taste and feeling, while the obscurity of the author shielded him from the envy of rivals.

From this period, 1776, must be dated the commencement of Canova's success and reputation. The approbation bestowed on the Orpheus, by the Venetian public, was ever gratefully remembered by Canova, as that which made him a sculptor. After an interval of many years, on reading a letter which had been written at this period and in which his success was recorded, he appeared greatly affected, and exclaimed, "*O cari amici! O grati tempi! quindi sono divenuto scultore.*" (O dear friends! O delightful times! by these have I been rendered a sculptor.) Nearly half a century after this

period, and when his fame stood so high that we might almost expect him to forget the circumstances relating to his first group, he shewed his gratitude to his early patron by adopting, when Marquis of Ischia, the armorial bearings of the *serpent* and *lyre*, the mythological symbols of Orpheus and Eurydice. "In my armorial bearings," he writes to the younger Falier, "I have adopted the emblems of Orpheus and Eurydice in memory of these my first two statues, ordered of me by your most estimable father, from which statues I ought to acknowledge the commencement of my own civil existence."

After the exhibition of the Orpheus, Canova found his professional employment rapidly increase. The senator, Grimani, ordered a copy of that statue, in smaller dimensions, which was completed about a year after the former, in Carrara marble. The accommodation afforded to our artist by the kind monks of St. Stefano was now found insufficient, and he therefore removed to a better-lighted studio in the street or lane *San Maurizio*, where he continued till his departure from Venice. The following year he produced his statue of *Esculapius* in proportions larger than life. This work was commissioned by the *Marchioness Spinola*; but from a change of circumstances, the lady was obliged to relinquish the contract; thereby causing serious inconvenience to the artist, who was long in finding another purchaser. Canova on seeing this statue in after years is said to have been greatly surprised at the taste and mechanical skill displayed in it, and to have regretted that, during half a century, his progress had not more nearly corresponded with these early indications of excellence.

The most important and celebrated production that had yet appeared, was completed in Canova's twenty-second year. This was the group of *Dædalus* and *Icarus*, executed in Carrara marble, at the request of the senator, *Pisani*, who designed it for a niche between the double entrance doors of the palace fronting the grand canal. Such was the beauty of the production, however, that it was deemed too valuable to be thus exposed, and was placed, with some *chefs d'œuvres* of the sister art, in an inner gallery of the palace. This group was the last work of importance executed by Canova, at Venice. Highly as his merits were now estimated in that city, he felt that it did not present a field for the exercise of his abilities, nor afford the means of more extensive and refined acquirements. He therefore resolved to repair to Rome and to attempt an establishment there. To aid this enterprise, his friends petitioned the Venetian state for a pension, that he might be thus enabled to prosecute his studies without embarrassment. Canova did not wait the result of their endeavours in his behalf, but leaving this affair in their hands, set out for the banks of the Tiber.

Among the numerous productions of our artist, the specimens of his skill in basso-relievo must not be overlooked. Our frontispiece represents one of these, being a pleasing group illustrative of the benevolent offices of Instruction.

The bassi-relievi of Canova frequently represent the figures of the natural size, and though exhibiting great beauty of form, delicacy of finish, and precision of outline, are said to be often deficient in strength, from the degree of relief being disproportionate to their dimensions. They have been compared to a fine picture, where the light is too equally diffused over the whole surface without the just equivalent of shade. "In lines of such extent," says Memes, "it would have been well if the contours, instead of losing themselves in the plain of the tablet, had been rounded off to a certain altitude; then cut square, as in many of the most admired reliefs of antiquity: a bolder, firmer, and deeper shadow is thus cast, and a more vigorous effect produced."

CALCULATING MACHINES.

III. BABBAGE'S CALCULATING ENGINE.

In the present paper we shall finish our notice of calculating machines, by referring to Mr. Babbage's engine, and in doing so we shall consider, first, the necessity for such a machine,—secondly, the mathematical principle on which it is constructed,—and, thirdly, the sort of mechanism by which it performs its office.

1. Persons whose avocations require the constant aid of arithmetical or other tables are liable to be led into frequent and increasing error, unless those tables be rigorously correct. In the navigation of a ship, or in the preparation of an almanac, for instance, tables are employed to an extent inconceivable by those to whom such employments are foreign; and in the higher branches of astronomy the extent of the use of tables is still greater. Now these tables, being the work of human heads and hands, are liable to all the defects incident to such productions; and it is accordingly found that every table which has been yet published has been disfigured by error of more or less magnitude. Tables of multiplication, of powers and roots, of trigonometrical elements, of logarithms, of the solar, lunar, and planetary motions, &c., have been computed and published in various countries, to the extent of many hundred volumes; and, notwithstanding the extraordinary care which has often been bestowed on their preparation, there is scarcely one of them free from error, more or less. In a multiplication table, (as far as 100 times 1000,) constructed by Dr. Hutton for the Board of Longitude, forty errors were discovered on one single page, taken at random. In the solar and lunar tables from whence the computations were formerly made for the Nautical Almanac, more than five hundred errors were found by one person. In the "Tables requisite to be used with the Nautical Almanac" more than one thousand errors were detected by a single individual. In certain tables, published by the Board of Longitude, a table of errata, containing eleven hundred errors, was affixed! It was afterwards found necessary to have an errata of the errata!! and one instance has been known of an erratum of the errata!!!

Now such a mass of error seriously affects the computations into which these tables enter, and it is of course desirable to devise the means of diminishing the amount of such error. But the sources of error are so numerous that it is difficult to counteract or remedy them all; for instance, some result from falsely computing, and others from falsely transcribing; some from the compositor taking wrong types, and others from a displacement of the types, by the inking-ball used by the printers, and then by a faulty replacement of such types by the pressman. Mr. Babbage himself published a set of logarithmic tables, in which, notwithstanding a degree of care which had perhaps never before been bestowed on such a subject, errors were detected, even after the tables were stereotyped.

2. These circumstances, amounting almost to an impossibility of producing correct tables by the common method, led Mr. Babbage, about twenty years ago, to devise a mode of computing and printing off mathematical tables by a machine; for it was found that, however correct the computation might have been, errors of the press would always exist under the common method. Nearly all tables, such as logarithms, squares, cubes, square roots, cube roots, sines, tangents, &c., consist of numbers which either increase or decrease, according to some general law, and it is therefore for the most part found that, whatever be the nature of the table, it can be computed by a continued series of additions, so as to come within the scope of mechanical action. The formation of tables by a constant succession of additions depends on a mathematical property, called the *method of differences*, which we must endeavour briefly to explain.

Let us take a series of square numbers, that is, the squares of the natural numbers, beginning from 1.

No.	Squares.	1st. Diff.	2nd. Diff.
1	1	3	2
2	4	5	2
3	9	7	2
4	16	9	2
5	25	11	2
6	36		

There results the series of squares 1, 4, 9, 16, 25, 36. Subtract each number from the one next below it, that is, 1 from 4, 4 from 9, &c., and there results the series 3, 5, 7, 9, 11, called *1st differences*. Again, subtract each one of these last obtained numbers from the one next below it, and we shall obtain the constant number 2, called *2nd differences*. Now it is found that in almost every table, consisting of numbers increasing or decreasing according to some general law, we can arrive at a constant difference, by continual subtraction. Here is another example, which is a short table of the cubes, or 3rd powers of numbers:—

No.	Cubes.	D ¹	D ²	D ³
1	1	7	12	6
2	8	19	18	6
3	27	37	24	6
4	64	61	30	6
5	125	91	36	6
6	216	127	42	6
7	343	169	48	6
8	512	217		
9	729			

By subtracting the cubes successively one from another, we get a series of numbers forming the 1st order of differences. By subtracting similarly the terms of this series, we obtain another series, forming the 2nd order of differences, and, by proceeding in like manner a third time, we come at length to a 3rd order of differences, in which the terms are all equal, and which is the constant difference. Something more or less analogous to this will occur in almost all tables increasing or decreasing according to a certain law, and we can now show how these differences enable us to arrive at the successive terms of a table, by mere addition. For instance, having ascertained in the preceding table that the constant difference is 6, that there are three orders of differences, and that their first terms are 6, 12, and 7 respectively, we can construct the 2nd differences by adding 6 to 12, and then 6 to this sum, time after time. Then the 1st differences may be obtained by adding the terms in the 2nd differences to 7, term by term, and so on until we at length arrive at the required numbers, nothing being necessary throughout but a continual process of addition. In some tables it is found that we arrive at a column of differences which remains constant for a certain number of terms, and then acquires a slight increase or decrease; but even in such a case, a periodical change of the constant difference will be all that is necessary.

Mr. Babbage, after carefully considering the various properties of numbers, selected this one, viz., the method of differences, as the basis of his machine; since, after having given the few early terms of a series, and the first term of each of the several orders of differences, the subsequent construction of the table depends wholly on a continued succession of additions, a process which is more readily within the power of machinery than any other. In fact, as exemplifying the necessity for such a machine, in order to insure accuracy in the unceasing and monotonous operations of addition, we will relate a curious but well-known fact.

During the time of the French republic, it was decided

upon by the government of that country, to construct a vast system of logarithmic and trigonometric tables, such as did not then exist, and which might serve as a store of calculation for ever. M. Prony, who was appointed to preside over this undertaking, adopted with success the useful principle of the division of labour. He distributed the persons engaged in this undertaking into three sections: the first consisted of half-a-dozen of the most eminent analysts, whose duty it was to investigate the most convenient mathematical formulæ, which should enable the computers to proceed with the greatest expedition and accuracy by the method of differences. These formulæ, when decided upon by the first section, were handed over to the second, which consisted of about ten properly qualified mathematicians. It was the duty of this second section to convert into numbers certain general or algebraical expressions which occurred in the formulæ, so as to prepare them for the computers. They were then given to the third section, who formed a body of nearly a hundred computers, whose office it was to make up the numbers, finally intended for the tables, and those, who in this case committed fewest errors, were those who understood nothing but mere addition! This shows that, as such persons were little better than machines, so a regular machine would achieve its work one degree better, that is, by ensuring perfect accuracy.

The body of tables thus calculated, contained in manuscript seventeen folio volumes, but were never published. The printing of them was commenced, and a small portion was actually stereotyped: but soon after the commencement of this undertaking, the sudden fall of the assignats, rendered it impossible for the printer to fulfil his contract with the government. The British government offered 5000*l.* towards the completion of this work, but political circumstances perhaps prevented its re-adoption, and it has never been resumed.

3. The fact, therefore, stands clear, that persons who knew only addition, worked throughout *nearly* correct; and that a machine, which acts only by performing addition, is throughout *quite* correct. We therefore now proceed to take a cursory glance of the mechanism of Mr. Babbage's machine.

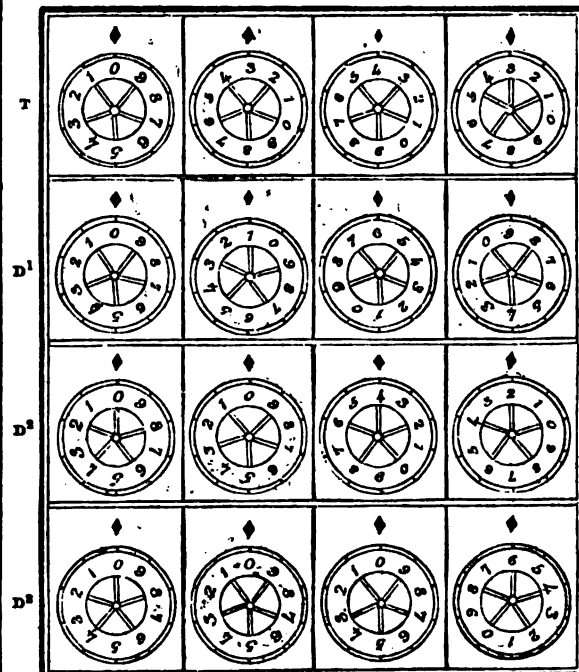
He provided as many dial-faces as there were orders of differences, plus the original series, in the particular table which he desired to construct, multiplied by the number of figures, to which each term would extend: for instance, if, as we have supposed in the annexed figure, each term should extend to four places of figures, and if the series of terms had three orders of differences besides the original series itself, there would be sixteen dial-faces arranged in a square. Each dial is marked with the ten digits arranged round in a circle, and above each disc is a mark which serves as an index. Each dial is also fixed on the face of a wheel, whose circumference is either toothed, or provided with projecting pins which can be inserted into an adjoining wheel. The object to be attained then is to make the dials above any particular order of differences revolve, in proportion to the number contained in the order of differences next below it.

For the sake of illustration, we shall therefore suppose that the table to be calculated shall consist of numbers not exceeding two or three places of figures, and that the difference of the third order is the constant difference, as in the last preceding table. When the dials revolve, the numbers pass, as they increase, under the index over each dial, that is, from left to right.

Now we will suppose that the line D^1 is to be added to the line T . To effect this, the dials on the line D^1 remain still, while those on the line T are so moved, that as many divisions on each dial shall pass under its index, as there are units in the number at the index just below it. If 0 be at any index on D^1 , the dial above it does not move. In like manner, the D^2 is added to the line D^1 . When two figures added together make more than

9, a carrying of 1 has to be made; and the dial to the left is accordingly advanced one division: Hence, in order to prevent the machine from being burthened with more mechanism than is necessary, the additions are performed in two successive periods of time, and the carryings in two other periods of time, thus:—If one complete revolution of the axis, which moves the machinery, makes one complete set of additions and carryings, the *first* quarter of a turn of the axis will add the *second* and *fourth* rows to the first and third, without carrying, which will be effected by the *second* quarter of a turn. The *third* quarter of a turn will add the *second* and *third* rows together, and the *fourth* will carry if necessary.

In the miniature representation which accompanies this slight description, we will suppose a computation to have proceeded as far as the cube of 7 which is 343. This number appears therefore in the highest row, and the several differences, as far as the third, which is constant, are shown in the successive rows of dials beneath. In the last preceding table, which concurs with these dials, the differences alluded to, are marked; and by comparing the table with the dials it will be seen how the process goes on, and that, at the completion of one revolution of the axis of the machine, the row T will give 0512, D^1 0217, D^2 0048, D^3 0007.



The machine occupies a space about ten feet broad, ten feet high, and five feet deep. In the foregoing description we have, for the sake of clearness, somewhat varied from the actual mechanism. There are, in fact, seven vertical axes in front of the machine, each containing eighteen wheels, with their *edges* presented to the eye; and round the edge of every wheel the numbers from 0 to 9 are written. The eighteen wheels are for the purpose of carrying a computation as far as eighteen places of figures; and the seven wheels in width are for constructing tables which have as many as six orders of differences. Seven other axes are placed behind the front ones, and are mounted with wheels connected with the moving parts of the machinery. The dials are placed vertically one below the other, and read from top to bottom: their axes are vertical, and their planes horizontal. This arrangement saves space, and lessens the amount of friction. The wheels of the last column, which gives the constant difference, always remain still, and are of course adjusted by the hand, when the calculation of a new table is about to commence. When

anything goes wrong, or any new adjustment has to be made, the machinery rings a bell!

The reader would perhaps desire to learn, and we should be happy to describe, were it possible, the actual movements by which all these axes and wheels effect the process of computation; but, when we state that the drawings of the various parts, constructed by, or under, Mr. Babbage, cover one thousand square feet of surface, and that the machine is one of the most complicated assemblage of parts that the hand of man has ever devised, it is obvious that we must not attempt such a task. Suffice it to say, that every kind of mechanical agent is brought more or less into effect: cog-wheels, ratchet-wheels, bolts, teeth, claws, racks, levers, wedges, screws,—all are employed; and in such vast number, that none but persons accustomed to inspect machinery can avoid being bewildered by their enumeration.

Perhaps the most extraordinary part of the machine is, that it prints the tables as fast as it calculates them. When one of the dial-wheels is in such a position as to indicate any particular figure of the table, some mechanism at the back raises a curved arm, containing several figure-punches. A plate of copper is brought near the bent arm, and, by a sudden blow, an impression of the required figure is punched in the copper; and the figure so punched always corresponds with that indicated on the dial. The plate is shifted from place to place, until it is punched all over with figures arranged in a tabular form. The plate thus stamped may be either used as an engraved copper-plate, and printed from in that form; or may be used as a mould, from whence stereotyped plates may be produced.

When Mr. Babbage had advanced some way in the construction of a model-machine, and had ascertained that the principle on which he was proceeding was capable of effecting the desired object, the subject was taken up by government, and made a national concern, on the ground that no private individual could reap from such an invention a return adequate to the necessary outlay; and on the ground, also, that government were desirous of affording to the navy all possible means of obtaining correct tables for the computation of latitude, longitude, &c. The government applied to the Royal Society to report on the degree of progress which Mr. Babbage had made, and on the probability of the machine, when completed, effecting all that had been anticipated from it. The report was very favourable, conveying the opinion of the scientific men composing the committee of inquiry, that the proposed end was desirable; that it was attainable on the plan adopted by Mr. Babbage; and that that gentleman was fully equal to the task of carrying it out.

We have spoken of the machine as if it were completed, or, at least, as it is intended to be completed. But, in fact, it is not yet in operation, nor even near completion. More than twenty years have elapsed since the first commencement of the model, during the whole of which time new difficulties have occurred, and have been conquered one by one. Still, however, the machine is not completed, and we are not exactly aware what are the causes of the long delay;—whether it results wholly from the unprecedented difficulties of the undertaking, or whether pecuniary difficulties have retarded the progress; but every lover of astronomy, of navigation, or of general science, must ardently desire the completion of so noble a specimen of genius and perseverance. We believe that the machine, so far as it is yet constructed, is national property; and that Mr. Babbage has neither received, nor desires to receive, any pecuniary benefit from the invention. If this be really the case, it is difficult to conceive a more honourable position than that which the inventor must occupy in the estimation of all to whom the well-being of society, and its advancement in knowledge, is a desirable object.

BROCADE.

Some o'er her lap their careful plumes display'd,
Trembling, and conscious of the rich brocade.

In the early part of the last century a favourite but costly stuff for dresses was formed of gold, silver and silken threads, enriched with flowered ornaments of the same materials: this was called *brocade*. At the present day, however, all stuffs, programs, satins, taffetas, and lustrings are called brocades, if they are adorned with flowers or other figures.

In the preparation of gold brocade many ingenious devices have been resorted to for diminishing the costliness of the article, by employing as small a quantity as possible of the precious metals. In the preparation of the threads for the brocade, a flattened silver-gilt wire or riband was spun on silk which had been previously dyed as near as possible of a gold colour; and the chief merit in preparing gold threads was so to regulate the convolutions of the metallic covering of the silk, that its edges should be in close contact and form a continuous casing without any overlapping or interstices.

In all manufactures a great demand for an article is a sufficient stimulus to ingenious persons to contrive the very best possible methods for its production; and accordingly, we find that at the time when gold brocade was much in request, the manufacture of the thread, upon which branch much of the brocade depended, was in a state of great excellence, and some manufacturers were so jealous of their skill as to keep their processes strictly secret. Among others, there existed at Milan a large manufactory, where by a secret process, flattened wire, gilt on one side only, was made. Nuremberg, the great toy-shop of Europe, furnished an inferior description of thread, made by spinning gilt copper wire on flaxen or hempen threads. The economical Chinese employed slips of gilt-paper twisted upon silk;—sometimes they even twisted the paper without any internal support, into long spiral rolls and introduced it into their dresses. But as these golden tissues were by no means permanent when worn about the person, the Chinese confined their use chiefly to the tapestries and internal decorations of their houses.

About the thirteenth century a very flourishing manufacture of brocades existed at Lucca; but in the year 1310 the artisans being oppressed by the government, fled to Venice, where they were encouraged to resume their trade, and for a long period they continued to carry it on with considerable success.

The Venetians invented a new form of brocade which they named *damasquitte*. Although it contained no more than half the quantity of gold and silver usually employed in making brocade, yet its appearance was far more costly and beautiful. The flattened wires were not placed so closely together on the silk threads, and the number of these threads in weaving was diminished. But the great secret of the economy seems to consist in passing the manufactured stuffs in a peculiar manner between rollers with great pressure, so as to partially crush the wire threads; by this means the ornamental pattern appeared like one entire brilliant surface of gold or silver.

This process was long kept a secret; but about the middle of the last century the spirit of commercial rivalry prompted the French Government to attempt a similar manufacture. In this attempt they were assisted by M. Vaucanson, so celebrated for his automatic achievements, who erected machinery at Lyons, and presented an account of his proceedings to the French Academy in the year 1757.

The rollers employed by M. Vaucanson were, the upper one of wood, and the lower one of copper, the latter being made hollow, for the insertion of iron heaters. In the early attempts it was found that the united force

of ten men was scarcely sufficient so to work the rollers as to extend the plating of the wire threads; and the great amount of force so deranged the machinery in which the rollers were placed, that the effects of pressure on the cloth were always varying. Among many other inconveniences, the wooden rollers were constantly splitting or warping, in consequence of the mode of forcing the rollers together. M. Vaucanson, therefore, contrived a method whereby the pressure should always adjust itself to any inequalities in the stuff, or in the bearings of the machine. The axis of the copper roller he made to turn between anti-friction rollers, while the wooden roller was forced upwards by levers at the ends. Each lever had its short arm supported on the frame of the machine, and the long arm was drawn up by an iron rod communicating with the short arm of a horizontal lever, to which at its long arm was hung a weight; and these levers were so proportioned that thirty pounds only would produce a pressure between the rollers equal to 17,000 or 18,000 pounds. This force was found sufficient, and it was so effectual that the efforts of four men in turning the rollers answered the purpose better than ten men in the former case.

The copper roller was heated by the insertion of four red-hot iron bars. After two or three pieces of cloth had been rolled, a fresh wooden roller was employed, since the heat, if long continued, was sure to split it. The heated wooden roller was wrapped, as soon as it was removed, in cloths, and placed in an atmosphere from which it might acquire moisture. The heat and pressure thus employed to extend the gilding were found greatly to improve the brilliancy of white and yellow silks, but to impair that of crimson, green, and other colours.

It will be seen, from what we have already stated, that brocade was a very costly article of dress; not only from the amount of precious metal employed, and the tedious and expensive mode of manufacture, but also from its evanescent nature. A brocade dress was very liable to become tarnished; when such was the case, the mode of washing was also costly. A soft brush, dipped in warm spirits of wine, is said to be the only method of restoring tarnished brocade. Brocade powders were in vogue at the time this sumptuous dress was in fashion, but they were ineffectual, because, from the extreme thinness of the metal, it was easily scratched or worn away by the friction even of the most impalpable powder.

Brocade continued to be used in ornamenting drawing-room furniture, long after it had ceased to adorn the persons of beaux and belles. In 1798 some brocade chair-bottoms, for Carlton House, were produced at Spitalfields, and are said to be still in existence. There is no doubt that should the vane of that weathercock, Fashion, again point out gold and silver brocade as a desirable article of attire, our modern manufactures would soon equal, if not surpass, the costliest productions of former days. To those who are anxious for such a result let us recommend the remarks of the *Spectator*, which, though written a hundred and thirty years ago, are still applicable, because they refer to one of the weaknesses of human nature.

A furbelow of precious stones, a hat buttoned with a diamond, a brocade waistcoat or gown, are standing topics of conversation. In short, they only consider the drapery of the species, and never cast away a thought on those ornaments of the mind, that make persons illustrious in themselves and useful to others. When persons are thus perpetually dazzling one another's imaginations, and filling their heads with nothing but colours, it is no wonder that they are more attentive to the superficial parts of life than the solid and substantial blessings of it.

THE love of novelty often leads us from old established favourites to less interesting objects; and when Fashion points the way, we follow as if this tyrant directress were incapable of error.—PHILLIPS.

POISONOUS ARTICLES OF FOOD.

I.

MUSHROOMS.

MANY hundred species of the *Agaricus*, or mushroom, are enumerated by botanists, as being distributed over nearly the whole of Europe, and great part of Asia, Africa, and America. Of these, the people of this country esteem but three as eatable, but the inhabitants of various parts of the Continent make use of a much greater number, and it is said that in the Tuscan markets not less than three hundred different species are offered for sale. Almost all writers agree in considering mushrooms as very difficult of digestion, and hence an improper article of diet, and it is certain that the most wholesome kinds will sometimes produce, in those not accustomed to them, symptoms of indigestion, of a most distressing, and often alarming kind.

Dr. Christison and others believe that they may be rendered less unwholesome by more attention being paid to the cookery than is usual, but, as every medical opinion must have its opposite, Dr. Schwægnöchen, of Leipzig, declares they are only innocent when eaten raw, and states, as a proof thereof, that during his botanical excursions he has always been accustomed to diet himself like the peasants, viz., upon crude mushrooms and bread, and, so far from finding them disagree with him, he has always on these occasions gained flesh. Pallas states also that the inhabitants of many districts of Asiatic Russia live almost exclusively during Lent on bread and fungi, which they eat almost indiscriminately, and without evil consequences. Mushrooms formed a favourite dish among the ancient epicures, and frequent mention is made of them by Horace, Juvenal, and Martial.

Dr. Greville enumerates twenty-six species, growing abundantly in various parts of Great Britain, most of which are considered as eatable abroad. We, however, reject all but three, as dangerous or poisonous: these are, 1, *Agaricus campestris*, the common mushroom, so well known by its fragrant odour, and button-like form, when young; 2, *Agaricus Georgii*, which sometimes reaches an immense size; 3, *Agaricus pratensis*, or Scotch bonnet, occurring in the patches termed fairy rings. It is very possible by this limitation we may reject several kinds which might be safely eaten, yet is such an error much safer than the too indiscriminate use of this vegetable on the Continent, for the French medical journals record no less than one hundred deaths from eating mushrooms, as occurring in the vicinity of Paris, during the space of thirty years, viz., between 1749 and 1783. Severe epidemics have been also sometimes traced to the same source. It has been sometimes attempted to explain the deaths arising from eating mushrooms, as depending upon some peculiarity, or idiosyncrasy, as it is termed, in the individuals affected, which disposes them to be injuriously affected by articles of diet, which in their general operations are harmless, or even beneficial, to others; or again, it has been supposed that the mushrooms may have become mingled with some poisonous matter, by being cooked in copper vessels. Undoubtedly, both these causes may have produced injurious, or even fatal effects, in some cases, but an immense number of experiments and observations have proved beyond doubt, that a truly poisonous substance, (the nature of which is however not known,) is contained in several species of mushrooms. As a proof, however, either that some constitutional peculiarities sometimes influence the operation of this vegetable upon the system, or that climate and situation modify its properties, we may mention that the *Agaricus piperitis*, or pepper mushroom, which is thought by us to be very hurtful, is largely consumed in Russia. The *Agaricus muscarius*, the red, or bug (so called from its destroying this animal) mushroom, which is deemed

rankly poisonous in Britain, is used by the Russians and Kamschadales for the purposes of intoxication. Dr. Langsdorff says the Asiatic Russians, who call it *muchomoroe*, use it dry in the form of pills, and that one large, or two small mushrooms are enough for a day's debauch. In an hour or two the same symptoms which with us follow taking wine manifest themselves, and a surprising degree of muscular activity and energy is developed for a while. The Koriacks use it as a tonic for invalids, much as we do wine.

That mushrooms were occasionally poisonous, was well known in ancient times, and the writings of the Greek, Roman, and Arabian physicians, contain many cautions and precepts upon the subject. They have even been criminally given in order to produce this effect, and thus Agrippina, the mother of Nero, is said to have poisoned Claudius by their means, to accelerate the succession of her son, who called them "food for the gods," and frequently had recourse to them for similar purposes, during his iniquitous reign. The instances of accidental poisoning in modern times are unfortunately but too frequent. The symptoms are often five or six hours before they manifest themselves, even fifteen or twenty-four have sometimes elapsed: the fatal substance having undergone the process of digestion, and mingled with and corrupted all the juices of the body, before exhibiting any external signs of its presence: these even are often obscure and unintelligible at first; an irrepressible propensity to laughter and general exhilaration, usually herald in the vomiting, griping, and diarrhoea; then follow sooner or later, fainting, stupefaction, and death. The effects of the poison are as slow in their progress as in their onset, and the patient may linger days before the fatal moment arrives. The musician, Schobert, and his family, together with a friend and a physician, having partook of a dish of mushrooms, gathered near Paris, were all poisoned. Mr. Brande has related the case of a man who gathered some small mushrooms in the Green Park, the *Agaricus semi-globatus* of Withering, and *Agaricus glutinosus* of Curtis. Himself, wife, and four children, were all severely affected, but by the use of appropriate measures recovered. Mr. Parrot relates also the case of a family of six, who supped on stewed mushrooms: the father and mother eventually recovered after a severe illness, but three of the children were carried off after lingering a few days. The noxious species of mushrooms are equally hurtful to man as to animals, and no kind of culinary treatment seems to deprive them of their dangerous properties. A very small admixture of a bad with a good species suffices to produce ill effects.

In regard to the treatment of persons poisoned by mushrooms, or indeed by any other description of deleterious food, it cannot be too generally known that the prompt administration of an emetic is the best remedy. This may consist of a spoonful or two of mustard, or a scruple of sulphate of zinc, mixed with water. As the poison of the mushroom is so slow in its operations, the use of the emetic will often be attended with the happiest results. The subsequent treatment of the case will depend upon many circumstances, of which we need give no account, as it should only be undertaken under the superintendence of a professional man.

An important and difficult point has properly occupied the attention of many observers, viz., the signs by which we can distinguish the dangerous from the innocent species of mushroom. The botanical definitions are very minute, yet not sufficiently directed to this point, while the sensible differences between the esculent and the noxious kinds depend sometimes upon such shades of distinction, as to be quite inappreciable by those little accustomed to such investigations. Nevertheless, some facts, gathered from practical observation, have been accumulated, which render considerable assistance to the enquirer.

Miller thus describes 'the common mushroom:—"When young it appears of a roundish form, smooth like a button, which with its stalk is white, especially the fleshy part of the button: the gills within, when broken, are livid. As it grows larger, it expands its head by degrees into a flat form: the gills are at first of a pale flesh colour, but become blackish by standing."

Professor Orfila says,—“All those growing in moist and marshy grounds, in the shade, as in forests, must be rejected as bad; they are always found too soft, porous, and moist, and have a dirty disagreeable appearance. Those which change colour when cut, have a strong pungent odour, or are of a shining or varied colour, are dangerous; so are those which insects have bitten and left, or which have bulbous or soft stems, or fragments of skin glued to their surface. Those of very rapid growth and decay are bad. Although many are said to lose their poisonous properties when dried, this observation will apply only to some species.”

A recent writer upon the subject states, that all mushrooms having the following characters are poisonous: 1st, when the cap is very thin in proportion to the gills; 2nd, when the stalk grows from one side of the cap; 3rd, when the gills are of equal length; 4th, when a milky juice is present; 5th, those which soon run into a dark watery liquid; 6th, when the collar surrounding the stalk is thready, or resembling a spider's web.

De Candolle declares that all kinds may be eaten, with the exception of the following:—1st, coriaceous or ligneous kinds; 2nd, those which have collars in their stems; 3rd, those which have an acrid taste; 4th, those which turn blue on being cut.

Dr. Greville recommends collectors to taste all they gather, and to reject those which produce an acrid or astringent sensation, as also those which have a pungent or disagreeable smell. The importance and difficulty of this point may be judged of by the circumstance of some of the continental nations having found it necessary to pass formal decrees upon the subject. Thus it has been ordered in Austria, that the inspector of the market must produce proof of having attended lectures upon the subject, and familiarized himself with the botanical distinctions of the various species of mushrooms, while works upon the same topic, must be in the possession of the magistrate. Similar decrees were issued in France in the time of Napoleon.

INFANTILE POEM,

WRITTEN FOR LORD HASTINGS' CHILDREN

BY LADY FLORA HASTINGS.

GET up, little sister, the morning is bright,
And the birds are all singing to welcome the light;
The buds are all opening—the dew's on the flower!
If you shake but a branch, see there falls quite a shower.

By the side of their mothers, look, under the trees,
How the young fawns are skipping about as they please;
And by all those rings on the water, I know
The fishes are merrily swimming below.

The bee, I dare say, has been long on the wing,
To get honey from every flower of the spring;
For the bee never idles, but labours all day,
And thinks, wise little insect, work better than play,

The lark's singing gaily; it loves the bright sun,
And rejoices that now the gay spring is begun;
For the spring is so cheerful, I think 'twould be wrong
If we did not feel happy to hear the lark's song.

Get up, for when all things are merry and glad,
God children should never be lazy and sad;
For God gives us daylight, dear sister, that we
May rejoice like the lark, and may work like the bee.

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TURKEY AND THE TURKISH PROVINCES.



GROUP OF SULIOTS.

ALI PACHA, AND THE SULIOTS.

HAVING, in a former article, briefly described the situation and nature of the small tract of country forming the native habitation of the Suliots, as also the character and mode of life of the inhabitants; we shall now take a cursory glance at the changes which have occurred in the political position of this little republic within the last fifty years.

With the exception of Mehemet Ali, the present Pacha of Egypt, few Turkish governors of recent times have equalled in vigour and successful cunning Ali Pacha of Joannina, a man who raised himself from a very humble situation to that important post. Ali was born in the small town of Tepeleni, in Albania, in the year 1750. His father, Vely Bey, at the head of a band of robbers, had gained possession of Tepeleni by force, and gradually acquired a kind of sovereignty over the surrounding district. Vely had two wives, of whom Khamco, the mother of Ali, was a woman of uncommon talent, undaunted resolution, and great cruelty; the latter quality she displayed, by poisoning her rival, and the son of the latter, soon after her husband's death, thus securing the governing power to her own son Ali.

Under such a mother, young Ali did not fail to make rapid progress in those manly acts which are so much esteemed in a rude state of society: he became the best horseman, the swiftest runner, and the most expert marksman of the district which he governed. By the united efforts of his mother and himself, he gradually

extended the sphere of his power, and became an object of fear and distrust to the beys and agas of the neighbouring territories. He was, in fact, nothing more than what, in other European countries, would have been termed a Captain of Banditti; but the state of government in Turkey is such, that pashas, beys, and agas, are often but little removed from that character. In battle, Ali possessed undaunted courage and great ability; and in intrigues, a sagacious and wily keenness; and these combined, enabled him by degrees to lift himself into the high office of Pasha of Joannina, about the year 1785. He now looked forward to the establishment of an independent sovereignty for himself in Albania and Epirus.

The means which he resolved to take for the completion of this plan, (says the Rev. Mr. Hughes in his interesting Travels in Albania,) were to amass treasures, to keep agents in pay at the Ottoman court, to infuse suspicion of other powers into the minds of the divan, to render himself useful to whatever European state was most able to return his services, and finally to seize upon the property of his neighbours whenever and by whatever methods he could. In the execution of these measures, his rapacity was boundless, his penetration deep, his aggressions innumerable, his perfidy more than Punic, and his success for a time complete.

We are not here writing an account of Ali's life, but only so much of it as is necessary to show the cause of the ruin of the little republic of the Suliots. Passing on then to the year 1792, we find the Suliots attacking and harassing Ali in the southern part of his territory, from a deep hatred of the tyranny which he was gradually introducing. To root out the Suliots became therefore

one of his plans. He collected an army of 10,000 men, and while his preparations were making, he sent letters to the two chief captains of the Suliots, endeavouring to entrap them into a treacherous compact. The treachery was half suspected; the seizure of seventy unarmed Suliots soon afterwards confirmed it; and the Suliots then determined on a firm resistance.

The Pasha advanced with his army towards the Suliot villages, when a proof was given how stout a defence might be made at the passes of the rock leading from the river side: the defiles and narrow inlets speedily became choked with the dead bodies of the Turks; and it was not until the ammunition of the Suliots failed, that they receded to their villages. An act of female heroism now occurred, which has seldom had a parallel in any age or country. The Suliots were retreating to Suli, when Mosco, the wife of Captain Tzavella, rushed out of the town sword in hand, accompanied by many other women similarly armed, and persuaded the troops once more to oppose the advancing Turks. This act roused the enthusiasm of the Suliots to such a degree, that they fell on the Turks with irresistible fury. Mosco soon found the dead body of a favourite nephew; when, kissing his cold lips, she cried, "Since I have not arrived in time to save thy life, I will yet avenge thy death," these words were followed by another attack so overwhelming, that Ali was forced to retreat after having lost nearly all his troops, and the whole of his baggage, ammunition, and arms. A peace, very advantageous to the Suliots, terminated this event.

For about eight years after this period, Ali was engaged in a busy scene of war and intrigue, mixing himself up in the various political negotiations between Russia, Turkey, France, and Venice; and endeavouring to advance his own interests by cheating all of them in turn. At length, about the year 1800, he resolved on a second attack of the Suliots: he contrived to make Botzari, their captain, a traitor to his companions; and gained over the neighbouring agas and beys by causing a sheik to give such a translation of certain passages in the Koran as should give a sort of religious air to the contest. The treacherous Botzari did infinite mischief to the Suliots, and then deserted them just at the moment of attack, leaving only 3000 Suliots to defend themselves against 18,000 Turks. The attack was commenced at different points, but resolutely met at all; the infamous Botzari himself headed one of the attacks, but was repulsed so ignominiously that he died soon after of disappointment. For two days the contest between the Suliots and Ali continued, and ended, as before, in the complete defeat of the latter. On one occasion, owing to the peculiar nature of the rocky defiles as a natural defence, 200 Suliots completely defeated 3000 Turks, with the loss of only twenty men.

Ali now determined to blockade the Suliots, by placing five strong bodies of troops in the principal defiles leading up to the villages. These five bodies were promptly confronted by an equal number of Suliot bands, to each of which was attached a troop of females, to provide the food, to relieve the sentinels occasionally when on duty, to supply ammunition, and even to engage in the contests. The defence, in short, was so energetic, that Ali found the siege hopeless. He then turned it into a blockade, with the hope of starving out the Suliots; but they were acquainted with paths unknown to his troops, and were enabled to bring in supplies of food. Foiled at all points, he attempted to make a treacherous truce; and having got seventeen Suliots into his hands, threatened to torture them to death if the place was not surrendered; but such a people was not likely to be moved by fear of death, and his threat was repelled with scorn. He then resolved to try bribery; and sent an offer of a large sum of money to Captain Zerva, one of the most valiant of the Suliots, if he would betray the Republic. The answer of Zerva is worthy of record:—

"I thank you, vizier, for the kind regard you express towards me; but I beseech you not to send the purses, for I should not know how to count them: and if I did, believe me that one single pebble belonging to my country, much less that country itself, would, in my eyes, appear too great a return for them. Equally vain are the honours you offer to bestow on me. The honours of a Suliot lie in his arms. With these I hope to immortalize my name and preserve my country."

Every stratagem on the part of Ali failed; but as the blockade was still continued, the Suliots began to feel the fearful effects of hunger: they were obliged to live upon acorns, herbs, and roots, and to grind and mix up the bark of trees with a small proportion of meal. This distress, however, did not lead them to forget the nature of the struggle in which they were engaged: they knew that if once Ali gained possession of their territory, their position would be humiliating in the extreme.

For more than twelve months did this blockade continue; Ali, in the mean time, employing all the arts of cunning and persuasion to induce some of the Suliot chiefs to come over to his cause. These reiterated attempts were generally unsuccessful; but at length he wearied out the Suliots with the length of the blockade and with his unceasing stratagems; and, on December 12, 1803, they capitulated, and obtained leave to emigrate to other lands. But the basest treachery was here shown: the Suliots were divided into two bodies, one of which was to go to the neighbouring town of Parga, and the other to Santa Maura, one of the Ionian Islands: but Ali's troops, in defiance of the compact agreed on, fell on them, and massacred large numbers of the women and children; and only a portion of the Suliots reached their destination. Even these were further persecuted by Ali and his emissaries, and became at length mere wanderers in Corfu, Santa Maura, and Parga.

After the Suliots became extinct as a nation, we find that for many years they made feeble struggles,—now aiding the French,—and now some of the beys and pashas who were hostile to Ali,—but always without regaining their ancient home. Thus they continued until nearly twenty years afterwards, when, through the complex nature of the politics of south-eastern Europe, they found themselves fighting by the side of their old enemy Ali. The Greeks of the Morea, were struggling to throw off the Turkish yoke,—the Turks were determined to resist them to the last,—the Suliots were anxious to get back to their native hills,—and Ali was grasping for power and wealth wherever they were to be obtained. It is therefore not easy to trace, in a brief space, the circumstances which led to a compact between the Suliots and their deadly enemy; but it must suffice to say, that in the year 1822, the Greeks, the Suliots, and Ali, were all leagued together against the Turks. This league terminated by the death of Ali; and soon afterwards the brave but unfortunate Suliots were again compelled to leave their mountain home, and seek for refuge, under the English flag, in the Ionian Islands: 3000 Suliots accepted this refuge, and the rest dispersed themselves among the neighbouring tribes.

During the subsequent contests between the Turks and the Greeks, the Suliots were frequently found serving as volunteers in the ranks of the latter; and at the siege of Missolonghi, and the other engagements which took place during that war, the Suliots were highly distinguished for their skill and bravery. The corps of 500 hundred men, raised and equipped by Lord Byron at his own expense, was composed of Suliots, for whom he had a great admiration. Since the termination of these contests, the Suliots have been restored, in a partial degree, to their former liberty; but their numbers have become so wasted, that they no longer constitute the once formidable band of mountain heroes:—they must be spoken of as an heroic race whose deeds have outlived their perpetrators.

ON THE PRODUCTION OF DESIGNS BY STAMPING.

THE general use of stamps among civilised nations, and especially in our own country at the present day, renders any detail as to the mode of their production in metal, peculiarly interesting; and the more so, because it is generally supposed that these stamps are produced by secret processes, which, if revealed, would tend to encourage forgery, and so occasion loss to the revenue. This, however, is so far from being the case, that the modes of producing the stamps are well known to artists, and may be almost equally well understood by the general reader. The chief security against forgery consists in the talent and ability of the artists, employed to produce these stamps; and that it should be so, seems pretty evident, when we reflect that it is now next to impossible long to maintain secrecy in mechanical processes. Hence, attempts at forgery seem to be precluded by considerations of the inability to command the requisite talent, as well as of the danger and worthlessness of a far-off imitation.

In the manufacture of dies for stamping, the most careful attention is necessary to be given to the *kind* of metal best adapted to the purpose:—steel is generally preferred to all other metals; and this must be not only of the very best quality, but of a peculiar kind, altogether different from that employed in cutlery. It should be rather finely grained, and of a perfectly even and uniform texture. The choice of the steel, however, depends so much on the experience of the die-forgery, which is acquired only by practice, that no general rules can be offered.

The best description of steel having been selected, it is formed into the rough die by forging. It is then softened by being carefully *annealed*; that is, the die is embedded in a crucible, full of animal charcoal in coarse powder, and so brought to a red heat; it is then allowed to cool very gradually, the effect of which process is, to make the metal very soft, so that it easily yields to the tools of the engraver. The die is then smoothed externally, and a flat table worked on it at the turning-lathe. The engraver, being furnished with the design, commences by working out the device with small steel tools; and, as the work proceeds, he frequently takes impressions in clay or casts of type-metal, until he is satisfied with the general effect and correctness of his work, as compared with the original design, furnished to him by the artist. A first-rate engraver will frequently devote many weeks, and even months, to the preparation of an important die: we may easily conceive, therefore, how valuable it becomes, and what care is necessary to conduct it safely through the subsequent operations. Unfortunately, the next process, that of *hardening*, is as difficult as it is important; and it should be entrusted to those only, who have acquired considerable experience in the art.

One of the most valuable properties of steel, is its capability of being made hard or soft, according as it is rapidly or slowly cooled after being heated. At the first view, nothing appears so easy as to make a piece of soft, malleable, and ductile steel red hot, and then suddenly cool it in cold water; whereby it becomes hard, fragile, and brittle. But as a die is a mass of steel necessarily of somewhat large dimensions, the process of hardening is attended with peculiar difficulties, not the least of which is, the preservation of all the delicate touches of the engraver's skill. To meet this object, the engraved face of the die is protected with a covering of oil, thickened with powdered charcoal; sometimes pipe-clay is added to this: some employ a pulp of garlic: but pure lamp-black, mixed with linseed oil, is the best protecting composition. A thin layer of it is spread on the engraved part of the die, which may also be further guarded by a projecting iron ring. The die is next placed

with its face downwards in a crucible filled with powdered charcoal, and then heated to redness: it is afterwards by means of a pair of tongs taken out, and plunged into a large volume of cold water, and rapidly moved about so long as a bubbling hissing noise continues: it is left in the water till it becomes quite cold: if a hissing noise should continue after the bubbling and hissing have ceased, the operator is tolerably well assured that the work of the engraver is thrown away; for the die has cracked.

The action of this process upon the die is rather to *case-harden* it, than to harden it *throughout*. The interior parts of the die seemed to be held in a forced state of dilation, while the external parts are permanently dilated. The theory of the process of hardening steel is intricate; but it is well illustrated by an experiment recorded in TOMLINSON'S *Manual of Natural Philosophy*. A cylindrical steel die, such as is used for medals, was made to fit exactly a hollow cylinder of its own diameter: the die was then hardened: and it was thus found impossible to make it enter the cylinder. But when the cylinder and the die contained within it had been both subjected to the process of hardening, the substance of the cylinder being such as not to display the usual effects of hardening, this latter, upon being cooled, merely returned to its former dimensions, while the die, in dilating and remaining permanently dilated, became distorted in a manner, as if it had been violently driven into a space much smaller than itself: a ridge of metal was, in fact, raised around the two end-wise circumferences of the die, and it was thus kept fixed within the cylinder by an enormous force. This remarkable fact has been thus explained by M. Biot:—It is supposed, that the instant when the steel, being strongly heated, is suddenly cooled, the cooling effect is first experienced by the exterior layers of the metal, which become moulded, as it were, and fixed upon a centre, still strongly heated and dilated; by which means the die is made to occupy larger dimensions than it would have done, if it had been allowed to cool gradually. The molecules near the centre of the mass, cool at a later part of the process; but the exterior layers, having already acquired a fixed state, retain the interior particles in a condition of great expansion, and thus determine the volume which they occupy, and prevent them from approaching so near to each other, as they would have done, had the whole mass been allowed to cool gradually.

When the process of hardening the die has been successfully performed, other protective measures are adopted: sometimes a mild description of tempering is employed, which consists in placing the die in cold water, heating it to the boiling point, and then allowing it to cool very slowly. This process makes the die less liable to crack in very cold weather. Sometimes the die is protected by being thrust into an iron ring, which exactly fits it when red-hot, and in cooling binds the die with very considerable force; thereby preventing the spreading of external cracks and fissures, and allowing a greater and more effectual power to be exerted upon it in the subsequent process for obtaining punches.

Supposing now that the die has been properly hardened and that the protecting composition has fulfilled its object in preserving the design from injury and from the action of the fire; it is then cleaned and polished, and constitutes what is technically called a *MATRIX*. This is used as the *parent* of numerous *punches*, or steel impressions for producing stamps *in relief*. For this purpose a block of steel is chosen of the same quality, and with the same precautions, as in forming the original die; and this steel, being carefully softened, is turned, like the matrix, with a perfectly flat table at the bottom, being left broad and conical at the top. By means of powerful machinery, a strong pressing force is applied at the conical surface of the punch, and the matrix being very hard, soon causes the soft steel table of the

punch to receive the first germs of a perfect impression: but in this process of compression, the steel itself becomes hard, and requires to be repeatedly *annealed*, or softened, during the operation; otherwise, its surface would split into small cracks, or be likely to injure the matrix. By repeated blows, therefore, in the die-press, and by frequent annealing, the punch is at length completed; and after being examined by the engraver, it is turned, hardened, and furnished with an iron collar, like the matrix, of which it is a perfect copy in all respects, except that the design is *sunk*, instead of being *raised*;—that is, the punch is an *intaglio*, while the matrix is a *cameo*; and consequently, the copies from the punch on paper will, like the original matrix, be cameos also.

The original matrix is in general too valuable to be used in making further punches: these are multiplied by means of another matrix, formed from the first perfect punch, and all of them being fac-similes of the original matrix, may be used in the production of stamps to any amount. For this purpose, a screw-press is usually employed, in which the punch is made to descend with great force upon a die which it accurately fits, and the paper being placed between, receives the impression.

Such then is a general account of the various processes for producing stamped designs *in relief*, upon paper. We do not of course pretend to have described anything more than the *general* practice of this branch of art: there may be many variations in practice, which we do not undertake to develop; the common principles of the processes in use being enough for the information of the general reader.

WHERE there is most love of God, there will there be the truest and most enlarged philanthropy. No other foundation is secure. There is no other means whereby notions can be reformed, than that by which alone individuals can be regenerated. In the laws of God, conscience is made the basis of policy; and in proportion as human laws depart from the groundwork, error and evil are the sure result.—SOUTHEY.

BE sure to mend that in thyself which thou observest doth exceedingly displease thee in others.—BISHOP PATRICK.

EVERY speculation which tends to suppress a consideration of the Supreme Power and First Cause, has a pernicious moral effect, while the evil is unbalanced by any philosophical good, rather indeed tending to check the pursuits of science.—MACCULLOCH.

SPIRIT OF BENEVOLENCE.

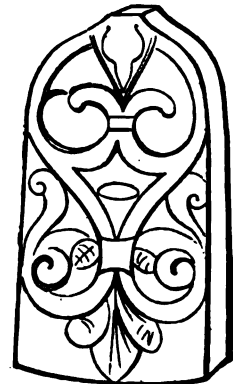
If we hope to instruct others we should familiarize our own minds to some fixed and determinate principles of action. The world is a vast labyrinth, in which almost every one is running a different way, and almost every one manifesting hatred to those who do not run the same way. A few indeed stand motionless, and not seeking to lead themselves or others out of the maze, laugh at the failures of their brethren, yet with little reason; for more grossly does *he* err, who never aims to go right. It is more honourable to the head, as well as to the heart, to be misled by our eagerness in the pursuit of truth, than to be safe from blundering by contempt of it. The happiness of mankind is the *end* of virtue, and truth is the knowledge of the *means*; which he will never seriously attempt to discover, who has not habitually interested himself in the *welfare of others*. The searcher after truth must love and be beloved; for general benevolence is a necessary motive to constancy of pursuit; and this general benevolence is begotten and rendered permanent by social and domestic affections. Let us beware of that proud philosophy, which affects to inculcate philanthropy, while it denounces every home-born feeling by which it is produced and nurtured. The paternal and filial duties discipline the heart, and prepare it for the love of all mankind. The intensity of private attachments encourages, not prevents, universal benevolence. The nearer we approach the sun, the more intense his heat, yet what corner of the system does he not cheer and vivify.—COLERIDGE.

ON CHESS.

IV. ANCIENT CHESS-MEN DISCOVERED IN THE ISLE OF LEWIS. (CONCLUDED.)



THE WARDER.



THE PAWN.

THE WARDERS are armed warriors (*Hrókr* in Icelandic), which here take the place of the rook, or castle, and are represented in a standing attitude, wearing helmets, of various shapes, but chiefly conical, some with, and others without, flaps; but all wanting the nasal-piece. The coat, or gambeson, which most of them wear, descends to the feet; yet, in lieu of this, others have a coat of mail, with a hood which covers the head. They all hold a sword in one hand, and a shield in the other; but the position is varied; the shields in some instances being borne in front, and in others at the side. The shields all bear distinctive marks, like those of the knights; but some of them are of a broader shape, and less elongated. In general the warders are more varied from each other than the similar figures of the other pieces. One peculiarity in the figures of three of the warders tends to strengthen the belief of their being of Norwegian or Icelandic workmanship, and that is the singular manner in which they are represented "biting" their shields.

Now this was a characteristic of the Scandinavian *BERSERKAR*, who were unarmed warriors, subject to fits of madness on the eve of battle, under the influence of which they performed the most extraordinary feats. They are thus described by Snorre:—"The soldiers of Odin went forth to the combat without armour, raging like dogs or wolves, biting their shields, and in strength equal to furious bears or wolves. Their enemies they laid prostrate at their feet; neither fire nor weapon harmed them: this frenzy was called *Berserksgangr*."

The PAWNS are of various shapes and sizes, but chiefly octagonal, with conical terminations: on one is a fret-like ornament, and on another some scroll-like adornment: the others are plain.

The shields of the knights and warders are highly curious, as presenting a series of devices,—the immediate precursors of hereditary armorial bearings,—in greater variety than is to be found on any other existing monuments of such an early period. The Gothic nations, however, from the earliest times, were accustomed to paint their shields of various colours; and from the Romans they might easily have learned to adopt different insignia. From some passages in the *Voluspa*, *Saxo*, and *Egil's Saga*, it has been assumed by many of the northern antiquaries, that the ancient Scandinavians adorned their shields with representations of their exploits; but Sperlingius, in his "Collections" on the subject, argues strongly against it, and affirms that before the twelfth century no traces of any devices on shields are to be found among them. The only device on shields noticed by Snorre is that of a cross, which Sperlingius conjectures was first introduced by King

Olaf the Saint, at the commencement of the eleventh century. Most of the shields depicted in the Bayeux tapestry, bear crosses of different shapes; and this is likewise the case with those of the chess figures: some of the former also exhibit a species of dragon.

The ancient chess-men discovered in the Isle of Lewis have been made the subject of an extremely beautiful and learned essay on the introduction of chess into Europe, by F. Madden, Esq., F.R.S., published in the twenty-fourth volume of the *Archæologia*. Mr. Madden supposes these chess-men to have been executed about the middle of the twelfth century, by the same extraordinary race of people who, at an earlier period of time, under the general name of *Northmen*, overran the greater part of Europe, and whose language and manners are still preserved among their genuine descendants in Iceland. For the confirmation of his opinion, he refers to the material of which they are composed, to the general costume of the figures, and the peculiar forms of some of them, to the locality in which they were found, and to the testimonies of numerous writers in ancient and modern times, touching the existence of the game of chess in Scandinavia, and the skill of the natives in carving similar figures.

And first, with regard to their material, Mr. Madden assumes on good evidence, that they are formed out of the tusks of the animal called in Icelandic *ROSTUNGR*, or *Rosmar*, and in other parts of Europe by the names of morse, walrus, or sea-horse. The peculiarities of structure in the tusk of this animal are shown in a remarkable manner throughout the entire series of the chess-men, and most unequivocally so in the draught-men, which were necessarily cut transversely through the tusk. The economy of the artist is likewise visible in fashioning his figures according to the portions of the teeth best calculated to serve his purpose.

The estimation wherein the tusks of the walrus, from which these chess-men were unquestionably carved, were held by the northern nations, rendered them a present worthy of royalty; and this circumstance is confirmed by a tradition preserved in the curious *Saga of Kröka Ref*; or *Kröka the Crafty*. It is there related, that Gunner, prefect of Greenland, wishing to conciliate the favour of Harald Hardraad, king of Norway, (A.D. 1046—1067,) by the advice of Barder, a Norwegian merchant, sent to the king three of the most precious gifts the island could produce: these were, *first*, a full-grown white tame bear; *second*, a chess-table, or set of chess-men, exquisitely carved; *third*, a skull of the *rostungr*, with the teeth fastened in it, wonderfully sculptured, and ornamented with gold.

The ancient Norwegians, and more particularly the natives of Iceland, seem to have been at a very early period famous for their skill in carving implements and figures in bone; and this talent was exerted chiefly in sculpturing chess-men from the tusks of the *rosmar*. The archbishop of Upsala, in his *Antiquarian History of the Northern Nations*, informs us that it was usual amongst them to cut the teeth of the morse in the most artificial manner for the purpose of making chess-men. Olaus Wormius, writing about a century later, states that the Icelanders were accustomed, during the long nights of winter by their fireside, to cut out various articles from "whales' teeth." "This," he continues, "is more particularly the case with chess-men (at which game they excel); and I possess some specimens of these, distinguished by being of two colours, white and green, which are sculptured so exquisitely, that each piece expresses in feature, dress, and attitude, the personage it is designed to represent." Thus, also, in the figures discovered in the Isle of Lewis, the costume, &c., of every piece has been especially attended to, and, so far as that mode of proof can be admitted, evince them to have been executed in the twelfth century.

The spot, on which these figures were found, favours

in every respect the hypothesis adopted by Mr. Madden. The Hebrides, or Southern Isles, were subject to the invasion of the Vikingr, or Sea-kings, from the end of the eighth century, and during the reign of Harald Harfager, about the year 875, were rendered tributary to the throne of Norway. The outer range of the Hebrides, in which that of Lewis is comprehended, was chiefly peopled by Scandinavians; and they continued to have princes of their own, until the period of King Magnus Barefoot's expedition, in 1096, who ravaged the Isle of Lewis with fire and sword, and added the Hebrides to his own dominions, thenceforth to be governed by a dependant lord. These islands remained under the seignory of the kings of Norway, until the year 1266, when they were formally ceded to King Alexander the Third, of Scotland, by Magnus the Fourth, in consideration of the yearly payment of one hundred marks, and the additional sum of four thousand marks, payable within four years.

Between those islands and the northern, as well as the western, coast of Scotland and Iceland, the closest intercourse existed for many ages. As the communication was kept up in small vessels (called "Byrdinga" by the Icelanders), the chances of shipwreck, in case of a storm, were great; and accordingly, many instances are on record of the destruction of ships coming from Norway to the isles.

It would appear, therefore, most probable that the chess-men and draught-men discovered in the Isle of Lewis, formed part of the stock of an Icelandic *kaupmann*, or merchant, who carried these articles to the Hebrides, or to Ireland, for the sake of traffic, and that the ship, in which they were conveyed, being wrecked, these figures were swept by the waves on shore, and buried beneath the sand-bank, which, for the space of nearly seven centuries, contrived to accumulate before the fortunate discovery took place which restored them to light.

SINGULAR CASE OF SOMNAMBULISM.

In one of my rambles, I met with a very singular instance of somnambulism, in the daughter of a Circassian noble, Noghai Selim Guarrai, near the river Ubin. The girl was, probably, about twelve years of age, and had been suffering from the disease for the last two years. During the prevalence of the fit, which generally lasted from one to three weeks, she was accustomed to employ herself at embroidery, sing to her lute, or deliver extempore poetry in a singing tone, always prophetic of some event that was to occur, of importance to the country; but, except on these occasions, she never uttered a word, nor answered a question, and seemed to address her warnings rather to some invisible spirit, than to the persons around her; she also prescribed for the sick, whom she mentioned by name, gave counsel to the warrior, reproved the wicked, and assured her countrymen, that in their contest with Russia they would be ultimately successful; not one word of which remained in her recollection when she awoke from her magnetic sleep. While this aberration of her faculties continued, her features wore an unnaturally serious expression for so young a girl: her smell, also, was so acute, that she could discover the approach of any person she knew at a considerable distance, to whom she evinced the most capricious dislike or partiality: her health appeared to suffer materially from these attacks, as she invariably awoke from her trance pale and evidently much fatigued.

These somnambulists, or as the French call them, *clairvoyantes*, so peculiar to mountainous countries, seem to form a phenomenon in animal magnetism not yet perfectly understood. I met with a similar case some years since, during a fishing excursion in the neighbourhood of Lindau, on the banks of the lake of Constance, in the person of the daughter of the Baron von Rader: she was about the same age as our Circassian Cassandra, and, like her, gifted with prophecy. The duration of the fit, and the symptoms of the patient, were also similar, except that the young German lady frequently remained cataleptic for several hours, which I did not observe in the other.—SPENCER'S *Travels in Circassia*.

ON AUTOMATON FIGURES.

I.

AMONG the various ways in which human ingenuity has displayed itself, one of the most remarkable is the construction of machines which shall, to a considerable extent, imitate the motions and actions of a living being. We are sometimes led to regret that such extraordinary powers of invention should be expended on the production of a machine possessing no real *utility* to society: but still it is so far useful, that it keeps alive a spirit of mechanical invention, which, at an after period, may be of incalculable benefit. Most of the great specimens of automatic mechanism, to which the general name of *automata* is applied, were produced at a time when there were no railroads,—few canals,—few tunnels,—still fewer steam-engines,—no locomotive carriages,—no power-looms,—no spinning-jennies,—and what is of more importance, when there was not diffused among society in general that thirst for manufacturing improvements which so greatly distinguishes the present age. A really ingenious mechanical inventor at the present day has many ways of bringing his ingenuity to a profitable market, by applying it to manufacturing machinery, and we do not consequently hear so much at the present day, as in bygone times, of the production of elaborate playthings, requiring years for their production, and possessing no commercial value. We can therefore admire the results of ingenuity shown by the older mechanists, without judging them too harshly for not doing that which the spirit of their times scarcely afforded them a field for doing.

We propose to present here a brief description of such automata, or self-moving figures, as have gained for themselves a reputation among ingenious men.

In the *Saturday Magazine*, vol. iii., p. 156, is a description of the very remarkable automatic figures in the great clock of Strasburg cathedral. We will now present some details of other clocks remarkable for the ingenuity of the figures connected with them. In the fourteenth century, James Dondi constructed for the city of Padua a clock which was long considered the wonder of the age. Besides indicating the hours, it represented the motion of the sun, moon, and planets, as well as pointed out the different festivals of the year.

The clock at the cathedral at Lyons was long celebrated as being one of the most ingenious ever constructed. We do not know whether it still exists, but in its most perfect form the following was the nature of its construction. It exhibited, on different dial-plates, the annual and diurnal progress of the sun and moon, the days of the year, their length, and the whole calendar, civil as well as ecclesiastical. The days of the week were indicated by symbols, fitted to the purpose, and the hours were announced by the crowing of the cock, thrice repeated, after it had flapped its wings, and made other movements. When the cock had ceased crowing, angels were made to appear, who, by striking various bells, performed the air of a hymn. The annunciation of the Virgin was also represented by moving figures, and by the descent of a dove. When all this ceremony was concluded, the clock struck the hour. On one of the sides of the clock was an oval dial-plate, where the hours and minutes were indicated by means of an index, which possessed the peculiar power of lengthening or shortening itself, so as to adapt its length to the various diameters of the oval plate. This clock was made by Lippius de Basle, and was repaired in the seventeenth century by Nourisson.

The royal apartments at Versailles once contained a singular clock, constructed by Martinot. Before it struck the hour, two cocks, on the corners of a small edifice, crowed alternately, clapping their wings. Shortly after this, two lateral doors of the edifice opened, at which appeared two figures, bearing cymbals, beat upon with

clubs by two sentinels. When these figures had retired, the centre door was thrown open, and a pedestal, supporting an equestrian statue of Louis the Fourteenth issued from it, while a group of clouds, separating, gave a passage to a figure of Fame, which came and hovered over the statue. A tune was then performed by bells; after which the two figures re-entered; the two sentinels raised up their clubs, which they had lowered, as if from respect for the presence of the king; and the hour was then struck.

Many other specimens of ingeniously-constructed clocks have been recorded; but these will be sufficient here: we will therefore proceed to other automata.

It is difficult properly to estimate the statements of ancient writers on this subject. Mention is made, that, so long ago as 400 years B.C., Archytus of Tarentum, a Pythagorean philosopher, made a wooden pigeon that could fly. The writers who have recorded this seem to have known but little respecting its truth. One said that if the pigeon fell, it could not rise again by itself: another says that it flew by mechanical means, being suspended by balancing, and animated by a secretly-enclosed spring.

The imitations of various animals have been very numerous, and we have records of several, the authenticity of which is undoubted. One mechanist constructed the figure of a swan, as large as life, which gracefully curved its neck, or turned it round, as if to dress the plumage of its wings or body: having done this, it bent down its head, and, taking a metal fish in its bill, swallowed it. Another person constructed a peacock, which could erect or depress its crest, and unfold its tail: it could likewise lift a piece of money in its bill, and perform many of the movements peculiar to a peacock. But Maillardet, a Frenchman, surpassed these efforts, by producing machines in which complicated actions were to be concentrated in a small space. He constructed an oval box, about three inches in length. The lid suddenly flying open, a bird of beautiful plumage, not larger than a humming-bird, started up from its nest within the box. The wings began to flutter, and its bill opening, with the tremulous motion peculiar to singing-birds it began to warble. After producing a succession of notes, whose sound well filled a large apartment, it darted down into its nest, and the lid closed again. The time that it occupied to perform its routine of actions was about four minutes, and it produced four distinct kinds of warbling. Maillardet also constructed an automatic spider, a caterpillar, a mouse, and a serpent, all of which exhibited the peculiar movements of the living originals. The spider was made of steel, and the legs were levers which were successively advanced by springs within the body of the animal. It ran on the surface of a table for three minutes, and its course was so devised as to tend inwards towards the middle of the table. The serpent constructed by the same artist crawled about in every direction, opened its mouth, hissed, and darted out his tongue.

John Müller, of Nuremberg, is said to have constructed a wooden eagle, which flew from the city of Nuremberg, aloft in the air, met the Emperor Maximilian a good way off, saluted him, and preceded him back to the city gates; and to have also constructed an iron fly, which in the midst of a party of friends, flew from Müller's hand, and passed round from guest to guest. But from some contradictions in the accounts left by Baptista Porta, Kircher, &c., we may justly be allowed to doubt these narrations.

About a century and a half ago Truchet constructed, for the amusement of Louis the Fourteenth, an automaton, which the king called his little opera. It was about sixteen inches long, thirteen inches high, and one inch and a quarter deep. It represented an opera, in five acts, changing the decorations at the commencement of each. The actors performed their parts in pantomime; and the

representation could be stopped at pleasure, and made to recommence. Another contrivance, made for the amusement of the same monarch—who had a strange mixture of the great and the small in his character—must have been worked by very elaborate mechanism. There was a small coach drawn by two horses: a lady sat in the coach, and a servant and a page stood behind it. This coach being placed on a table at which the king was seated, the coachman smacked his whip, and the horses immediately began to move, their legs advancing in the proper succession. When the cavalcade reached the edge of the table, it turned at a right angle, and proceeded along that edge. When it arrived opposite to the place where the king was seated, it stopped and the page got down and opened the door, upon which the lady alighted, and, with a curtsy, presented a petition to the king. After waiting some time, she again curtsied, and re-entered her carriage: the page then resumed his place, the coachman whipped his horses, which begun to move, and the footman, running after the carriage, jumped up behind. This was made by M. Camus, who wrote a description of the general nature of the mechanism employed: but his details were not sufficiently minute to account for the almost inconceivable movements of the figures. We have frequently seen in the public streets of London an exhibition in which a carriage rolled rapidly round a circular table, the horses' feet moved, and the coachman smacked his whip: but there was no dismounting,—no curtsying, —no presentation of a petition,—no footman running after the carriage, &c.

Perhaps one of the most beautiful specimens of automatic mechanism ever constructed was the *duck* of Vaucanson. This machine in external form exactly resembled a real duck; the wings being anatomically correct in every part. But not only was the exterior an exact copy of the original; the resemblance was also carried to internal parts: every bone in the real duck had its representative in the automaton; cavities, curvatures, protuberances, were all imitated. This duck imitated the actions of a real one to an extent that surpasses all we have yet detailed. It exhibited those quick motions of the head and throat so peculiar to the living duck: it produced the quacking sound; it drank water in that manner peculiar to billed animals: it swallowed food with avidity, and actually digested the food in the stomach. This latter remark is so astonishing that we must make one additional observation concerning it, in order that it may be believed at all. The stomach contained some chemical substance, which acted on the food introduced into it, so that the food left the body of the artificial duck in a form very different from that in which it entered. The authenticity of this narration is undisputed. The automaton was seen in action by Montucla, the eminent French mathematician, who wrote an account of it.

There are many other instances of similar ingenuity on record; such as a sheep which imitated the bleating of a natural one, and a dog watching a basket of fruit: when any one attempted to purloin the fruit, the dog gnashed his teeth and barked; and if the fruit were actually taken away, he did not cease barking till it was restored. But we have stated sufficient to give some idea of the manner in which ingenuity has been directed to this subject in the imitation of birds, &c. In another article we shall describe some of the principal *androides*, or machines resembling the human figure, and so contrived as to imitate certain movements of a living being. By referring to the *Saturday Magazine*, vol. viii., p. 151, the reader will find an account of a very ingenious automaton ship and sea.

It is not either fineness of wit, or abundance of wealth, or any such like inward or outward ornament, that makes the difference between men, and renders the one better than the other; but the firmness of good principles, the settledness of the spirit, and the quiet of mind.—BISHOP PATRICK.

THE JERBOA.

This pretty little animal belongs to a genus which approximates considerably to the rats, properly so called, but is sufficiently distinguished by the shortness of the fore-legs, and the length of the hinder extremities. Owing to an error long prevalent among naturalists, who imagined that these animals made use of their hind feet only in walking, and never employed the fore feet for that purpose, the genus was named *dipus*, or two-legged. A more attentive consideration of the structure of these animals has proved that the Jerboa is incapable of sustaining itself for any length of time on its hind-feet, though commonly seen in that posture. When alarmed, or wishing to proceed at a rapid rate, it takes prodigious leaps and falls upon its fore-feet, but elevates itself again with so much rapidity, that it almost appears as if it constantly maintained the erect posture. The fore-feet are, however, chiefly employed as the means of rest, and of conveying food to the mouth.

There is much in the appearance of the Jerboa to remind us of the kangaroo. The form of the body bears a general resemblance; the hinder limbs are much stronger than the fore-part; the tail is very long; the ears are pointed and elongated; and the eyes are large and round. Still there are important differences between these animals, which sufficiently prove that it would be incorrect to follow Erxleben in classing kangaroos with Jerboas, under the name *Jarulus giganteus*.

The body of the Jerboa is covered with soft silken hairs; the tail also is usually covered with smooth hairs to its extremity, which is terminated by a tuft. The general colour of the animal is a clear fawn on the upper part, and white on the under parts of the body; in the males the tints are less deep than in the females; the size of the former is also smaller than that of the latter.

The tail is indispensable to the Jerboa for the performance of those extraordinary leaps for which the animal is so remarkable: it is likewise necessary for them in raising themselves on their hind-legs; and when for the sake of experiment, they have been either wholly or partially deprived of their tails, they have had their powers diminished proportionably, being in the one case unable to run or leap at all, and in the other, very much limited in their motions.

The species which has been the best observed is the Gerbo, or Egyptian Jerboa, living in troops and digging burrows in Egypt. In the hot and sandy regions, and amid the ruins which surround modern Alexandria, these animals are commonly seen. Without being exactly wild or ferocious in their character, they are extremely unquiet and wary. They come abroad in search of food, which consists of corn, nuts, roots, &c., but at the least noise re-enter their holes with precipitation. Their burrows consist of several galleries, and the Arabs have a mode of taking these animals alive, by closing up the issues of the different galleries, with the exception of one through which they must go out. They hunt them for their flesh, which, although not the best of meat, is in considerable request among the Egyptians. Their skins, likewise, are employed in the manufacture of ordinary fur.

Another species is the *Alactaga*, under which name some naturalists describe Jerboas, having five toes on the hind-feet, as a genus distinct from that of the Jerboas having but three. The *Alactaga* is about the size of a common squirrel. The fur is very soft and pliant, of a yellowish fawn colour over the body, varying with a grayish brown. The under part of the body, and the interior of the limbs are white. The tail is longer than the body, covered with similar hair for two-thirds of its length, and terminating in a tuft, half white and half black. This species is found in the deserts of Tartary, on the sand-hills which border the Tanais, the Volga, and the Irtisch. Gmelin says that these animals collect

herbs and roots during summer, form them into separate heaps, and transport them by degrees to their burrows. when they are sufficiently dried by exposure to the air. They seek their provisions by night, and besides herbs, succulent plants, fruits, and roots, they feed on insects and small birds. They are said also to devour one another, always commencing with the eyes and brain. To the west of Tartary lie extensive deserts, where the bulbs of tulips and of various other plants growing abundantly in that arid soil, afford nourishment for the Alactaga. In preparing its burrow, this animal scrapes away the earth with great activity, excavating with its fore-paws, and tearing away the roots with its teeth. It is able to foresee the approach of the cold or rainy season, and closes its burrow with surprising punctuality. It is remarkably sensitive of cold, and a very slight change of temperature will reduce it to its lethargic state. A great degree of heat likewise produces a similar effect.

The swiftness of these animals when pursued is so great that they scarcely appear to touch the earth, and it is said, that even a man on horseback cannot overtake them. It is very difficult to preserve them in captivity, unless they are provided with a sufficient quantity of earth or sand to dig into. They may be fed with carrots, fruit, cabbage, bread, &c.

The Jerboas of India are described by General Hardwicke as being very numerous on cultivated lands, and particularly destructive to wheat and barley crops. The burrows of this species are very spacious, and the animals lay up considerable hoards of ripening corn, which they cut just beneath the ears, and convey entire to their common subterraneous repository, which when filled is carefully closed, and not opened again till supplies abroad become distant and scarce. Their favourite food may be considered the different sorts of grain, but when these fail they have recourse to roots, &c.

About the close of the day, (says Hardwicke,) they issue from their burrows, and traverse the plains in all directions to a considerable distance; they run fast, but oftener leap, making bounds of four or five yards at a time, carrying the tail extended in a horizontal direction. When eating they sit on their hind legs like a squirrel, holding the food between their fore-feet. They never appear by day, neither do they commit depredations within doors. I have observed their manners by night, in moonlight nights, taking my station on a plain, and remaining for some time with as little motion as possible. I was soon surrounded by hundreds, at the distance of a few yards; but on rising from my seat, the whole disappeared in an instant, nor did they venture forth again for ten minutes after, and then with much caution and circumspection. A tribe of low Hindoos, called Kunjers, whose occupation is hunting, go in quest of these animals at proper seasons, to plunder their hoards of grain; and often, within the space of twenty yards square, find as much corn in the ear as could be crammed into a common bushel. They inhabit dry situations, and are often found at the distance of some miles out of the reach of water. In confinement, this animal soon becomes reconciled to its situation and docile, sleeps much in the day, but when awake feeds as freely as by night. The Hindoos above mentioned, esteem them good and nutritious food.

It was for a long time believed that common as the Jerboa is, on extensive sandy plains of both the old and new continent, yet that in similar tracts in Australia no such animal was to be found. It has now, however, been satisfactorily ascertained that these animals do exist in Australia. Sir Thomas Mitchell in his "Three Years' Expeditions into the Interior of Australia," describes an animal found in the reedy plains near the junction of the Murray and the Murrumbidgee, on the northern boundaries of Australia Felix. Its fore and hind legs resembled those of a kangaroo, and it used the latter by leaping on its hind quarters in the same manner. It was not much larger than a field-mouse, but the tail was longer in proportion than even that of a kangaroo, and terminated in a hairy brush about two inches long.

It is probable that as the country becomes better known, Australia will not be found deficient in animals which though numerous in other parts of the world, have not yet been discovered there, and are said not to exist in that extensive continent.



THE JERBOA.

EARLY RISING.

It is related that King George the Third, who made the cause of longevity a subject of investigation, procured two persons, each considerably above a hundred years of age, to dance in his presence. He then requested them to relate to him their modes of living, that he might draw from them, if possible, some clue to the causes of their vigorous old age. The one had been a shepherd, remarkably temperate and circumspect in his diet and regimen; the other, a hedger, had been noted for his irregularity, exposure, and intemperance. The monarch could draw no inference, to guide his inquiries, from such different modes of life, terminating in the same result; but, on further inquiry, he learned that both men were alike distinguished by a tranquil easiness of temper, active habits, and EARLY RISING.

THE hardest rain only wets the body, but the hard word cuts the heart.—LOVER.

WHAT is there of an exciting nature in the common events of life, and the usual course and uniformity of nature? Very little. However wonderful the works of the creation may be, habit has so accustomed us to behold them, that they are familiar to our eyes; they become matter of fact, and science has taught us to comprehend the nature of many phenomena, which might otherwise have appeared incredible. But when we seek for an unattainable object, however fallacious its attraction may be, the mind is roused to energetic action. In our vain pursuits of ideal perfection, the mind may be compared to a focus in which our burning thoughts are concentrated until we are consumed by disappointment.

False doctrines and fallacious opinions, need all the aid of imagination's vivid colours to disguise their real form with a goodly outside. We may in general conclude that enthusiasts are at first deceived themselves, to become in turn deceivers. Seldom does man display sufficient humility to admit that he has erred in his favourite doctrines, and how much less will he be disposed to confess his deviation from rectitude, when imposture becomes the source of wealth, and power and hypocrisy a trade.

It is, however, fortunate that errors generally assist the development of truth. The progress of the Christian faith, was materially forwarded by the absurdities and fallacies of all other religions; and Helvetius has truly observed, that if we could for a moment doubt the truth of Christianity, its divine origin would be proved by its having survived the horrors of popery. False theories led Columbus to correct geographic conclusions, and Galileo's discoveries overthrew his own former theories.—MILLINGEN.

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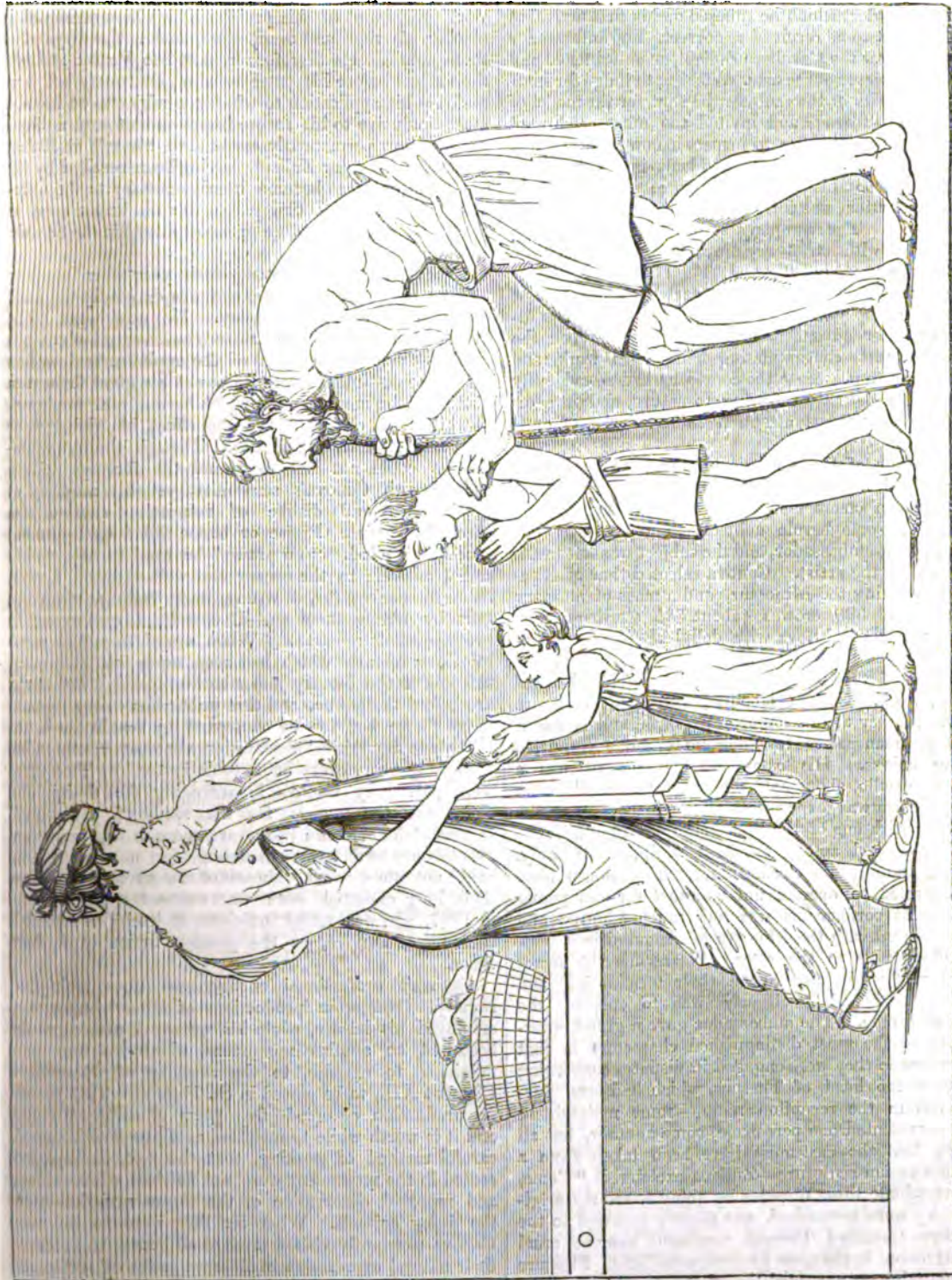
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CHARITY. FROM A BASSO RELIEVO BY CANOVA.

CANOVA AND HIS WORKS.

III.

At the period of Canova's arrival at Rome, painting and sculpture were at a very low ebb. The spirit of improvement which had begun to distinguish the age, in other respects, had not yet extended its influence to these arts. Canova was received in the most gracious manner by the Venetian ambassador, and entertained in his palace. This statement is supported by the letters of Canova himself and by those of the younger Falier; so that the accounts which have appeared of his distress, and of the neglect which he suffered on his first arrival at Rome, are not to be received as correct. The ambassador at that time was the Cavaliere Zuliani, an enlightened and generous protector of the arts. Wishing to judge for himself of the merits of the sculptor, he sent for the model of Dædalus and Icarus; and invited the most celebrated artists and connoisseurs to inspect a new work of art. Canova accompanied these individuals into the apartment where stood his last performance; and previously to its examination, was introduced to them as the author of the work. The company stood around the group surveying it with strict scrutiny; and for some time maintained a profound silence. The style was so different from that of existing art, that each seemed reluctant to venture an opinion on its merits. At length Hamilton the painter advanced, and cordially embraced the trembling artist, congratulating him on his work, and advising him to prosecute the course he had so evidently pursued of constantly referring to nature, and in addition, to pay assiduous attention to the works of antiquity.

The merits of the young sculptor were now fully acknowledged, and his patron Zuliani soon gave him an opportunity of commencing what he had long desired, a group on some heroic subject. The material was ordered by the ambassador, and the subject was left to the judgment of the artist. Canova selected that of Theseus vanquishing the Minotaur, and a mass of statuary marble, value 300 crowns (about 63*l.* sterling), soon arrived, and filled Canova with delight. His letters of this period are full of the praises of the ambassador and admiration of the beautiful marble on which he was about to work. Canova laboured with great diligence but with secrecy at this important task, in an apartment of the Venetian palace to which no one was permitted to have access. His ostensible employment was a statue of Apollo, about half the natural size, which on its completion was exposed to public inspection at the same time with one of the best works of Angelini, who was then ranked among the best sculptors of Italy. Notwithstanding this circumstance, which might have been expected to operate unfavourably for our young sculptor, his performance was very much admired and even compared with the Minerva of Angelini in a manner unfavourable to the latter. Meanwhile the secret labours of Canova approached their termination, and his Theseus in all its beauty was to surprise the people of Rome. The ambassador gave a grand entertainment to the most distinguished characters in that city, and while they were engaged in disputes concerning a model of the head of Theseus, which had been purposely left in the reception room,—some maintaining that it represented one personage, some another, but all agreeing that the cast must have been taken from a work of Grecian sculpture—Zuliani exclaimed, "Come, let us terminate these disputes by going to see the original." All were astonished, and eagerly followed to the spot where Canova's Theseus, victorious over his cruel foe, was placed in the most advantageous light. Pleasure and astonishment pervaded the whole assembly, and the work was unanimously pronounced to be the most perfect which Rome had beheld for ages. Canova was afterwards heard to say that death itself could scarcely be

more terrible than the mental sufferings he endured, while the earlier of these occurrences was passing.

We must not omit to state that the application of Canova's early patron to the Venetian government was successful in procuring for him a pension of 300 ducats, limited to a term of three years, that he might in Rome perfect himself in his profession and reflect honour on the republic. This pension, though of great importance to the sculptor, did not much exceed 60*l.* sterling per annum.

Canova was now selected to erect a monument in honour of Clement XIV., but hesitated to undertake the work on account of this pension, which he considered as placing his time and occupations under the disposal of the republic. He therefore repaired to Venice and laid the subject before his patrons, who generously left him to direct his application to whatever subjects he deemed most conducive to his future improvement and welfare. Canova now permanently established himself at Rome; but the ambassador Zuliani, having been recalled by the senate, in order to become Plenipotentiary to the Ottoman Porte, the Venetian palace was no longer open to our artist, and he therefore opened a studio in the *Strada Babuino*.

Canova was in his twenty-fifth year when he thus took up his abode in Rome; and was decidedly the most accomplished artist of the day. He now began to be exposed to the hostility and misrepresentations of envious rivals;—some were envious of the applause bestowed on his Theseus,—others were jealous at his good fortune in obtaining the monument on which he was now employed,—while both classes feared the effect his rising fame might have on their fortunes. Though these circumstances could not fail to wound the feelings of one endowed with Canova's sensibility, yet his modesty of deportment, and dislike of retort carried him through the trial. Praise or blame failed to injure the tone of his mind. "To praise," he used to say, "what can I answer; to the censures of well-wishers, I must listen in silence; for, if wrong, their feelings would be hurt by telling them so,—if correct, I endeavour to profit by their remarks." When urged to refute some injurious remarks which had been made on his works, in some of the literary journals, he replied, "My works are before the public, and that public has every right to judge them; but, for my own part, my resolution is not to reply to any critical observation whatsoever, otherwise, than by exerting every effort to do better." Two years were passed by Canova in arranging the design and composing the models for the tomb of Ganganelli (Clement XIV.), and two years more in the execution. His labours were most exhausting, for at that time he could not afford to avail himself of the services of others. This long expected work was exposed to the public in 1787, and was found sufficient, of itself, to establish the fame of Canova, as the greatest artist of modern times.

Canova's professional engagements now multiplied rapidly. Numerous productions of minor importance employed his leisure, while his principal attention was bestowed on another monument, which he was commissioned to execute, to the memory of Rezzonico, Clement XII., to be placed in St. Peter's. This beautiful production occupied five years of diligent study, and it is worth while to mention, as a proof of Canova's careful method of working, that the two lions represented in the monument were not finished without long and repeated observation of the forms and habits of the living animals. Wherever lions were to be seen, Canova constantly visited them at all hours, to ascertain their natural expression in different states of action and repose, of ferocity or gentleness; and one of the keepers was even paid to bring information, lest any favourable occasion should pass unimproved. One of the most faultless and classical of Canova's works was a statue

of Psyche, executed about this time, and designed as a present to the Ambassador Zuliani, who died while the statue was on its way to Venice. This celebrated figure afterwards became the property of Napoleon, by whom it was presented to the queen of Bavaria.

Two different groups of Cupid and Psyche also occupied the talents of our artist, and by these and other proofs of genius his name and reputation became widely extended. He received a flattering invitation from the Russian court, pressing his removal to St. Petersburg, which offer he gratefully declined. A monument to Admiral Emo, of Venice, was the next important work in which Canova was engaged, and afterwards the much admired group of the parting of Venus and Adonis. The revolution throughout Europe now checked for a time the progress of the fine arts, and compelled Canova to seek a retreat from scenes which so much excited his abhorrence, in the quiet of his own native village of Possagno. There he remained a year, and occupied himself chiefly in painting.

Soon after his return to Rome, appeared the *Perseus* of Canova. It was a grand and classical production, and was called "Il Consolatore" (the consoler), because it appeared at a time when Rome was mourning the plunder of her galleries and museums. In 1802 Canova presented to Italy the celebrated group of *Creugas* and *Damocenus*, which was, like the *Perseus*, purchased by the papal government and placed in the Vatican. Among Canova's heroic compositions, we must likewise mention his statues of Paris; of Palamede; the combat of Theseus with the Centaur; the Hector and Ajax; and the Hercules and Lychas; which last was considered the most terrible conception of Canova's mind. The varied excellence of these performances cannot be here dwelt upon, though each deserves particular notice. Yet, highly as we may esteem Canova's attempts at the grand and terrible, it appears evident that his chief excellence consisted in the faithful representation of graceful and elegant subjects. Hence, his favourite subjects were those of youth and beauty: and hence the fame which resulted from his production of the *Cupid and Psyche*, the *Hebe*, the *Dancing Nymphs*, and above all, the *Graces*. When Italy was stripped of its most valuable sculptures, Florence was deprived of its celebrated "Venus de Medicis," and Canova was engaged to supply a successor. Having stipulated that the statue to be produced should not occupy the vacant pedestal of the absent goddess, or be considered as a presumptuous attempt to copy that sublime production, he undertook the work. The *Venus* of Canova is elegantly conceived, and has a noble expression; but represents the woman rather than the goddess. His *Venus Victorious* afforded him greater satisfaction. This was a statue, the head of which was a portrait of Paulina Buonaparte, Princess Borghese, whose fine style of countenance harmonized admirably with the ideal figure. The *Awakened Nymph* was of a somewhat similar character, and was purchased by his late majesty, George the Fourth.

We have not been able to arrange these performances of our artist precisely according to chronological order, but we must now return to the year 1802 when Canova, at the request of the First Consul, repaired to Paris, and carefully modelled from life the bust of Napoleon. On this occasion he was entertained with munificence, and various honours were conferred upon him. Inducements were also held out to tempt him to take up his residence in Paris; but the prospect of the most flattering distinctions could not wean him from his beloved Italy. He also disliked French taste: "They are not inspired," he would say, "with genuine love of art: it is merely a love of display." Highly interesting conversations passed between Napoleon and Canova, during the stay of the latter in Paris. The humanity of Canova's disposition made him a decided lover of peace, and he took every opportunity of declaring his true sentiments.

Buonaparte, who delighted in the conversation of men of genius, often listened with calmness and attention to his views, but when these went near to implicate his own actions, he would exclaim, "Come, citizen Canova, parlate senza tema," (How! citizen Canova, you speak without fear.) "Parlo da nom sincero," (I speak without flattery,) was the laconic reply. By the particular desire of Napoleon, he examined the Musée of the Louvre that he might suggest any improvements in the arrangement of those treasures of which other collections had been despoiled. Being then asked by the consul if he did not think them judiciously arranged, he answered, "They were certainly better placed in Italy." The bust of Napoleon was a noble performance, and faithfully represented the features of that remarkable man, though as years passed, the increasing obesity of the emperor diminished the likeness. It is now in the possession of the Duke of Wellington.

Of the funeral monuments executed by Canova, one of the grandest, most solemn and imposing, was the monument of the Arch-Duchess Maria Christina, daughter of Maria Theresa, and wife of Prince Albert of Saxony. It is placed in the church of the Augustines at Vienna, and consists of nine figures, a lion, and medallion, all of the natural size. The groundwork is a pyramid of grayish marble on a plain square basement, from which two steps lead to a doorway in the centre of the tomb. A train of mourners is approaching this doorway. *Virtue*, a young female of afflicted, yet dignified mien, accompanied by two young virgins, is carrying in an urn the ashes of the deceased. Then follows *Benevolence* supporting an aged and infirm old man, behind whom is a child in the attitude of prayer. Opposite to these is the genius of Saxony, resting on a couchant lion, and mournfully regarding the train. Above, *Felicity* with an attendant cherub is transporting to heaven the portrait of the princess.

In the more simple class of sepulchral marbles, one of the most pathetic is the grand relievo on the tomb for the daughter of the *Marchese di Santa Croce*. This young lady was cut off by sudden illness on the very day appointed for her marriage. The way in which Canova treated the death scene, and the unutterable woe expressed in the countenance of the afflicted mother, was so touching that numbers were surprised into tears at the sight, and a lady who had suffered a similar loss actually fainted away on beholding it.

In 1815, when it pleased the Allied Powers to restore to Italy the treasures of art of which she had been despoiled, Canova was entrusted with the superintendence of their removal, and as soon as this important commission was completed, he set out on a visit to the British metropolis. Here he received the most brilliant welcome from the Prince Regent, and from the nobility and men of talent. Canova always spoke with great satisfaction of this visit, and his friends considered his reception in England as the highest in his long list of honours.

On his return to Rome the title of Marquis of Ischia was conferred on him, with a pension of 3000 crowns per annum. This elevation in rank was received by Canova with his accustomed simplicity and modesty. He attributed every vicissitude in his own lot, as well as in that of others, solely to the dispensations of an all-wise and good Providence. His mind appeared to become more and more susceptible of serious impressions, and he now proposed gratuitously to exercise his skill on a colossal statue of *Religion*. The model filled Italy with admiration, but owing to a disagreement among cardinals and princes as to the site it was to occupy, the obstacles opposed to it caused him to relinquish the work. Canova's income arising from his new dignity was appropriated by him entirely to benevolent purposes. He patronized poor artists, relieved distress, and dealt his bounty liberally among the peasants of his native

village, Possagno. In 1819 he repaired to that spot, and gave the necessary directions for the erection of a beautiful church at his own expense, and every succeeding autumn repeated his visit. In the intervals between these visits he still continued his labours, and by over-exertion at this period is supposed to have hastened his end. The winter of 1821-22 witnessed a more than ordinary amount of labour. Visiting Naples in connexion with his equestrian statue of Ferdinand, the reigning sovereign, that climate which had always proved uncongenial to him, increased a slight illness from which he was suffering. He partially recovered on his return to Rome, and on the succeeding autumn set out for Possagno. This journey appeared to increase his malady; and on leaving that village to return to Rome, he was unable to proceed farther than Venice, where, at the house of his friend Francesconi, he breathed his last. His perfect calmness and resignation prevented his friends from seeing his real danger. He appeared absorbed in meditation, and spoke little. Thus when his friends were admiring the radiant and sublime expression of his countenance, he died on the morning of Sunday, the 13th of October, 1822. He was buried at Possagno with great solemnity, and the news of his decease was received throughout Europe with demonstrations of sorrow.

A WISE Christian will think on rain when the sun shineth, and remember sunshine when dark rainy clouds gather over him.

DR. MALKIN, formerly master of the Grammar School at Bury, in Suffolk, has, in a *Father's Memoirs of his Child*, related facts so astonishing of his son, that, though some allowance must be made for the partiality of a parent, they furnish abundant evidence of extraordinary and precocious talent.

Thomas Williams Malkin was two years old before he began to talk, but he was familiar with the alphabet almost half a year sooner. Before he could articulate, when a letter was named, he immediately pointed to it with his finger. From the time that he was two years old, when the acquisition of speech seemed to put him in possession of all the instruments necessary to the attainment of knowledge, he immediately began to read, spell, and write, with a rapidity that would scarcely be credited by any but those who were witnesses of its reality. Before he was three years old he had taught himself to make letters, first in imitation of print, and afterwards of handwriting, and that without any instruction, for he was left to follow his own course in pursuits of this nature. On his birth-day, when he had attained the age of three years, he wrote a letter to his mother in pencil, and a few months afterwards addressed others to some of his relatives. At four, he had learned the Greek alphabet, and made such progress in Latin as to write an exercise every day, with a considerable degree of accuracy. Before he had reached his fifth year he not only read English with perfect fluency, "but," says his father, "understood it with critical precision." He had acquired a happy art of copying maps with neatness and accuracy: he had also made copies from some of Raphael's heads, so much in unison with the style and sentiment of the originals, as to induce good judges to predict that if he were to pursue the arts as a profession, he would one day rank among the most distinguished of their votaries.

In his seventh year he wrote fables, and made one or two respectable attempts at poetical composition: but the most singular instance of a fertile imagination, united with the power of making all he met with in books or conversation his own, is yet to be noticed. This was the idea of an imaginary country, called Allestone, which was so strongly impressed on his mind as to enable him to furnish an intelligible and lively description. Of this delightful country he considered himself as king. He had formed the plan of writing its history, detached parts of which he had actually executed. He drew a map of this country, giving names of his own invention to the principal mountains, rivers, cities, sea-ports, villages, and trading towns. This was one of the last efforts of his genius, for this youthful prodigy of learning died before he had completed the seventh year of his age.

THE PORCUPINE,

Hystrix cristata.



VARIOUSLY modified as are the substances which form the covering of animals, yet they may in general be referred to three primitive types, *i.e.*, hair, feathers, and scales. We are therefore somewhat surprised to find a covering of a perfectly distinct nature, possessed by a tribe of animals, small in number, and unimportant in their position and character. The Porcupine, hedgehog, and a few other animals, though not particularly exposed beyond others to hostile attacks, or of a nature to make aggressions on the animals around them, are yet provided with formidable weapons, in the thick and bristling spines with which they are covered, and which present an impregnable barrier to their enemies.

The Porcupine belongs to the order *rodentia*, or gnawers, of which we have lately given several examples, in the squirrel, dormouse, &c. It has long been naturalized to the south of Europe, whither, as Agricola informs us, it was brought either from Africa or India. It differs from the Porcupine now seen in Africa, only in having the spines rather shorter and less powerful. The European variety is found chiefly in the kingdom of Naples, and in the southern part of the Roman states. It is one of the largest animals of the Roman states. It is one of the largest animals of the rodentia order, measuring from the nose to the tail nearly three feet.

It has a dull, heavy, and somewhat unpleasant appearance; the eyes are extremely small, the nostrils thick, and the muzzle obtuse. Beside the spines, the body is provided with two sorts of hair, one long and bristly, the other curly and woolly. The head and neck are furnished with the long and bristly kind of hair, and the animal has the power of erecting it, in the same way as the spines. These latter constitute most formidable weapons; they are the largest and strongest on the sides of the animal; and have the structure of the shafts of feathers, covered with enamel, and tapering to a sharp, hard, and fine point. The belief that Porcupines have the power of darting their spines against those who attack them, is altogether unfounded.

The habits of the Porcupine are peaceable and retired. It avoids populous parts, and chooses some solitary spot, where the soil is dry and stony, and exposed to the south-east or south, for the formation of its burrow. The short muscular limbs, and powerful claws of the porcupine, are well adapted for making the necessary excavation. This is generally very deep, and has two or three outlets. In this retreat it hibernates during the colder months, but does not fall into so deep a lethargy as some of the other genera. On the first fine day of spring, it may be found awake again, and in search of food. Its extreme timidity causes it to remain in its burrow during the day-time, and the time for procuring its food is, therefore, from evening twilight till sunrise. As darkness approaches, it cautiously draws near to the principal entrance of the burrow, and looks around to see that all is safe; nor will it venture itself entirely out-

side while there is any reason to apprehend danger. When, in the search after food, it meets with an unexpected attack, it always endeavours to regain its burrow; but if this is impossible, it turns away its head, and presents its side, where, as we have said, the spines are strongest. It has likewise the power of rolling itself up into a ball, in the manner of the hedge-hog, and thus presenting to its adversary an uninterrupted surface of spears. Notwithstanding the anxiety which it always evinces to keep its head from injury, there are few animals that can bite harder, or inflict more deep and dangerous wounds. The power of its teeth may be observed in its efforts to escape when kept in confinement. The thickest and hardest boards soon yield to its constant gnawing, and even strong iron wire is insufficient to keep it; the cage, therefore, is generally lined with sheet-iron.

The senses of the Porcupine appear to be, with the exception of smell, extremely obtuse: the ears are but little developed, the eyes small, and the tongue but little extensible. The food of this animal consists of roots, fruits, and tender leaves. Thunberg states, that its usual food, near the Cape, is the root of a beautiful plant called *Calla Æthiopica*, which grows even in the ditches, about the gardens; but he adds that it will frequently deign to put up with cabbages and other vegetables, and sometimes commits great depredations in those gardens.

The ordinary powers of inferior animals, are in general wholly insufficient to avail against the spines of the Porcupine: it has, therefore, in fact, few enemies to fear but man, who esteeming the flesh of this animal as good and agreeable to the palate, frequently hunts, or seeks it out for the gratification of his appetite. Porcupines are commonly brought to the markets at Rome and sold for food. They are eaten roasted by the Brazilians, the Brazil variety being generally fat, and its flesh white. The negroes of Guinea make great use of them, and they are also used as food at the Cape. The method of taking them is often as follows. The breach by which this depredator enters gardens is first discovered; a musket is then loaded, cocked, and placed opposite to the breach. To the trigger of this musket a string is tied, and led along the barrel to the muzzle, where a carrot or turnip is fixed. The porcupine, by taking this bait, pulls the trigger and is shot.

Porcupines, properly so called, are distributed through India, Southern Tartary, Persia, Palestine, the south of Europe, and all parts of Africa. They are called *Hystrix*, by the Greeks and the ancient Italians; *Istrice*, by the modern Italians; *Porcépic*, by the French; and *Stachelschwein*, *Dornschwein*, and *Porcopick*, by the Germans; all these names arising from their harsh bristly hairs, like those of the hog. The specific name *crinata*, (tufted, crested, Lat.,) was given by Linnæus, on account of a sort of mane on the neck and back of this species.

The Canada Porcupine, (*Hystrix dorsata* of Linnæus, and *Urson* of Buffon,) is a very sluggish animal, with remarkably long hair, and short spines; the latter are scarcely discoverable through the hair, except on the head, crupper, and tail. They are, however, strong and sharp, and are said to be so formed, as to appear when magnified as if barbed at the tip with numerous reversed points or prickles. Like the spines of the common porcupine they are but slightly attached to the skin, and can be loosened with great ease: the animal is so far aware of this circumstance, that when annoyed or disturbed it will sometimes brush against the legs of the offending party, and leave several of the spines sticking in the skin. These spines often prove fatal to wolves, and dogs in the countries where this animal abounds.

Their points, (says Dr. Richardson,) which are pretty sharp, have no sooner insinuated themselves into the skin of an assailant, than they gradually bury themselves and travel onwards until they cause death by wounding some

vital organ. These spines, which are detached from the porcupine by the slightest touch, and probably by the will of the animal, soon fill the mouths of the dogs who worry it, and unless the Indian women carefully pick them out, seldom fail to kill them.

The larger kinds of snake are great enemies to the porcupines; but at the same time destroy themselves by this prickly kind of food. The snake seizes the porcupine by the head, and sucks it in; the quills which were flattened down while the body was going in, afterwards become erect and kill it. An enormous snake has been found dead with the quills of the porcupine sticking through his body.

The haunts of the Canada Porcupine are easily discoverable by the appearance of the trees in the vicinity, the bark of which is its favourite food. It feeds on the bark of several of the fir tribe, and on the buds of various kinds of willow; it is said also to be fond of sweet apples and young maize, which it eats in a sitting posture, holding the food to its mouth with the fore-paws. It makes its retreat under the roots of trees, and sleeps a great deal. It has been observed to dislike being wetted; but the vicinity of water is requisite to it, since it drinks freely in summer, and when streams are no longer accessible it swallows the snow.

The flesh of this animal is said to taste like that of the pig; it is relished by the American Indians, but soon becomes exceedingly distasteful to Europeans. The fur is likewise used; being first deprived of the spines, which are employed by the women as pins. They are also dyed of various bright colours, and worked into belts, shoes, shot-pouches, &c.

The Prehensile-tailed Porcupine, or Couendon, (*Hystrix prehensilis* of Linnæus,) is distinguished by its long, tapering, and pointed tail, one half of which, as well as the whole of the body, is covered with spines. It is a native of many parts of South America, and is formed for living in trees. It is a sluggish animal, and appears to bear a close resemblance to the Canada Porcupine, living in woods, sleeping by day, and feeding on fruits and bark by night. It climbs trees by means of its prehensile tail and of its claws, but is observed to use the former chiefly in descending. When on the ground the motions of this animal are awkward, and it appears quite out of its element, but when hunger rouses it to action it seeks for sustenance in trees, and climbs with some degree of activity. The cry of the Prehensile Porcupine is said to resemble that of a sow; and in defending itself from its enemies, it uses its spiny covering in the same manner, and with similar effect to that of the species before described.

THE practice of a bad man is contradicted by the voice of his own heart. When he has committed a fault it declares to him that he might have chosen a contrary part: when he has done a virtuous action it inspires emotions of joy which render him conscious that he is a free agent. This voice within is anterior to all reasoning, and as incapable of being invalidated as any other consciousness.—F.

ON AUTOMATON FIGURES.

2.

IN a former article, we have described several singular machines which the ingenuity of mechanists had devised, by which the actions of living creatures were more or less imitated. We proceed to speak of others, in which the human figure and movements were the object of imitation.

Whether or not it be true, as is stated, that Dædalus made a statue, which, if not detained, would run away, is not easy now to determine; we will therefore proceed to later dates. More than one Androides has been constructed, in which the figure wrote and drew. The figure was placed at a table, with a pen or pencil in its

hand, and paper before it. The spectator was desired to dictate any word at pleasure, which was instantly written down by the androïdes in a fair and legible hand. But in such a case, there is a certain degree of cheating employed; for there is an assistant behind a partition near the figure: the assistant can hear the question asked, and puts in action some machinery of levers, &c., connected with the hand of the figure, by which the words are written down. Still, there is something much more elaborate in this, than in the deception called the *Invisible Girl*, the nature of which was described in the *Saturday Magazine*, vol. 1., p. 61.

Some years ago, Mr. Collinson, in a letter which he wrote to Dr. Hutton, after describing some very ingenious automata constructed by M. Droz, of Neufchatel, says:—

Permit me to speak of another automaton of Droz's, which several years since he exhibited in England, and which, from my personal acquaintance, I had a commodious opportunity of particularly examining. It was the figure of a man, I think the size of life. It held in its hand a metal style (pencil), a card of Dutch vellum being laid under it. A spring was touched, which released the internal clock-work from its stop, when the figure immediately began to draw. M. Droz, happening once to be sent for in a great hurry to wait upon some considerable personage at the west end of the town, left me in possession of the keys which opened the recesses of all his machinery. He opened the drawing-master himself, wound it up, explained its leading parts, and taught me how to make it obey my requirements, as it had obeyed his own: Droz then went away. After the first card was finished, (i.e., after the first drawing was finished,) the figure rested. I put a second, and so on, to five separate cards, all different subjects; but five or six was the extent of its delineating powers. The first card contained, I may truly say, elegant portraits and likenesses of the king and queen, facing each other; and it was curious to observe with what precision the figure lifted up his pencil, in the transition of it from one point of the draft to another, without making the least slur whatever; for instance, in passing from the forehead to the eye, nose, and chin, or from the waving curls of the hair to the ear, &c. I have the cards now by me.

It is evident from this description, that the drawings were made by a strictly automatic figure, without the aid of a concealed associate.

A still better figure, of a somewhat similar kind, was afterwards constructed by Maillardet. This was the figure of a boy, kneeling on one knee, and holding a pencil in his hand, with which he executed not only writings, but also drawings of great excellence. When the figure began to work, an attendant dipped the pencil in ink, and laid the paper on a brass tablet, which was adjusted to a proper position. On touching a spring, the figure began to write, and when the line was finished, the *t's* were crossed and the *i's* dotted by distinct movements of its pencil. In this way it executed four beautiful specimens of writing, in French and English, each consisting of several lines. It also drew three landscapes, which, with the writing, occupied about an hour.

The same mechanist constructed an automatic soothsayer, which gave answers to questions asked. He held a wand in one hand, and a book in the other. The questions were engraved on oval medallions. When a spectator put one of these into an open drawer, situated near the figure, it instantly closed with a spring. The figure then rose, bowed, drew circles with his wand, and consulted his book. Having spent some time in apparent study, he lifted his wand, and striking with it the wall above his head, two folding doors flew open, and displayed an inscription denoting the answer to the question. Should the drawer be empty when shut, the soothsayer rose, consulted his book, shook his head, and sat down again: the doors did not fly open. If two medallions were put in together, an answer was given to the lower one. It was, we believe, undoubted, that this exhibition was strictly automatic,—that no concealed confederate was at work.

Some beautiful imitations of musical performers have been constructed. The most celebrated was Vaucanson's flute player. This was exhibited at Paris just about a century ago. It consisted of a figure capable of playing several airs on the German flute, with a precision and delicacy nearly equal to that displayed by a living performer. The figure was about five feet and a half high, and was situated on a fragment of rock fixed upon a square pedestal, four feet and a half high, by three and a half broad. Vaucanson, with a candour that does not often distinguish inventors of this kind, published a work in which every part of the machinery was minutely described. The machinery consisted of a series of bellows, pipes, levers, cranks, wheels, springs, &c., of such extreme complication, that any attempt to describe it here would be tedious and useless. We will merely say that the flute was a *bona fide* one, that wind was propelled into the embouchure or mouth hole from the lips of the figure, and that the finger holes of the flute were covered by the fingers of the figure in exact accordance with the changes in the notes desired to be produced. The machine, altogether was so scientific, that it excited the admiration of philosophers, even more than of mere lovers of the marvellous.

The same individual afterwards constructed a pipe and tabor player. This was a figure mounted on a pedestal, and dressed like a shepherd, and was capable of playing about twenty minuets, country dances and other tunes, on a pipe and tabor. These were instruments better known among the pastoral tribes of bygone days, than by the present age. The tabor was a kind of tambourine, struck not with the hand, but with a stick. The pipe was a kind of flageolet with only three finger-holes, so that one hand only is required to play it. Its simplicity, however, is accompanied by a circumstance which renders the automatic performance of it a matter of extreme difficulty; for as there are only three finger holes, a large share of the diversity of tones produced is effected by varying the intensity of the breath or air blown into the instrument. This is difficult to effect by machinery, consequently Vaucanson's pipe and tabor player gained almost as much admiration as his flute-player.

About thirty years ago, Maillardet exhibited an automaton piano-forte player. This was an elegant female figure, seated at a piano-forte, on which she played eighteen tunes. Besides the execution of the music, which was produced by the actual pressure of her fingers on the keys, all her movements were elegant, graceful, and almost life-like. Before beginning a tune, she made a gentle inclination with her head to the auditors: her bosom heaved; and her eyes followed the motion of her fingers over the finger-board. The hands played the natural notes, and the feet played the flats and sharps by means of pedals. This machine was strictly automatic, for when once wound up, it would continue playing for an hour; and the principal part of the machinery employed was freely laid open for inspection.

The latest automatic musician with which we are acquainted, is one constructed by Maelzel, the inventor of the metronome, or time-beating instrument. This automaton, as described in the *Journal des Modes*, was as follows:—From a tent M. Maelzel led out a fine manly-looking martial figure, in the uniform of a trumpeter of the Austrian dragoons. After the figure had been pressed on the left shoulder, it played not only the Austrian cavalry march, and all the signals for the manœuvres of the army, but also a march, and an allegro by Weigl. After this, the dress of the figure was completely changed into that of a French trumpeter of the guard. It then began to play the French cavalry march, also all the signals of the French cavalry manœuvres, as well as a march by Dussek, and an allegro by Pleyel. The sound of the trumpet was said to be pure, and more agreeable than even the ablest musician

could produce from that instrument, because the breath of a man gives the inside of the trumpet a moisture which is prejudicial to the purity of the tone.

This same Maelzel was the inventor of several instruments, of which inferior imitations are seen in the London streets at the present day; that is, a machine in which imitations of a great number of musical instruments are combined. In one which Maelzel exhibited at Vienna, pieces of Turkish music were produced, as if played by a band of flutes, pipes, cymbals, triangle, double drum, and four trumpets. The trumpet sound was admirable. It was produced from real trumpets, blown by a blast of air within the machine. A double bellows furnished the wind, and a wheel, acted on by a weight, set the whole in motion. The modern instrument to which we have alluded is a kind of hand organ, with a feeble imitation of two or three other instruments.

The most difficult automata destined to produce sound, are those which imitate *speech*. A thorough anatomical examination of the organs of voice is necessary to succeed in these attempts. M. Kempelen, of Hungary, and in our own day Mr. Willis, of Cambridge, have shown that it is possible to produce instruments capable of imitating the sounds of the human voice. But we are not aware how far a strictly automatic speaking figure has been produced; yet it is said that a machine constructed by Kempelen was able to utter these words and sentences:—*opera*,—*astronomy*,—*Constantinople*,—*Vous êtes mon ami*,—*Je vous aime de tout mon cœur*,—*Leopoldus Secundus*,—*Romanum imperator semper Augustus*. In our own day the subject has been taken up by Professor Wheatstone, who exhibited a speaking automaton at the Dublin meeting of the British Association for the advancement of science. In consequence of the recent and important discoveries respecting the mechanism of the human voice, it will not be hazarding too much to say with Sir David Brewster, that "before another century is completed, a *talking* and a *singing machine* will be numbered among the conquests of science."

The last automaton which we can find room to describe, is a rope-dancer, exhibited in London some years ago. This was a little figure, a few inches high, seated on a slender steel rod, which he grasped with both hands. When a spring was touched, the figure descended, but still hung suspended by the hands. After several oscillations, the tumbling began, which consisted in assuming a great variety of attitudes,—sometimes closing the feet and hands together, and swinging with great velocity around the rod. During the tumbling, a musical instrument played by means of other parts of the machinery. After going through all the evolutions, the figure rose up, seated itself on the rod, and bowed to the spectators. An elegant and beautiful automaton of this description is now shown at the Gallery of Practical Science.

We hope the reader will not entertain the idea that many of these details are too *magical* to be true. The magic employed is a very extensive knowledge of mechanical details, an intimate examination of the manner in which sounds are produced by air passing through pipes, and very likely, the attractive force of magnetism. All these are, in one way or other, employed in the production of the startling effects here detailed.

ON THE MANUFACTURE OF GLUE.

THE preparation of this useful article forms a curious and important branch of national industry. The chief use of glue is for binding or cementing pieces of wood together, as practised by the carpenter and cabinet-maker, in which trades very large quantities are constantly employed.

Glue (which is nothing more than gelatine in a dry

state) is obtained from the hides, hoofs, and horns of animals; the refuse of the leather-dresser, and the offal of the slaughter-house; ears of oxen, calves, sheep; parings of parchment, old gloves; and, in short, animal skin and (by a late improvement) bones, are all employed for making glue.

The first process in this manufacture is to free the materials from dirt, blood, and other matters which do not afford glue. For this purpose they are steeped in lime and water, and then placed in baskets, and rinsed by the action of a stream of water. They are then removed to a sloping surface, and allowed to drain, and whatever lime remains is deprived of its caustic property by the re-absorption of carbonic acid from the atmosphere, since the presence of lime would prove injurious in the subsequent processes.

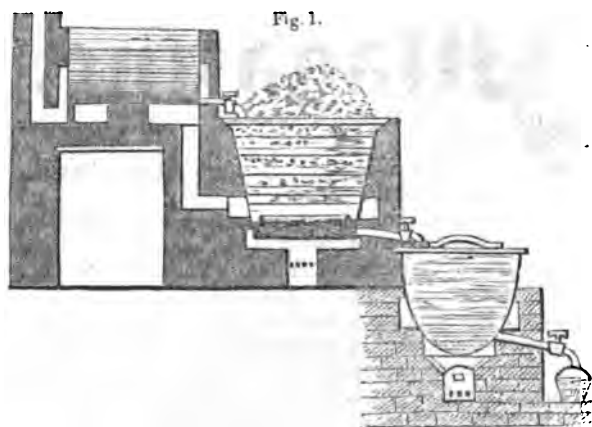
The gelatine is removed from the animal matter by boiling. This process is effected in a somewhat shallow boiler, which is provided with a false bottom, pierced with holes, and elevated a few inches, thus serving as a support to the animal matter, and preventing it from burning by the heated bottom of the boiler. The boiler is filled about two-thirds with soft water, and then the animal substances are added: these are piled up above the brim of the boiler, because soon after boiling commences, they sink down below the level of the liquid. The contents of the boiler are occasionally stirred up and pressed down, while a steady boiling is maintained throughout this part of the process.

As the boiling proceeds, small portions of the gelatine are drawn off into egg-shells, when, in the course of a few minutes, if the liquid gelatine becomes, by exposure to the cool air, a clear mass of jelly, the boiling process is complete,—the fire is smothered up, and the contents of the boiler left to settle for ten or twenty minutes. The stop-cock is then turned, and the gelatine flows into a deep vessel, kept hot by being surrounded with hot water, and thus it remains for several hours, during which time it deposits any solid impurities. It is then drawn off into congealing boxes, and prepared as we shall soon explain.

The undissolved matter in the boiler is treated with boiling water a second, and even a third time, and the above process continued until nothing more can be extracted. The subsequent solutions are often too weak to be made into glue, but they are economically used with fresh portions of animal matter.

A clear idea may be formed of this part of the manufacture by the annexed illustration (fig. 1.), which represents a section of three vessels, on different levels. The uppermost vessel, which is heated by the waste heat of the chimney, supplies the animal matter contained in the second vessel with warm water: the third vessel receives the liquid gelatine, and retains it in a fluid state, while the solid impurities are being deposited.

The gelatine is drawn off from this third vessel into buckets, and conveyed to the congealing boxes. These boxes are of deal, of a square form, but somewhat narrower at bottom than at top. The liquid glue is poured through funnels, provided with filter-cloths, into the boxes until they are entirely filled. This process is conducted in a very cool and dry apartment, paved with stone, and kept very clean, so that any glue which may be spilt may be recovered. In twelve or eighteen hours the liquid glue becomes sufficiently firm for the next process, which is performed in an upper story, furnished with ventilating windows, so as to admit air on all sides. The boxes are inverted on a moistened table, so that the cake of jelly may not adhere to it: this cake is cut into horizontal layers, by means of a brass wire, stretched in a frame, and is guided by rulers, so disposed as to regulate the thickness of the cake of glue. The slices thus formed are carefully lifted off, and placed on nets stretched in wooden frames. As these frames are filled they are placed over each other, with an interval of about



three inches between every two frames, so that the air may have free access. Each frame is so arranged as to slide in and out like a drawer, to allow the cakes to be turned, which is done two or three times every day.

An experienced writer on manufactures thus observes, concerning this part of the process:—

The drying of the glue is the most precarious part of the manufacture. The least disturbance of the weather may injure the glue during the two or three first days of its exposure. Should the temperature of the air rise considerably, the gelatine may turn so soft as to become unshapely, and even to run through the meshes upon the pieces below, or it may get attached to the strings and surround them, so as not to be separable without plunging the net into boiling water. If frost supervene, the water may freeze, and form numerous cracks in the cakes. Such pieces must immediately be re-melted and re-formed. A slight fog even produces upon glue newly exposed a serious deterioration, the damp condensed upon its surface occasioning a general mouldiness. A thunderstorm sometimes destroys the coagulating power in the whole laminae at once, or causes the glue to *turn* on the nets, in the language of the manufacturer. A wind too dry or too hot may cause it to dry so quickly as to prevent it from contracting to its proper size, without numerous cracks and fissures. In this predicament the closing of all the flaps of the windows is the only means of abating the mischief. On these accounts it is of importance to select the most temperate season of the year, such as spring and autumn, for the glue manufacture.

When the glue is properly dried a gloss is imparted to each cake, by dipping it in hot water, and passing over it a brush, also wetted with hot water. The cakes are then placed on a hurdle, dried in the stove-room, or in

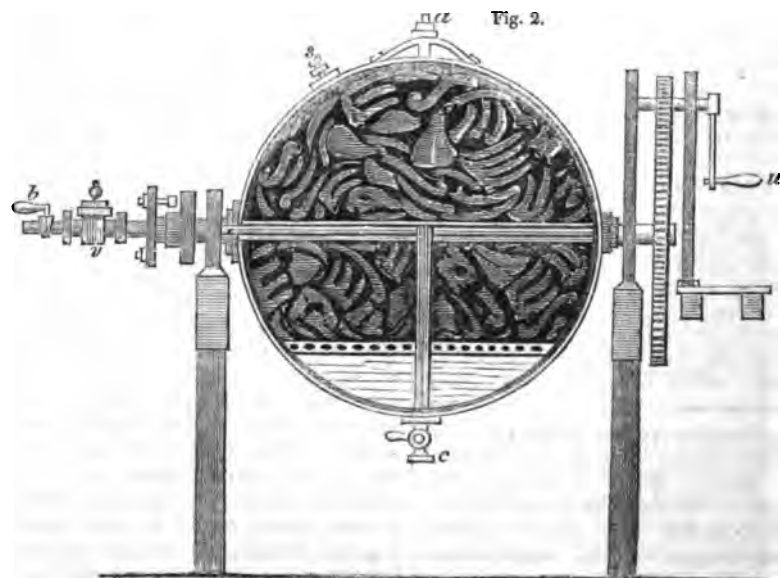
the open air, if the weather be sufficiently dry and warm. It is then packed in casks for sale.

A few years ago Mr. Yardley, of Camberwell, obtained a patent for manufacturing glue from bones, of which nearly one-half the weight consists of solid gelatine.

In this patent process the bones are thoroughly cleansed by being washed in water and lime for three or four days: they are then placed in the globular vessel, called an *extractor*, of which the annexed cut (fig. 2) is a section. The aperture through which the bones pass into the vessel is at *a*, which aperture is closed by screwing up an internal plate tightly against the interior surface of the vessel. The extractor turns upon a horizontal axis, consisting of a strong tube, which at the centre of the vessel proceeds downwards, and conveys steam below the grating upon which the bones rest. Steam, of the pressure of about fifteen pounds on the square inch, is admitted from a boiler, by turning the cock *b*, and passing along the tube, which is furnished with a safety-valve at *e*, it passes to the bottom of the extractor, then rises up through the grating and amongst the bones, and expels all the air from the vessel, through a stop-cock at *s*, which being closed the extractor soon becomes charged with steam. The extractor is moved slowly round by means of the wheel-work at *w*, to shift the position of the bones, and allow the steam to act more perfectly. When at rest, a quantity of the fluid glue collects at the bottom of the vessel, and is drawn off at the cock *c*. The steam continues to act upon the bones for about an hour before the liquid gelatine is drawn off. After every drawing off the steam is admitted, and the process continued as before. The gelatine is collected in an evaporating vessel, and heated until sufficiently thick to solidify when cold: it is then prepared in the usual manner.

It has been found by experiment that when two cylinders of dry ash, one inch and a half in diameter, were glued together, and after twenty-four hours torn asunder, a force of 1260 pounds was required to produce the separation, thus making the force of adhesion equal to 715 pounds per square inch. Another experiment made the force of adhesion to equal 4000 pounds on the square inch.

A delicate kind of glue is prepared by gently boiling shreds of parchment in water, in the proportion of one pound of parchment to six quarts of water, until it be reduced to one quart. It is then strained and boiled to the consistence of glue. Isinglass glue is best prepared by gently heating that substance in spirit.



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TURKEY AND THE TURKISH PROVINCES.



MOUNT OSSA.

MOUNT OSSA, &c., IN THE PROVINCE OF TRIKHALA.

THE foregoing sketch represents a view of Mount Ossa, in Greece, with the village of Baba, leading to the town of Ampelachia, and standing on the river Salympria, in the vale of Tempé. All these are in the province of Trikhala, in European Turkey. As the present aspect and condition of these spots, so celebrated in ancient history and poetry, must be generally interesting to the lover of literature, we propose to say a few words about the mountain,—the town,—the river,—and the vale.

Mount Ossa is in that part of Greece which has all along borne the name of Thessaly, though now included in one of the Turkish provinces. This mountain was once the residence of the Centaurs, of whom we have given an account in the 511th number of this work. Mount Ossa was formerly joined to Mount Olympus, but Hercules, according to ancient story, separated them, and made between them the celebrated valley of Tempé. This separation of the two mountains was probably effected by an earthquake, which happened about 1900 years before the Christian era. Ossa and Olympus, Pelion and Pindus, are famed in ancient fable, as being the mountains which the giants, in their wars against the gods, heaped up, one on the other, to scale the heavens with more facility. Mount Ossa is said to contain a coarse bluish-gray marble, with veins of a finer quality. The mountain-ranges of this country are represented as affording to the traveller the appearance of walls, separating one district from the other.

Vol. XVIII.

The town of Ampelachia, which is described as hanging upon the sides of Mount Ossa, is supposed to be the ancient Atracia, which was built by Atrax, an early king of Thessaly. This town was once so famous in all the country round, that "Atracian" and "Thessalian" were synonymous terms. The town now contains about four hundred houses; and Dr. Holland says of it:—

Nothing can be more picturesque than the various groups of buildings which compose it. Rising out of the thick foliage of woods, overhanging the deep ravines of the mountain, their open galleries and projecting roofs render the effect of situation still more singular and imposing to the eye. The oak, olive, and cypress spread over the broken surface on which the town stands, and intermix with the foliage of vineyards; while the loftier ridges of the mountain, receding towards the south, are covered with long rows of pines. A few of the houses are built and furnished in the European manner.

The town of Ampelachia, which is south-west of the Turkish village of Baba, is arrived at from this latter place by an irregular cork-screw road, in some places cut in the rock, and in others carried along the channel of mountain-torrents. Mount Ossa, with the fore-named town and village, is south of the river, which flows eastward, while Mount Olympus is northward of the stream. The same respectable authority which we have before quoted informs us that Ampelachia is interesting, not only for the scenery which surrounds it, but for the kind manners of its inhabitants. They are nearly all Greeks, and though the seat of their habitation is in a spot comparatively secluded and remote, they have been noted for many years for the extent of their com-

mercial undertakings, and for a character of active intelligence and enterprise, which has procured them a high repute among the different communities of modern Greece. Most of the merchants of Ampelachia have visited or resided in the principal commercial cities of the Continent, and established connexions there, the extent and success of which are manifested in the wealth many of them have acquired. They are chiefly connected with Germany, but they also trade with Constantinople, Smyrna, and other mercantile places of the Levant.

The commerce of Ampelachia is founded in manufacture, and the population of the place is actively engaged in the various processes of making and dyeing cotton thread, the staple commodity of the country. This is likewise the general employment pursued in the other towns and villages of this district. Most of the cotton grown on the plains of Thessaly is brought hither for the use of the manufacturers. It is calculated that the town of Ampelachia furnishes annually about three thousand bales of dyed cotton thread, each bale being reckoned at 250 lbs. Of this quantity nearly the whole is transmitted by land-carriage to Germany,—a traffic which is well regulated, and carried on with much activity by the Ampelachian merchants. The inhabitants of this town have likewise acquired much respect by their general cultivation of mind, and by the aids they have afforded to the literature of their country. There is also a considerable Greek school here, which is said to be in a flourishing state.

The river now called *Salympria*, but in ancient times the *Peneus*, is formed by the confluence of two streams, which flow down from the mountains of Pindus, and unite at the Khan of Malakossi, near the site of the ancient *Æginium*. The course of this river is eastward, and it falls into the Gulf of Saloniki*. It is said that the Peneus anciently inundated the plains of Thessaly, till the earthquake separated the mountains *Ossa* and *Olympus*, and formed the beautiful vale of *Tempé*, where the waters formerly stagnated. The laurel was once abundant on the banks of this river. The valley of the Peneus, throughout its whole course, is extremely picturesque and interesting, but some of the most extraordinary scenery which it presents is that of the rocks of *Meteora*, already described, No. 530.

The valley of *Tempé* was, with the poets of old times, the *beau idéal* of a rural and voluptuous retirement. It is described by them as the most delightful spot on the face of the earth. Here were to be found—

Cool grots, and living lakes, the flowery pride
Of meads, and streams that through the valley glide,
And shady groves, that easy sleep invite,
And, after toilsome days, a soft repose at night.

Here were verdant walks, which the warbling of birds rendered more pleasant and romantic, and which the gods often honoured with their presence. If this were happiness, well might the poet continue his aspirations, and wish to be transported to this land of "Drowsy-head."

My next desire is, void of care and strife,
To lead a soft, secure, inglorious life—
A country cottage, near a crystal flood,
A winding valley, and a lofty wood.
Some god conduct me to the sacred shades,
Where bacchanals are sung by Spartan maids,
Or lift me high to *Hæmus'* hilly crown,
Or in the plains of *Tempé* lay me down,
Or lead me to some solitary place,
And cover my retreat from human race †.

With the race of the poets it came to pass, in process of time, that all valleys, plains, and woody glens, that were pleasant, either for their situation or the mildness of their climate, were called by the name of *Tempé*. It

is, however, probable that the vale of *Tempé* was celebrated by poets who had never seen it, and the imagination, therefore, amplified its excellencies. *Tempé*, properly so called, consists of a celebrated pass or defile between *Mounts Ossa* and *Olympus*. This pass is five or six miles in length, and is best described in the words of Dr. Clarke:—

The Peneus occupies the whole of the valley from side to side, with the exception only of the narrow pass afforded by the old paved causeway of the military way, which extends along the right bank of the river. Fragments of the *Atracian* marble appeared in different parts of this pavement: to afford space for it, even the solid rocks were cut away from the side of the Peneus. Here the scenery possesses the utmost grandeur. The precipices consist of naked perpendicular rocks, rising to a prodigious height, so that the spectator can scarcely behold them from below without giddiness. *Livy's* description, therefore, in addition to its intrinsic grandeur, has all the majesty of truth. The various colours which adorn the surfaces of these rocks can only be expressed by painting; and how beautiful would the effect be if these masses were faithfully delineated in all their distinct or blended hues, of ashen gray, and green, and white, and ochreous red, and brown, and black, and yellow! Such description by the pen suggests no distinct image to the mind. Upon their utmost peaks, both to the right and left, we saw the ruins of an ancient fortress, once the bulwark of the defile, whose walls were made to traverse the precipices in a surprising manner, quite down to the road. The cliffs are so perpendicular, and the gorge is so narrow, that it would be absolutely impossible for an army to pass while the strait was guarded by these fortifications.

Clarke describes this defile as resembling the pass of *Kilcrankie*, in Scotland, and that of *Dovedale*, in Derbyshire, but upon a much grander scale. When *Neptune*, according to one of the fables, opened this outlet for the river, by striking the mountains with his trident,—or when the earthquake or other convulsion of nature occurred,—*Olympus* and *Ossa* were separated from each other, and so formed this vast cleft, at the bottom of which the Peneus obtains its outlet. That a sea, once covering the whole of Thessaly, was drained by the opening of this chasm, is not only evident from the position of the strata on either side, but the fact has been regularly handed down by tradition, thus forming a theme of poetical allusion, if not an authentic piece of history.

In the opinion of Dr. Holland, the scenery of *Tempé* is correctly represented, on a smaller scale, by *St. Vincent's Rocks*, near Bristol. The Peneus, as it flows through the defile, is not much wider than the *Avon*, and the channel between the cliffs is of similar contracted dimensions; but the cliffs of the Thessalian mountains are loftier and more precipitous, towering in some places to six or eight hundred feet above the river, and projecting their vast masses with the greatest abruptness over the hollow below.

Where the surface renders it possible, the summits and ledges of the rocks are for the most part covered with small wood, chiefly oak, with the *arbutus* and other shrubs. On the banks of the river, wherever there is a small interval between the water and the cliffs, it is covered with the rich and widely-spreading foliage of the plane, the oak, and other forest trees, which in these situations have attained a remarkable size, and in various places extend their shade far over the channel of the stream. The ivy, winding round many of them, may bring to the mind of the traveller the beautiful and accurate description of *Ælian*, who has done more justice to the scenery of *Tempé* than any other writer of antiquity.

The village of *Baba* stands at the western extremity of the defile, which would therefore be at the left hand of the picture. In conclusion, we must remark that the topography of these ancient Greek regions is not even now well understood, and is often laid down with little certainty of correctness.

* See No. 530 of this work. At p. 129, col. 1, line 10, for "transmitted," read "transmuted."

† *Virgil*, 2nd *Georgic*.

ICEBERGS.

THE term Iceberg, written *Ysberg* by the Dutch, signifies ice-mountain. It is commonly applied to the glaciers of Greenland, Spitzbergen, and other Arctic countries; but is as often extended to the large peaks, mountains, or islets of ice, that are found floating in the sea. The first, or fixed bergs, are prodigious lodgments of ice, which occur in valleys adjoining the coast of the Polar seas. The largest iceberg of this description, seen by Captain Scoresby, is that a little to the northward of Horn Sound, which occupies eleven miles in length of the sea coast. It rises precipitously from the sea 402 feet high, and extends backwards towards the summit of the mountain, to about four times that elevation. Its surface forms a noble inclined plane of smooth snow, and has a beautiful appearance; but the lower parts, in the latter end of every summer, present a bare surface of ice. The front surface of icebergs, generally, is glistening and uneven. Wherever a part has been recently broken off, the fresh fracture is of a beautiful greenish-blue colour, approaching to emerald green; but such parts as have been long exposed to the atmosphere, are of a greenish-gray colour, and from a distance have the appearance of cliffs of whitish marble. These icebergs are wholly produced from rain or snow, the period of their foundation, or first stratum, being frozen, being nearly coeval with the land on which they are lodged: the subsequent increase is produced by the congelation of the sleet of summer or autumn, and of the snow accumulated in winter, which, being partly dissolved by the summer sun, becomes consolidated, and, on the decline of the summer heat, frozen into a new layer of ice. This yearly increase continues until the mass becomes mountainous, and rises to the elevation of the surrounding cliffs. The melting of the snow, which is afterwards deposited on these enormous blocks, likewise contributes to their growth, and by filling up the crevices renders the whole solid. Where such a mass has risen to the height of 1000 or 2000 feet, the accumulated weight, assisted by the action of the ocean at its base, plunges it into the sea, and it is driven southward by the winds and currents, and known to mariners under the name of iceberg; and from its cavities the whalers fill their casks with pure fresh water.

Icebergs occur in many places in the Arctic and Antarctic regions: in Hudson's Strait, Davis's Strait, and Baffin's Bay, they are frequently of astonishing magnitude. Ellis describes them as sometimes occurring of 500 or 600 yards thickness. Frobisher saw one iceberg which he judged to be "near fourscore fathoms above water." Captain Middleton saw bergs three or four miles in circumference, 100 fathoms under water, and a fifth or sixth part above. Captain Ross observed multitudes of icebergs in Davis's Strait and Baffin's Bay: at one time, near Waygate, or Hare Island, he saw 700 icebergs, some of them of prodigious size and extraordinary form. One berg is described by Captain Ross as being 40 feet high, and 1000 feet long; another 85 feet high, and 1200 feet in circumference; another 325 feet high, and 1200 feet long: another aground in 150 fathoms water, and several together aground in 250 fathoms; one berg, of which the dimensions were given in by Captain Parry, had nine unequal sides, was aground in 60 fathoms, and measured 4169 yards long, 3689 yards broad, and 51 feet high. The weight of this iceberg, taken at somewhat smaller dimensions, was estimated at 1,292,897,673 tons. One of the largest bergs represented in Captain Ross's *Journal*, is perforated in an arched form, beneath which some of the crew disembarked on the ice.

Floating icebergs are seen in greater number in Baffin's Bay than elsewhere in the Arctic regions. Thence they constantly make their way southward, down Davis's Strait, and are scattered abroad in the Atlantic.

They also occasionally crowd the banks of Newfoundland, "beyond which," says Captain Scoresby, "they are sometimes conveyed, by the operation of the southerly under-current, as low as latitude 40° north, and even lower, a distance of at least 2000 miles from the place of their origin."

Icebergs are frequently of fantastic shapes, but their most general form is with one high perpendicular side, the opposite side very low, and the intermediate surface sloping gradually. Some have regular flat surfaces, but they have most commonly different acute summits. Some, as that figured by Captain Ross, are perforated, or contain caverns, or clefts and cracks in the most elevated parts, so as to resemble distinct spires. On some bergs there are hollows, or pools, in which snow or water accumulates; others are smooth and naked; their sides being sometimes filled with small holes as regular as if formed by art. The base of floating icebergs is commonly larger in extent than their upper surface.

Hence, (says Scoresby,) the proportion of ice appearing above water, is seldom less in elevation than one-seventh of the whole thickness; and, when the summit is conical, or of the steeple form, the elevation above water is frequently one-fourth of the whole depth of the bergs. The waves break against them in a high sea, and in a swell they make a tremendous noise in rising and falling; and they rip up and divide fields of ice of great thickness. The breaking up of icebergs is usually caused by the heat of the sun, or a temperate atmosphere: they then become hollow and fragile; large pieces break off and fall into the sea with an astounding crash. This is technically termed calving: the iceberg loses its equilibrium, sometimes turns on one side, and occasionally is inverted. The sea is thereby put into commotion; fields of ice in the vicinity are broken up; the waves extend, and the noise is heard to the distance of several miles; and sometimes the rolling motion of the berg not ceasing, other pieces get loosened and detached, until the whole mass falls asunder, like a wreck.

The general colour of icebergs has been referred to; but their appearance varies with their solidity and distance, and their mixture with earth, gravel, or sand. The state of the atmosphere also affects their appearance: they glisten in the sun's rays, and even at night are discernible at a distance, by their natural effulgence; and, in foggy weather, by a peculiar blackness in the atmosphere. Captain Ross tells us that it is hardly possible to imagine anything more exquisite than the variety of tints which icebergs display: by night, as well as by day, they glitter with a vividness of colour beyond the power of art to represent. While the white portions have the brilliancy of silver, their colours are as various and splendid as those of the rainbow. By these means the danger of icebergs to the navigator is much diminished; but it is still requisite to be on the watch for them. They sometimes occur in extensive chains, in which vessels get involved in the night, during storms, when fatal accidents occur. Ships are not unfrequently moored to bergs; but if the latter be overturned, or, while floating in a tide-way, their base be arrested by the ground, they fall with the noise of thunder, and crush whatever objects they encounter in their descent. "Thus have vessels been often staved by the fall of their icy moorings; while smaller objects, such as boats, have been repeatedly overwhelmed, even at a considerable distance, by the vast waves occasioned by such events." Again, in the temperate season, when the bergs become fragile, and are struck for the mooring anchor, they split asunder, and the masses bury boats and men. "The awful effect produced by a solid mass, many thousands, or even millions, of tons in weight, changing its situation with the velocity of a falling body, whereby its aspiring summit is in a moment buried in the ocean, can be more easily imagined than described."

Captain Scoresby concludes that most of the ice-mountains, or icebergs, that occur in the Arctic regions,

are derived from the land icebergs, or glaciers, and are consequently the product of snow or rain-water. The same writer also allows that some icebergs may be formed in coves and bays in the polar countries; and these, having their bed in the ocean, must be partly the product of sea-water, and partly that of snow and rain-water. From the evidence of a Russian voyager of the last century, there is reason to infer that some icebergs have their origin in the wide expanse of the ocean; and he describes a continent, so to speak, of mountainous ice existing, and probably increasing in the ocean, at a distance of between 300 and 400 miles from any known land.

The buoyancy of icebergs is referable to the considerable increase of bulk which water undergoes in congelation; ice being, bulk for bulk, lighter than water. This buoyancy produces remarkable effects, not only floats the icebergs, but with them heavy bodies, as strata of earth and stone, and beds of rock of great thickness, which are thus transported from the mountainous shores of high latitudes to the bottom of distant seas, where the ice is dissolved. Such ice-islands, before they are melted, have been known to drift from Baffin's Bay to the Azores, and from the South Pole to the neighbourhood of the Cape.

Icebergs not unfrequently ground on reefs or shallows, and thus remain stationary for some years. Fabricius and Crautz mention two immense icebergs having grounded and remained in South-east Bay for several years. From their vast size they were named by the Dutch. Amsterdam and Haarlem.

To prolong my days I will neither ask the elixir of life from the alchemist, nor multiplied prescriptions from the physician. A severe regimen tends to abridge life, and multiplied privations give a sadness to the spirit, more noxious than the prescribed remedies are salutary. Besides, what is physical, without moral life; that is to say, without improvement and enjoyment?—FLINT.

CHILDREN AND STORY-TELLERS OF NAPLES.

THE streets of Naples are characterized by extraordinary stir and bustle. One of the most interesting features of this scene is the great number of very young children, who are already of use to their parents. You see little boys and girls as busily employed as their elders; one is the bearer of his father's breakfast to the fields; another carries a pick-axe or spade, which you would hardly think him strong enough to lift. Another drives an ass, with vegetables, to market; and you may often see a little creature standing on a chair, grinding a knife, while another, still younger, turns the wheel.

In the city are *conservatorii*, or schools, opened for children of both sexes, where they are educated, fed, and taught some handicraft. Some are in the nature of workhouses, and employ a multitude of indigent persons, while others are devoted entirely to children, educated principally for music. The latter institutions have produced many of the great performers and masters of the art, who have figured in the churches or on the stages of the different capitals of Europe for the last century.

An amusement almost peculiar to Naples is that afforded by story-tellers, or, as they are called, the *improvisatori*. M. Saas, a recent traveller, says:—"These men are seen surrounded by audiences of the lower classes. They have a square place railed in, with a few planks for seats. Some sit,—others stand,—and numbers lie on the ground; but all evince profound attention. One man relates stories of his own invention, at times convulsing his hearers with laughter, and at others drawing the tears of sensibility from their eyes. Farther on is one who recites from Ariosto, Tasso, or other Italian poets; and often, after reading a passage, he puts the book under his arm, and proceeds to an explanation, with very appropriate action and gesture. The voice and manner of the improvisatore,—the interest excited in the audience,—every one appearing fearful of breathing, lest they should lose a part, or interrupt the story,—the beautiful groups in which they are accidentally ranged, combine to make it a most interesting sight to a stranger."

RURAL SPORTS FOR THE MONTHS. FEBRUARY.

In vain each earth he tries, the doors are barred
Impregnable, nor is the covert safe;
He pants for purer air. Hark! what loud shouts
Re-echo through the groves! he breaks away;
Shrill horns proclaim his flight. Each straggling hound
Strains o'er the lawn to reach the distant pack:
'Tis triumph all and joy.—SOMERVILLE.



THE COMMON FOX, (*Vulpes vulgaris*.)

THROUGHOUT the habitable regions of the earth, we find that, as the empire of civilized man gradually extends, predatory animals are proportionably reduced in number, until in particular countries or districts the most formidable species become completely extinct. Thus, that ancient marauder the wolf, formerly so much the object of dread and superstition throughout our land, has been extirpated from it, though he is still roaming at large on many parts of the Continent. But while this is the case with such animals as have proved themselves inimical to the safety of the human race, it is not so with the Fox, whose propensities, however rapacious, are exercised only on creatures lower in the scale of existence than itself. This animal is permitted to remain amongst us for the sake of the sport which it affords; its depredations are tolerated, and pains are even taken to keep up the supply of the species.

In no other country of the world is the hunting of the fox pursued with the same zeal and success as in England. It is a favourite diversion with all ranks of people, and is greatly lauded by its advocates as a means of keeping up the hardihood of the English character, as well as of promoting a kindly feeling between the several classes meeting together on such occasions. The breed of horses, it is also said, would soon degenerate, were the stimulus removed which now induces persons to go to the expense, trouble, and risk of rearing horses for the chase. Whether this be the case or not, the enthusiasm with which this sport is followed is very remarkable, and is by no means confined to the actual members of the hunt. It is amusing to witness the excitement which pervades a village in the hunting districts when the inhabitants become aware of the approach of the hounds. Old people seem to regain a portion of their juvenile feelings, and may be seen hastening with unwonted activity to view the sport; labouring men forget their usual measured pace, and appear as if impelled towards the scene of action by some irresistible impulse; others necessarily confined to their tasks, show by their eager looks that they would willingly throw aside the implements of husbandry and join the chase; light and active persons frequently follow the hounds on foot, and traverse the country for miles with a degree of speed and ardour unknown to them at other times; all indeed is bustle and excitement, and ill fares the work, domestic or of the field, when reynard chooses to lead the huntsmen and the hounds in the vicinity of a village.

The pleasurable excitement connected with this diversion is doubtless greatly enhanced by the sagacity and wiliness of the animal pursued, and by the innumerable stratagems which it employs to elude the menaced ruin. The history of the fox is full of interest, and will repay us for the attention we may be disposed to give to the subject.

The family to which our common fox belongs is generally considered as only a variety of the extensive genus *Canis*, which comprises dogs, wolves, and jackals. Nor is the organisation of the fox very different from that of the dog. The number of toes on the fore and hind-feet, and the number and position of the incisor, canine, and cheek teeth correspond in each, though the teeth of the fox are sharper and better fitted to inflict a mortal wound at a single bite, without mangling its prey, than those of the dog. There are, however, some remarkable differences between the animals, as there are also between the fox, and all other members of the same family. The pupil of the eye in the fox, if observed during the day, or under the influence of a strong light, is seen to close in a vertical direction, instead of contracting equally in the form of a circle, and, therefore, as in the case of the cat, the faculty of vision can be exercised with a very small proportion of light. Yet is the animal by no means deficient in sight, even when exposed to the noon-tide glare; as those who have followed in his track can abundantly testify. Another point of difference is in the shape of the muzzle, which in the fox is much more elongated and pointed than in others of the same family. The tail is also longer, more bushy, and more thickly covered with fur; the skin is altogether covered with closer and finer fur, and is in some varieties of great beauty and high value.

The habits of the fox are more distinct than its organisation from those of other animals of the canine species. The form of the eye enables it to see prey when above it, and thus the perches of pheasants and other gallinaceous birds are assailed by the nocturnal marauder. Its predacious habits know no bounds, and its stealthy and cautious manner of approaching and securing its prey enables it to commit the most destructive havoc in the farm-yard, and to carry off its booty with impunity. It is peculiar to foxes to be quite solitary in their operations, never joining in numbers to make common cause against their enemies, and so to compensate for the want of individual strength; but encountering alone whatever dangers assail it, and opposing them at first with all the cunning of its sagacious nature, and when this fails, with the most desperate and unyielding courage, fighting to the last extremity.

Foxes are common in various parts of the globe, but most numerous in temperate and cold climates. There is not much difference in their general aspect, except such as arises from variety in colour and markings. Their means of subsistence vary with the localities in which they are found. In some places they are known to subsist chiefly on fish, in others they fatten on the fruit of the vine; the lesser beasts and birds are, however, their principal prey, especially rabbits, game, and domestic poultry. They perform an essential service in Scotland by destroying the moor mice, which sometimes increase to such an extent as to destroy the vegetation of the moors, to the great loss of the shepherd. At the season of the vintage in France and Italy, these animals do much damage, and feed on the grapes till they become fat, and, as it is said, good for eating. Foxes are not migratory animals in any country, nor do they often shift their quarters with the seasons: they are hardy and healthy creatures, and it is a rare occurrence to find one of their number that has died a natural death.

The common fox is about a foot high, and from the muzzle to the other extremity of the body it averages about two feet and a half. Shaw describes it as having a broad head, sharp snout, flat forehead; and a straight

and bushy tail. The colour is a yellowish red or brown, mixed with white or ash-colour on the forehead, shoulders, hind-part of the back, and outside of the hind-legs; the lips, cheeks, and throat are white, and a stripe of the same colour runs along the under side of the legs; the breast and belly are whitish gray; the tips of the ears and the feet black; the tail externally reddish-yellow, with a black tinge; internally yellowish-white, with the same; the tip of the tail perfectly white. According to circumstances the fox kennels either above or below the surface of the earth. Where the soil is wet and clayey, he finds a retreat in thick bushes or in hollows at the roots of trees; in drier situations he makes an excavation to a convenient depth in the earth, often beneath the protection of a high bank where roots of trees, &c. prevent the soil from falling in, and also form a shelter to his dwelling. He does not always take the trouble to make a hole for himself, but gets accommodation by dispossessing the badger. Wherever he takes up his abode he always provides a number of outlets to give means of escape from danger. The young of the fox are from three to eight in number, and are produced only once in the year, *i.e.* about the latter end of March. The female prepares a bed for them of leaves and hay, and manifests the most tender solicitude in their behalf. The cautious, prudent character which belongs to her by nature, seems entirely lost when she has young ones to nurse and protect. If she perceives the place of her retreat to be discovered, she will carry off her cubs one by one, till she has put them all in a situation which promises greater security. She has even been known to bear away a cub when the hounds were out, and thus risk her own life in attempting to save that of her offspring. The cubs are born like dogs, covered with hair, and having their eyes shut. Their growth is completed at eighteen months, and the period of their natural lives is probably thirteen or fourteen years.

In the days of his inexperience (says a modern writer) a favourite lure will ensnare the fox, but when apprised of its nature, the same expedient becomes unavailing. He smells the very iron of the trap, and carefully shuns it. If he perceives that the means of ambush are multiplying around him, he quits his place of residence and retires into more secure quarters. Man with all his reasonings and machines, requires himself much experience not to be overreached by this wily quadruped. If all the issues of the kennel are beset with snares, the occupant scents and recognises them, and rather than fall into them, exposes himself to the most cruel and protracted privation of food. He is comparatively ignorant and careless of his conduct when no war is waged against him; but when the apprehension of pain or death, exhibited under various forms, has produced multiplied sensations, which become fixed in his memory, and give rise to comparisons, judgments, and indications, he acquires skill, penetration, and cunning. If the imprudence and thoughtlessness of youth frequently make him deviate from the right path, the experience of age corrects his wanderings, and teaches him to discriminate true from false appearances.

The skin of the fox we have already spoken of as furnishing a soft and warm fur. This is much used in various parts of Europe, for muffs and for the lining of clothes. In the Valais, and the Alpine districts of Switzerland, great numbers of foxes are taken on this account. Vast numbers of skins are likewise imported from Newfoundland and Hudson's Bay.

In order to keep up the supply of foxes in this country, they are sometimes imported from the Continent, but these are said not to show equal sport with our own. The waste of foxes is not attributed altogether to the hunting which is carried on, but to the prepossession against reynard which exists among the owners of extensive domains, where the preservation of winged game is an object of importance. It is affirmed, however, that if coverts were provided in ground favourable to the burrowing of rabbits, the foxes, who prefer rabbits to any other food, would supply themselves from this source,

without molesting either pheasants, partridges, or hares; and this statement is confirmed by facts, for in some manors, thus provided with the favourite food of the fox, this animal is found with hares and pheasants in equal plenty.

In the night which precedes a fox-hunt the well-known business of earth-stopping is performed by persons connected with the hunting establishment. This consists in stopping up the *earths*, as they are called, while the foxes are absent in search of their prey, so that when they return to their lodging, they find themselves shut out. Thorn or furze-bushes, intermixed with earth, are used to close the entrances to these subterranean dwellings, and when the chase is over, the earths are unstopped, that the foxes may not be deprived of their natural kennel, and driven to seek others elsewhere.

The season of fox-hunting is, or ought to be, now nearly at an end. It has been recommended, as a means of repairing the scarcity of foxes, that no country be hunted later than February. As a further means of supplying the requirements of the chase, the domestic rearing of foxes is frequently resorted to. Some litters are procured, carefully removed, and placed in a convenient apartment, where they are fed, and nourished up with milk, wheat, and water, until they are old enough to try their strength against weasels, polecats, &c. A kennel is then prepared for these young foxes, and they are forced into it, one by one, and kept there by watching and supplying them with sufficient food within the entrance. Where rabbits are plentiful the cuba soon learn to catch the young ones in the neighbourhood: they likewise find plenty of beetles, chaffers, and worms, and if properly managed there is very little doubt of their taking to the kennel and remaining there.

The habits of the fox afford subject for a much longer notice than we can give, but they have been so frequently illustrated by anecdotes, or brought under actual observation, that to a large proportion of our readers they are doubtless sufficiently familiar. While this animal is reared and prized by the huntsman, he is unjustly hated and despised by many persons, in consequence of the natural tendencies which belong to him. We cannot join, for instance, in such language as the following, where the animal is represented as a thief, conscious of the wrong and robbery he is committing, and expecting the just vengeance of his pursuers.

As straggling armies at the trumpet's voice
Press to their standard, hither all repair,
And hurry through the woods, with hasty step,
Rustling, and full of hope; now driven on heaps
They push, they strive; while from the kennel sneaks
The conscious villain. See! he skulks along,
Sleek at the shepherd's coat, and plump with meals
Purloined: so thrive the wicked here below!
Though high his brush he bear; though tipt with white
It gaily shine, yet e'er the sun declined
Recal the shades of night, the pampered rogue
Shall rue his fate reversed, and at his heels
Behold the just avenger, swift to seize
His forfeit head, and thirsting for his blood.

SOMERVILLE'S *Chace*,

If there were no other sign of the perverseness of the mind of man, this would be a sufficient one, that about spiritual things almost every one is satisfied with himself, and thinks himself as wise and as holy as need is, whereas about temporal things nobody is contented with his state and condition, but would fain be greater and richer every day. If we were really wise we should not be so greedy of temporal things, considering we have as much as nature requires. What is beyond the need of nature is a clog to grace. But in spiritual things the greatest share we have is the least of what an Infinite Being is able and willing to give.—LUDOLZ.

ON CHESS.

V.

ORIGIN OF THE NAMES OF CHESS-MEN.

AN inquiry into the various mutations which the game of chess has undergone in its passage through different nations, affords much curious information. Although the nature of the game itself never seems to have been essentially changed, yet the names and powers of the pieces have been subject to much variation: the military character of the game has often been lost sight of; and it may, in its present state, be typical not so much of a military community as of a well-regulated society, in which we find kings, queens, bishops, knights, and peasants.

The king, the principal piece in the game, has always preserved his title; but his consort, the queen, has been raised to her present dignity by a series of remarkable changes, which can be traced with tolerable exactness. The original name for this piece seems to have been the Eastern word *Phers*, that is, a counsellor, or general of an army. It has been supposed that the similarity of sound between the words *Phers* and *Vierge*, occasioned the introduction of the latter term among the Europeans: but that the extravagant veneration of the times towards the Holy Virgin, caused the term *Vierge* to be changed into *Fierce* or *Fere*, the old Norman and English term for the queen, and thus the military character of the game became at once lost sight of. In an old Latin poem the queen is called *Virgo*.

M. Freret, after remarking that among Eastern nations the move of this piece is only from square to square, observes, that the romantic spirit of the times disdained this very contracted motion as too much resembling the slavery of the Asiatic females, and contrary to the privileges enjoyed by those in Europe, on which account they rendered it as free as possible, by making it the most important of all the pieces. But this remark does not agree with Mr. Barrington's ingenious observations. He says:—

In most of these (the Eastern) governments, the kings are rather indolent monarchs, and consequently this piece scarcely moves at all, but is merely to be defended from attacks. The emperor himself being thus indolent, necessarily requires a minister or general, who can protect his master by vigorous and extensive motions against distant insults, in the most remote parts of the board. The piece therefore of the greatest importance, was by the Persians styled *Phers* or *General*. Chess hath universally been considered as an engagement between two armies, and if the piece of the greatest importance is termed the *General*, this allusion is properly carried on.

Mr. Douce remarks:—

Although the title of *queen* cannot be traced so far back as that of *Phers*, it is of considerable antiquity, as it is to be met with in French manuscripts of the thirteenth century; and in the *Gesta Romanorum*, a collection of stories compiled about the beginning of the thirteenth century, this piece is called *regina*.

About the year 1408, John Lydgate, the monk of St. Edmonsbury, wrote a poem which he dedicated to the admirers of the game royal at chess, from which the following extract is preserved by Dr. Hyde:—

To all folkys vertuose
That gentil bene, and amorous,
Which love the fair pley notable,
Of the chesse, most delytable,
Whith all her hooles full entente,
To them this boke y will presente;
Where they shall fynde and son anoone
How that I nat yore agoone,
Was of a Fers so fortunat,
Into a corner drive and Maat.

The last two lines become intelligible if we read them thus, "The king was by a fortunate queen (of the adversary,) driven into a corner of the chess-board and check-mated." We introduce the quotation however to

show that Mr. Douce is not correct in supposing it "not possible to trace the term *fers* in the English language beyond the time of Chaucer*." But the term *queen* seems to have come into general use by the year 1474, when Caxton printed the second edition of his *Book on Chess*, for he describes the queen in the following terms:—"Thus ought the queene be maad. She ought to be a fayr lady, sittynge in a chayer, and crowned with a corone on her head, and cladde with a cloth of gold, and above furred with ermynes." We also find the same term continued in the reign of Henry the Seventh, as appears from a passage in the *Vulgaria* of W. Horman, printed at London, 1519. "We shoulde have II kyngis, and II quyens, IIII alfyns, IIII knyghtis, IIII rokis, and XVI paunys."

Mr. Madden thinks that from the pieces found in the Isle of Lewis †, and also by the set of chess-men belonging to Charlemagne, of the eighth, or beginning of the ninth, century, the very early appearance of the queen on the European chess-boards is proved, and consequently we must reject the theory which ascribes this introduction to the French, from the fancied similarity between Fierce, or Fers, and the Persian Pherz. That it is to the Greeks we should rather "ascribe the merit or blame of metamorphosing the minister into the queen, and, by that means, of introducing so strange an anomaly as the promotion of a foot-soldier to be a lady." Mr. Barrington also observes, "Another impropriety arises from the *pawn's* becoming a *queen*, when he hath reached the last square of the adversary's camp; as it is a suitable reward to the *pawn* (or foot-soldier) to make him a general, if he penetrates so far through the enemy's troops; but certainly no prowess on his part can entitle him to be transformed into a queen."

Dr. Hyde states, that in Poland and Russia the chess-queen is sometimes called the *old woman*, or *nurse*.

THE BISHOP. Among the Persians and Arabs, the original name of this piece was *Pil*, or *Phil*, an elephant; under which form it was represented on the eastern chess-board. It appears that the Spaniards borrowed the term from the Moors, and with the addition of the article *al*, converted it into *alfil*, whence it became varied by Italian, French, and English writers into *arfil*, *alferes*, *alphilus*, *alfino*, *alphino*, *alfiers*, *aufin*, *alfyn*, *awfyn*, and *alphyn*. It is quite uncertain at what period the bishop first took the place of the elephant. Mr. Madden brings together a number of authorities to show that the term bishop was in use so early as the eleventh or twelfth century. It was in common use in the time of Elizabeth, as appears from ROWBOTHAM'S *Pleasant and witty Plays of the Cheats renewed*, 12mo, London, 1562. He says of it, "The Bishoppes some name Alphins, some foolles, and some name them princes: other some call them Archers, and thei are fashioned accordinge to the wyll of the workemen:" and again, *Of the bishop, or archer*: "In the auncient tyme of the Frenchmen named him Foole, which seemeth vnto me an improper name. The Spaniardes named him Prince, with some reason; and some name him Archer;" and, of its form among the English, he tells us, "The Bishoppe is made with a sharpe toppe, and cloven in the middest, not mucche vnylike to a bishop's myter."

The French, at a very early period, called this piece *Fol*, an evident corruption of *Fil*. Hence, also, the French name for the piece *Fou*, or the fool, a natural perversion of the original, when we consider that, at the time it was made, the court fool was a usual attendant on the king and Queen: or, as Mr. Barrington observes, "This piece, standing on the sides of the king and

queen, some wag of the times, from this circumstance, styled it *The Fool*, because anciently royal personages were commonly thus attended, from want of other means of amusing themselves."

It is difficult to say why this piece should have been named the archer, unless, as Mr. Douce remarks, "Archers were formerly the body-guards of monarchs, and might have been thought, by some, more proper personages in the game of chess than fools, especially if they were inclined to give it a military turn." This piece has also been called the *Secretary*. The Russians and Swedes retain the original appellation of Elephant; the Germans call it *Läufer*, or the Leaper, from the ancient mode of taking over an intervening piece; and the Poles call it *Póp*, Papa, or Priest. The Icelanders and Danes appear always to have called it *Biskup*, or Bishop.

THE KNIGHT. This piece has been subject to little or no variation. It is likely that in early times the knight was represented on horseback, and hence the piece has often been called the *Horse*. On the European board this piece denoted the nobility; but Dr. Hyde states, that among Charlemagne's chess-men it is represented under the form of a centaur. From the peculiar leap of this piece the Germans call it the *Springer*: the Russians continue to call it the *Horse*.

RELIGION is the key-stone of the arch of the moral universe. On religion are founded those sublime relations which exist between the visible and the invisible world,—those who still sojourn here, and those who have become citizens of the country beyond us. It is the poesy of existence,—the basis of all high thought and virtuous feeling, of charities and morals,—and the very tie of social existence.—F.

ALL the generous and tender affections acquire a new charm in alliance with religious ideas, in the same manner as objects, beautiful in themselves, receive a new lustre when a pure light is thrown upon them. Filial piety becomes more touching in those children who pray with fervour for the preservation of the life of a mother; and let a pious courage but guide the visitor of the sick, and he becomes the angel of consolation, as he visits the abodes of misery. Even virtue itself does not receive its celestial impress, except in alliance with religious sentiments.—F.

FAITH AND HOPE

O Thou! who for our fallen race
Didst lay thy crown of glory by,
And quit thy heavenly dwelling-place,
To clothe Thee in mortality;
By whom our vesture of decay,
Its frailty and its pains were worn;
Who, sinless, of our sinful clay
The burdens and the griefs hast borne;
Who, stainless, bore our guilty doom,
Upon the cross to save us bled,
And who, triumphant from the tomb,
Captivity hast captive led—
Oh! teach thy ransomed ones to know
Thy love who diedst to set them free;
And bid their torpid spirit glow
With love, which centres all in Thee;
And come, triumphant Victim! come,
I' the brightness of thy holy love,
And make this earth our purchased home,
The image of thy courts above.
Dimly, O Lord! our feeble eyes
The dawning rays of glory see;
But brightly shall the morning rise
Which bids creation bend to Thee.
Rise, Sun of Righteousness! and shed
Thy beams of scorching light abroad;
That earth may know (her darkness fled)
Her King in Thee, Incarnate God!
And oh! while yet thy mercy speaks,
So may the words of love prevail,
That when the morn of Judgment breaks,
Many may thine appearing hail.

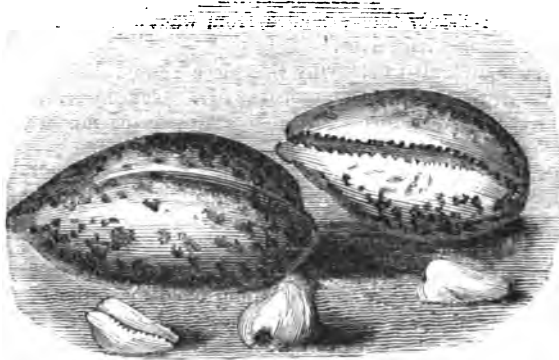
LADY FLORA HASTINGS.

* Chaucer thus introduces the piece in question:

She stalle on me and toke my feers,
And when I sawe my feers away,
Alas, I couthe no longer play!

† See *Saturday Magazine*, vol. xviii., p. 87, 60.

COWRIES.



WHAT can be more wonderful than to view nature in all her irregularities and sports, in her variety of shells; such a difference of colour and figure do they form,—flat, concave, long, lunated, drawn round in a circle, the orbit cut in two; some are seen with a rising on the back, some smooth, some wrinkled, toothed, striated, the point variously intorted; the mouth pointed like a dagger, folded back, bent inwards! All these creatures, and many more, furnish at once novelty, elegance, and speculation. While I thus contemplated nature she wrought in me a persuasion that I should look upon nothing as incredible that related to her.—PLINY.

THE great abundance of these very beautiful shells has rendered them less esteemed than they deserve to be, and has led us to pass them by for the more rare, but not less remarkable, specimens of our cabinets. The family of molluscs, to which cowries, belong is called by conchologists *Cypræidæ*, and is well known in commerce from one of the species being used in many parts of the East instead of money. Cowries abound in several parts of the Old and New World, but are most numerous, and attain the greatest size, in hot climates. They are especially abundant in the islands of the Indian Archipelago, and are fished for by a curious process of which we shall presently speak.

Situated directly in the route of ships coming from Europe and bound for Ceylon, is an extensive coral chain of innumerable isles and reefs, extending from north to south for a distance of 466 geographical miles, though in breadth it is not thought to exceed, in any part, 48 miles. This remarkable barrier of isles, which spreads out over so large an extent of the western face of India and Ceylon, was one of the earliest discoveries of the Portuguese in the Eastern seas, and considering the situation it occupies, and the dangers to which it exposes those who navigate in its vicinity, has been singularly little known and explored until within a short period.

These islands are called the *Maldivas*, or *Maldives*, the word *mal* in the Malabar language signifying a thousand, or an uncountable number, and *diva*, an island. John de Barros tells us, that although there are openings in this group, from five to twenty leagues wide, yet in other places it is so crowded, as to give the idea of a half-drowned orchard, the depth of the water in the intervals being, however, sufficient for the largest vessel, while the space in them is not sufficient for her yards and sails.

The productions of the Maldiv Islands are minutely enumerated by the above author, and among them he mentions cowry shells as being very abundant and beautiful. Indeed, the particular kind of shells used as money are chiefly found among these islands, and constitute their principal article of export. They are also found in the Philippine Islands, and on the coast of Congo. The method of fishing for cowry shells is as follows. The branches and leaves of the cocoa-nut (also abundant in these islands), are lashed together in bundles about the size of a wheat-sheaf, two of which constitute what is called a *balsa*, or float. On these balsas the natives take a number of trot lines, with short threads attached to them at every five or six inches, to each of which a bit of meat is firmly tied as a bait. The shell-fish, both cowries and other valuable sea species, swallow these baits, knot and all, and are hauled up by the trot-

line till the balsas have a sufficient load, when they are paddled on shore, and the shells buried in the earth till the decomposition of the fish within them is completed. They are then thoroughly washed, and are fit for exportation. Another method is spoken of by some authors, as that by which cowries are obtained. The fishing for them is said to be the occupation of women, after the period of the high tides, who take them in baskets, together with a quantity of sand, which is washed out, and the shells heaped together on the shores until the fish die. Both methods are probably pursued as occasion offers.

The value of cowries as currency varies in different countries. On the coast of Africa, and along the banks of the Niger, they are worth from fifty to sixty pounds a ton, and in the vicinity of the river just named they form the only currency. In England the value of cowries is about twenty pounds the ton.

The natural history of the cowry is rendered interesting by the manner in which the shell is formed, and the power possessed by the fish of quitting its habitation whenever it becomes inconvenient, and of forming a new dwelling of more capacious dimensions. Besides the organs belonging to other animals with univalve shells, the cowry has two wide, membranous appendages at the sides of the body, with which it can completely cover itself, and which contribute greatly towards the formation of the shell. The very thin and brittle substance which constitutes the inferior part of the shell, is, like other shells, the result of a secretion from the body of the animal; but there is a distinct operation by which the exterior layers of enamel are formed, and this is by the use of the appendages or wings. In the first stages of their growth cowries are thin and transparent, but they gradually acquire solidity by means of the external layers of enamel which the animal successively applies. These layers appear to be a translation from the wings, and have such markings as clearly to show, on the convex surface of the shell, the manner in which they are formed. The longitudinal line, which divides the shell into two unequal parts, is made by the junction of what we have called, for want of a better term, the wings of the animal, and plainly indicates, by the faintness of the tint, that the colouring juice was deficient in that part.

The most singular part of this animal's history, however, is its ability to quit the shell at any time when it is found desirable to do so, and to form another better suited to its increasing size. Even while the animal is forming its shell for the first time, its own growth makes the labour almost a vain one, for by the time the shell is finished, as it admits of no subsequent enlargement, it is scarcely fitted for the bulk of its occupant, and is therefore soon deserted. As the body of the animal is of a consistence between the tendinous and the mucilaginous, it is probably no difficult operation to disengage itself from the shell. This being effected, the tender creature is immediately exposed naked and defenceless to the action of the saline element by which it is surrounded. But the hinder parts of the body soon begin again to furnish their testaceous matter, which concretes upon the surface, and at length the shell appears of the consistence of paper, and the mouth, which at that time is very wide, soon contracts to its proper shape. The teeth which are seen at the edge of the mouth, together with the beautiful enamel forming the opaque and highly polished surface, are alike produced from and by the action of the wing-like appendages; the spots which adorn this enamel in the full-grown specimens, make the different species of cowry the more easily distinguishable from each other.

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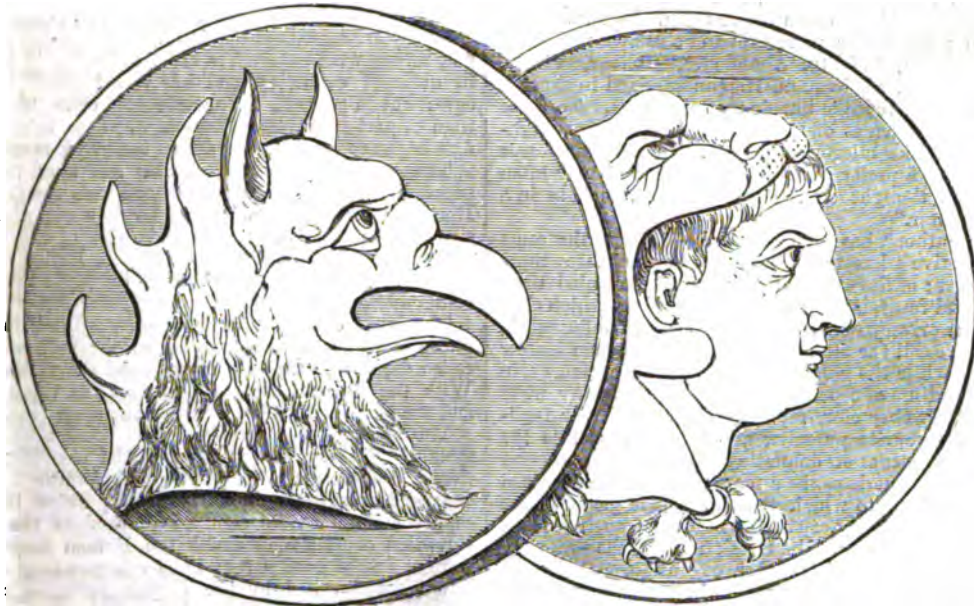
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SUPPLEMENT,

FEBRUARY, 1841.

{ PRICE
ONE PENNY.

SOME ACCOUNT OF COINS, ANCIENT AND MODERN.



MEDALLION COMMEMORATING THE VICTORY OF HERCULES OVER THE HARPYES.
(From the Earl of Pembroke's Collection.)

THE Medal, faithful to its charge of fame,
Through climes and ages, bears each form and name;
In one short view subjected to our eye,
Gods, Emperors, Heroes, Sages, Beauties lie.—POPE.

INTRODUCTION.

A PROLONGED attention to the study of antiquarian objects generally affords a theme for laughter and derision, to those who expect palpably beneficial results from every intellectual exertion. A long-continued study of one object or set of objects prejudices the mind in favour of it, causes the student to speak with enthusiasm on his favourite subject, and disposes him to undervalue other mental employments. Hence, the popular estimate of the value of a pursuit being often founded on the exhibition of excess on the part of its votaries, is naturally mixed up with ridicule; and no subject perhaps is so open to the attacks of the satirist as antiquities:—their real value can only be appreciated by considerable study; and as they do not appear to offer any immediate relation to the happiness or convenience of mankind, they are disregarded: but the historian, the architect, the artist, the man of literature, and the man of taste, all derive inestimable advantages from the records of past ages; and, by a faithful interpretation of them, these advantages are given to the world: so that our conduct for the future may be to a certain extent guided by the experience of the past.

We have thought it necessary to preface our account of ANCIENT AND MODERN COINS with this apology, in order to predispose the Reader in favour of a really useful subject. In our motto, the Poet expresses, in his usual concise language, some of the uses of coins; we shall endeavour to avoid the abuse of them which called forth the censure from the same satiric pen:—

With sharpened sight pale antiquaries pore,
The inscription value, but the rust adore:
This, the blue varnish, that, the green endears,
The sacred rust of twice ten hundred years.
To gain Pæcennius one employs his schemes;
One grasps a Cæcrops in ecstatic dreams;
Poor Vadius, long with learned spleen devoured,
Can taste no pleasure since his shield was scoured.

When a person is looking over a collection of coins, he frequently expresses surprise at their comparative values,
VOL. XVIII.

which, judging from his every day use of money, appear often to have no sort of relation to the modern system of exchanges:—a silver coin is often of more value than one of gold; and a brass coin fetches perhaps a higher price than either. The difficulty, however, disappears as soon as we begin to look upon a cabinet of medals, not as a treasure of money, but one of knowledge; and not for charms in the gold, but in the figures and inscriptions which adorn it. Thus, Addison well remarks:—"The intrinsic value of an old coin does not consist in its metal, but in its erudition; it is the device that has raised the species; so that at present an *as* or an *obolus* may carry a higher price than a *denarius* or a *drachma*: and a piece of money that was not worth a penny fifteen hundred years ago, may be now rated at fifty crowns, or perhaps a hundred guineas."

So anxious have many antiquarian writers been, to state in the fullest possible terms the usefulness of the study of ancient coins, that it becomes a matter of some difficulty to select those more obvious aids to history and art, which this study has supplied. Addison, however, in his pleasant dialogue on the subject makes one of his characters express himself in terms sufficiently concise for quotation; so that we select the passage. The uses of old coins are inquired after; when Philander says:—"The first and most obvious one, is the showing us the faces of all the great persons of antiquity. A cabinet of medals is a collection of pictures in miniature. Juvenal calls them very humorously

Concisum argentum in titulos, faciesque minutæ.

"You here see the Alexanders, Cæsars, Pompeys, Trajans, and the whole catalogue of heroes; who have many of them so distinguished themselves from the rest of mankind, that we almost look upon them as another species. It is an agreeable amusement to compare in our own thoughts the face of a great man with the character that authors have given us of him, and to try if we can find out in his looks and features either the haughty, cruel, or merciful temper, that discovers itself in the history of his actions. We find, too, on medals the representations of ladies that have given occasion to whole volumes, on account only of a face. We have here the pleasure to examine their looks and dresses, and survey

* Silver stamped with titles and miniature portraits.

at leisure those beauties that have sometimes been the happiness, or the misery, of whole kingdoms. Nor do you only meet the faces of such as are famous in history, but of several whose names are not to be found anywhere except on medals. Some of the emperors, for example, have had wives, and some of them children, that no authors have mentioned. We are, therefore, obliged to the study of coins for having made new discoveries to the learned, and given them information of such persons as are to be met with on no other kind of records." . . . "You have on medals a long list of heathen deities, distinguished from each other by their proper titles and ornaments. You see the copies of the several statues, that have had the politest nations of the world fall down before them. You have here, too, several persons of a more thin and shadowy nature, as Hope, Constancy, Fidelity, Abundance, Honour, Virtue, Eternity, Justice, Moderation, Happiness,—and in short, a whole creation of the like imaginary substances. To these you may add the genies of nations, provinces, cities, highways, and the like allegorical beings. In devices of this nature one sees a pretty poetical invention, and may often find as much thought on the reverse of a medal, as in a canto of Spenser."

Another author* has well observed,—“From the same source we derive a knowledge of many customs of a more private nature: of the ceremonies which accompanied their marriages and funerals: of the various sacrifices which they performed in privacy and retirement: a sort of information which deserves all the attention the antiquarian can bestow upon it: for while the greater and more public customs give the general outline of a people, these point out many nicer features in their character, represent their particular inclinations and favourite pursuits, and transport us into the most delightful scenes of domestic life.

“There cannot, perhaps, be a more certain test of the real state of perfection, to which the fine arts in general have advanced in any country, than the beauty of their medals. The unrivalled elegance of the Greek medals, the propriety of their design, and the spirit of their execution, are sufficient to convince us that, amongst a people who could produce such perfect models in a particular art, every other ornamental art must have flourished in the highest splendour: nor shall we hesitate to pronounce, upon comparing the medals of Rome with those of her provinces that the arts of the capital had not extended their influence to every part of that vast empire.

“The medals of the Greek cities preserve some faint traces of Grecian jurisprudence as well in the public decrees and conventions, as in the private ordinances which they record. To the civil institutes of the Romans their medals are the most certain guides: for every law which the interest of private families procured for the people, for every decree of an emperor, which was calculated to promote the welfare of the empire, the senate adopted this as the best mode of expressing their gratitude, and delivering the remembrance of it to future ages. The study of the civil law, therefore, has always been found to have a great connection with the study of medals, and to receive illustration from them in many of its most abstruse parts.”

SECTION I.

MEDALS AND COINS DISTINGUISHED—METALS OF WHICH THEY ARE MADE—PECULIARITIES OF COINING—SIZES—PARTS OF A MEDAL—SUBJECTS OF MEDALS—PORTRAITS—REVERSES OF MEDALS—REMARKABLE COINS—TITLES ON COINS AND MEDALS.

By the term *medal* we are to understand a piece of metal in form of a *coin*, designed to preserve to posterity the portrait of some great man, or the memory of some illustrious action. Coins, in the ordinary intercourse of life, serve the purposes of exchange, and are the representatives of value. When they cease to serve this office, and are still treasured up, they come under the denomination of *medals*; so that, in this paper, the two terms, COINS and MEDALS, will be treated of synonymously, unless otherwise specified.

The metals of which medals and coins have been in all times ordinarily made, are gold, silver, and copper: under this last head, are included all the *brass* coins which have come down to our times, as well as those of copper. Other substances have been used by different nations, for money; such as leather, wood, shells, beads, &c., but with these we have nothing to do.

In order to estimate the fineness and purity of gold, the

* HALL, *Oxford Prize Essay on Medals*.

pound Troy is considered to be divided into twenty-four parts, called *scraps*, and each *scrap* into four *grains*.

The most ancient gold coins, which are those of Lydia, and other states in Asia Minor, are not of the purest gold. Some of the very ancient coins are formed of a compound of gold and silver, called *electrum*; one part gold, and four silver. But very fine gold coins began to be formed a.c. 350, by Philip, King of Macedon; from the gold obtained from the mines of Philippi, in Thrace. The coins of Alexander and of succeeding princes are also beautiful specimens of ancient coining; those of the Ptolemies of Egypt are twenty-three carats, three grains fine; or only $\frac{1}{4}$ part alloy! The Roman gold coinage is very pure from the earliest times, and continued so till the reign of Severus, A.D. 211. The proportion of alloy, that is, an inferior metal, such as copper, mixed with the gold, in order to harden it, was various in different countries, and has varied much in different ages: but in general, the ancient gold coins had not more than $\frac{1}{4}$ part alloy. The Romans, however, in the later ages first began to considerably debase the precious metals.

The most ancient silver was also less pure than that of succeeding times, and particularly so with the Greeks. The Roman silver was likewise inferior to ours; and very bad silver began to be put out in the reign of Severus. It is thought that the silver coins of Ægina, having on one side a turtle, or tortoise, and showing the rude marks of the coiner's blows on the other, are the most ancient known.

The brass of the ancients, when good, which is rather uncommon, consisted of two sorts; the red, or what they called *Cyprian* brass,—i.e. copper; and the yellow, or brass. With the Romans, brass was double the value of copper; and the Greeks probably followed the same rule.

The ancients had also numerous coins made of mixed metals. The first sort was that of the *electrum*, just mentioned. The next were those of *Corinthian* brass, which depended upon certain qualities or proportions in which the copper and zinc were mingled to produce the brass. Of Egyptian coins struck under the Roman emperors, some were at first of good silver; but by degrees they degenerated into a metal called by the French *potin*,—a mixture of copper and tin with a little silver. Some coins were made of what is now called *pot-metal*, or *bell-metal*. A coinage of brass mixed with silver was authorised by the Roman state about A.D. 260. The coins spoken of by some writers, of lead or copper, plated with gold or silver, are supposed to have resulted from Roman forgery; but leaden coins have been found of undoubted antiquity. An ancient writer informs us that *tin* money was issued by Dionysius, one of the Sicilian tyrants; but no such coins have been discovered, though medals of lead have been found of the imperial sort; but these are chiefly trial-pieces, to enable the artist to judge of the progress of the die. Lastly, some medals were composed of two different metals, not by melting them together, but either by plating over brass or iron with silver, or by laying a rim of a different metal round the edge of a medal: the former was a sort of false money, which had its origin during the triumvirate of Augustus.

None of the ancient money was cast in moulds, except the most ancient and very large Roman brass, commonly called *weights*; neither did the ancients impress legends on the edges of their money, as often done on modern coins, particularly on the crown and half-crown pieces of the last century; but some of their pieces are found *ornated*, i.e. notched round the edges. This is the case with some of the Syrian coins, with some of the Roman consular, and a few other early ones: the chief object of it was to prevent forgery.

Medals may likewise be distinguished by their *sizes*. The sizes of ancient medals are from three inches to a quarter of an inch in diameter. Those of the largest size are commonly called *medallions*. The others are usually ranked into *large*, *middle*, and *small*; and the class is determined not so much by the breadth and thickness of the medal itself, as by the size of the head that is stamped upon it. The shape of medals is rather elliptical, or not perfectly round. The first regular Greek coins were small pieces of silver, while the Roman were large masses of copper: the former were struck, the latter cast in moulds. The frontispiece shows a medalion belonging to the heavy brass species. It cannot be later than the time of Servius Tullius, who governed Rome about 560 B.C. This king coined nothing but brass. The piece in question is of the actual size represented in our cut, and weighs nineteen ounces and three quarters. It was probably cast in a mould.

The subject of it is HERCULES AND THE HARPY. This

hero is held out by the ancients as a true pattern of virtue and piety; and as his whole life was employed for the common benefit of mankind, we need not be surprised that his effigy should be found upon coins and medals. He seems to have flourished about 1230 years B.C. The twelve labours of Hercules are well known in Profane History. His sixth labour seems to have consisted in ridding the neighbourhood of the lake Stympbalus, in Arcadia, where was a town of the same name, of a number of voracious birds, like cranes or storks, which fed upon human flesh. The poets frequently represent them as winged monsters, having the face of a woman, with the body of a vulture, and their feet and fingers armed with sharp claws.

The medallion at the head of our paper is evidently intended to commemorate the victory of Hercules over these beings. On the one side is Hercules clothed (as usual) with the skin of the Nemean lion,—the result of his first labour. On the other side is a Harpy. It has been well remarked that Harpies are for the most part badly represented by the similitude of cherubs, with a full and young human face. According to Collins's *Dictionary*, "they are feigned to be fowls with a virgin's face, and bear's ears, their bodies like vultures, and their hands like their crooked talons." Our medallion marks the harpy as a *fowl*;—it gives the beak of the *vulture*—the *human eye*—the *ears of the bear*—and on the breast, the shaggy *feathering* of the large bird. The picked points upon the nape of the neck seem to denote somewhat of a *low-seated crest*.*

The *parts* of a medal are the two sides, of which one is called the *face*, *head*, or *obverse*; the other is termed the *reverse*. On each side is the *area*, or *field*, which is the middle of a medal; the *rim*, or *border*; and the *exergue*, which is beneath the ground whereon the figures represented are placed. On each of the two sides are distinguished the *type*, and the *legend* or *inscription*. The *type*, or *device*, is the figure represented; the *legend* is the writing, especially that around the medal; though in the Greek medals this writing is frequently in the *area*, and is called the *inscription*.

That which is in the *exergue* is often no more than some initial letters, the meaning of which is not always very plain: but it most usually contains either the date of the coin, *i.e.*, in what consulship of the emperor it was struck, if a Roman coin, and sometimes it signifies the place where it was struck, and to which the coin properly belonged; at other times, perhaps the name of a province is impressed, the reduction of which the medal is designed to celebrate.

On the faces of medals are commonly the portraits of great and illustrious persons; usually, but not always in profile. The coins of the Macedonian kings are the most ancient of any yet known, on which portraits are found; and Alexander I., who lived about 480 B.C., is the earliest monarch whose medals have been discovered. Then follow the kings and queens who reigned in Cyprus, Sicily, &c.; then the series of the kings of Egypt, Syria, &c., which extends from the time of Alexander the Great to the birth of Christ, including a period of about 330 years. The last series of ancient kings descends to the fourth century of the Christian era. The portraits on all these series of medals are accompanied with Greek writing.

There is a very perfect series of medals of the Roman emperors from Julius Cæsar, the first, to the destruction of Rome by the Goths; or even to a much later period, if the coins after this were not so rude as to destroy the beauty of the series, though they enhance its completeness. Till the third century after Christ, the faces on Roman medals were represented in profile. After this, for some time, we see Gothic front faces filling the whole field of medals.

The kings upon Greek coins have generally the diadem without any other ornament. The side face is always presented; though upon very ancient Greek coins of cities, and Roman consular coins, full faces are found of amazing relief and expression. Sometimes several heads are found on the same coin, either impressed on both sides, or only upon one. Sometimes two or more heads are found upon one side, while the other bears a reverse in the usual way: such heads are either *adverse*, that is, opposite to each other, face to face; or *joined*, both looking one way: of this latter sort are some of the finest Greek coins. Real portraits are sometimes found joined with ideal ones: such as, Carausius and Apollo, Posthumus and Hercules; Carausius and Posthumus being names of living characters, the others of fabulous

deities. Three heads are occasionally found on one side; but all such coins are very rare and valuable.

The chief ornament of medallic portraits is the diadem, called in Latin *vitta*. This was a riband worn about the head, and tied in a flowing knot behind; in ancient times the simple but expressive badge of regal power. It appears on the Greek medals of kings, from the earliest to the latest ages, and is a decided sign of the portrait of a prince. It occurs likewise, but seldom, on some Roman consular coins. The Romans having for ages an utter abhorrence of any thing which savoured of kingly distinction, their emperors ventured not for two centuries to assume the diadem, though they wore the radiated crown peculiar to the gods. But, in the time of Constantine, about A.D. 310, the diadem began to be worn, ornamented on either side with a row of pearls and various other decorations. The radiated crown



COIN OF ANTIOCHUS VI.

was first used as a token of deification in the posthumous coins of an emperor; but was soon put upon the emperors' heads, on their medals, during their life-time. The crown of laurel, the honourable distinction of conquerors, was afterwards worn, at least on the medals, by all the Roman emperors from Julius Cæsar. In later times, the laurel is held by a hand above the head, as a mark of piety. Besides the diadem, the Greek princes sometimes appear with the laurel crown. The Arsacidae, or kings of Parthia, wear a kind of sash round the head, with their hair in rows of curls like a wig. Tigranes, and the kings of Armenia, wear the tiara. The successors of Alexander the Great assumed different symbols of deity on the busts of their medals. The helmet also appears on coins, as on those of Macedon under the Romans, which have Alexander's head sometimes covered with a helmet. It occurs also on some of the coins of Probus and Constantine: as also on a coin of Herod, king of Judæa, which circumstance was considered as a mark of his pride and ambition.



JEWISH COIN.

The diadem also adorns the heads of the Greek queens. The queens of Egypt usually have the sceptre. The Roman empresses never appear with the diadem, the variety of their head-dresses compensating for the want of it; the minutest parts of which are often remarkable on their coins. The bust of an empress is sometimes supported by a crescent, which probably denoted that she was the moon as her husband was the sun, of the state. There are other symbolic ornaments of the head to be seen on some Roman coins; the principal of which is the *veil* used in the consecration of an emperor, or empress: such coins are valuable for their rarity.

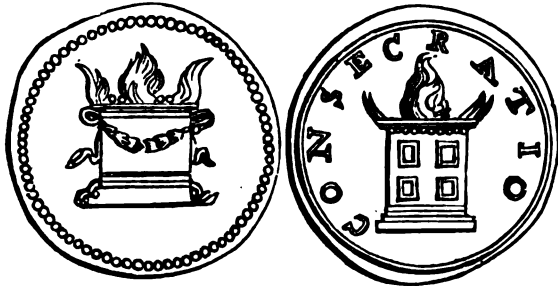


MEDAL OF NERO.

* We are indebted for this explanation to the Rev. E. Duke, of Lake House, near Salisbury, an eminent local antiquary.

The "glory," or circular line, in later times usually put upon the heads of saints, was in old times applied to emperors, and appears on some of their coins. The bust of a figure is the only part usually given on ancient coins; but sometimes half, or the whole, of the body; in which cases, the hands appear with some ensigns of majesty in them: such as the globe, said to have been introduced by Augustus, as expressing possession of the world; the sceptre, sometimes confounded with the consular staff; the roll of parchment, indicating legislative power; and the handkerchief, with which the emperor gave the signal at the public games. Some princes hold the thunderbolt, shewing that their power on earth was equal to that of Jupiter in heaven; others hold an image of Victory.

The reverses of medals contain figures of deities, at whole length, with their attributes and symbols; public buildings and diversions; allegorical representations; civil and religious ceremonies; important events; figures of statues; plants,



ALTARS ON ROMAN COINS.

animals, and other subjects of Natural History; magistrates with their insignia; and, in short, almost every object of nature and art. Some reverses bear the portrait of the queen, the son, or the daughter of the prince who appears on the obverse: such coins are particularly valuable, because they identify the personage on the reverse to have been the wife, son, or daughter, of a particular prince, and thus help to adjust a series. Some medals have a portrait on each side.

The ancient Athenian coins are remarkable for the coarseness of their engraving, and the figure of the owl on the reverse. The reverses of Roman coins have more art and design about them than the Greek; but those of the Greeks excel in relief and workmanship. In the most ancient coins no reverse is found, except a rude mark struck into the metal, as of an instrument with four blunt points, on which the coin was struck. Soon after, by degrees, there appears some little form of a dolphin, or other animal, inserted within the rude mark, or in a hollow square. Next follows, perhaps, a perfect reverse of a horse, or the like, and all the rude marks gradually disappear. Some of the Greek reverses are *in intaglio*, that is, sunk; not *in cameo*, that is, raised, or in relief. When complete reverses appear on the Greek coins, about 500 B.C., they are of exquisite relief, minute finish, and beauty. The very muscles of men and animals are seen, and will bear inspection with the largest magnifying glass.

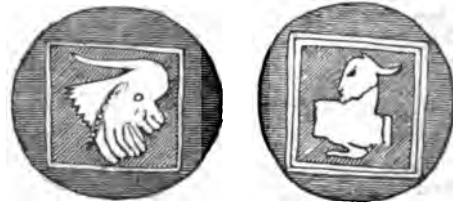
The subject of the reverses of Roman coins till about the year 100 B.C. was the prow of a ship, a car, or such like; but about this time various devices appear on their consular coins in all metals. The variety and beauty of the imperial Roman reverses are well known. Such as have a large number of figures within the area of the reverse, are much valued: there is a small gold coin, no larger than a sixpence, containing on the reverse the "Daughters of Faustina,"—twelve figures! There are others of a similar sort. Some also have small figures on both sides.

The figures of gods and goddesses on Roman coins, usually have their names, as well as their peculiar attributes; the names serving as a legend, when coupled with some expressive adjective, declaring the office or quality of the deity represented: but in the Greek coins, the name of the deity is not expressed, but left to the easy interpretation of fixed symbols. This remarkable difference is observable in the earliest coins of the two countries, on which only the bust of the deity is given. The Romans have almost always the name; while the Greeks are satisfied with affording to each deity its distinguishing symbol.

We now proceed to give an account of the symbols found on two remarkable coins, which are not immediately illustrated by a legend.

In the reign of Archelaus, King of Macedon, B.C. 340, there occurs on the reverse of a coin of that king, the head

of a goat, having only one horn. We have given two varieties of this coin. This sort of coins, having the square



MACEDONIAN COINS

spoken of before, is ancient; and containing the one-horned goat referred to in the Sacred Book of Daniel, which goat seems to have been a kind of crest of the Grecian king, wonderfully corroborates the course of Scripture prophecy.

The titles that are found on the faces of medals are usually titles of honour; as *Imperator* (Emperor), *Cæsar Augustus*, given to all the Roman emperors after Julius and



COIN OF ANTIOCH IN SYRIA, WITH THE HEAD OF AUGUSTUS.

Augustus. The title of *Dominus*, Lord, was first assumed by Aurelian, A.D. 270. Various other titles, epithets, and terms of dignity were assumed by the pride and ambition of the chief rulers of the Roman empire, until at last the terms *ΒΑΣΙΛΕΥΣ* King, and *ΔΕΣΠΟΤΗΣ* Despot, are found as legends upon their coins. Other titles are the names of officers; as *COS. for consul*, with a number annexed to it, signifying how many times the person had been thus elected. *TRIB. POT.* the year of his *tribunitial authority*, the number being added to the preceding words. *P.M.* denotes the office of *Pontifex Maximus*, or high priest: this title was taken by the emperors, and expressed among their other titles, from Augustus to Constantine.

On the reverses of the large early copper coins there is only the word *ROMA*. Afterwards, on the reverses of what are called "consular coins," occur the peculiar designations of public officers; while the obverse bears the head of a deity, generally without a legend. In time, the magistrates put the head of some illustrious ancestor on the coins, with his name. *Cæsar*, when made Perpetual Dictator, was the first Roman who put his own head on his coins, with the legend of names and titles on the obverse, and not on the reverse, as before. Before this time the portrait of no living personage appears on a Roman medal; and even the plan of engraving on coins the names of great men and magistrates was only introduced about the year 80 B.C.

"In the earliest and more simple days of Rome," (says Akerman in his *Numismatic Manual*), "the portraits of no living personage appeared on the public money; the heads were those of their deities, or some personage who had received divine honours. Julius Cæsar was the first who obtained the express permission of the senate to place his portrait on the coins; and the example was soon followed by others. The heads of Lepidus, and of Antony, appear on their denarii, and even the money of Brutus with the two daggers and cap of liberty, bears on the obverse the head of the man who killed his friend because he had assumed the regal power and authority. We have no evidence, however, that this money, which is of great rarity, was struck with the knowledge and sanction of Brutus; and it is possible that it is a posthumous coin."

Medals are sometimes dug up singly, or in small numbers, where they seem to have been thrown by accident, or rather to have been buried; but the principal stores of ancient coins are found in tombs, or in places where fear, avarice, or superstition had deposited them for the sake of security.

SECTION II.

COINS AND MEDALS IN A CABINET—GREEK MEDALS—THEIR CHARACTERISTICS—CIVIC AND MONARCHICAL—GREEK IMPERIAL COINS—ROMAN MEDALS—CONSULAR AND IMPERIAL—COLONIAL COINS—COINS OF OTHER NATIONS—BRACTEATES. WE must now take a cursory view of MEDALS, as at-

ranged in the cabinet of the antiquary, noticing, as we proceed, the principles and rules which direct him in making such an arrangement.

GREEK MEDALS claim the first place in a cabinet, by reason of their antiquity and their workmanship. Coinage began, perhaps, about 1000 B.C.—for before that time, *weight* was the only principle of estimating money, as we learn from the Scriptures and other ancient writings. The following are the stages of the progress of coinage: 1. Coins, or mere pieces of metal without any impression. 2. Those which have a hollow indented mark or marks on one side, and an impression in relief on the other: this sort of coinage was used from about 900 to 700 B.C. 3. Such as have an indented square divided into segments, with a small figure in one of the segments, the rest being vacant; and impressions on the obverse as usual. This sort of coinage lasted till about 600 B.C. 4. Those which are struck hollow on the reverse, while the obverse is in relief, usually with the same figure; which coins are perhaps coeval with those of the last class. 5. Coins in which a square dye is used, either on one or both sides: these lasted till about 420 B.C. 6. Complete coins, both as to obverse and reverse: such occur in Sicily, where the art was carried to great perfection as early as 490 B.C.

The best informed antiquaries consider that the most ancient coins, as well of Greece as of other countries, are distinguishable by the following marks:—1. They have a sort of oval, swelling circumference:—2. Their letters are of an antique character:—3. Part of the legend is in the common style, while the next is retrograde:—4. They have the indented square:—5. The process of their coinage is of a simple character:—6. Many of them are hollowed on the reverse, and have the image impressed on the front:—7. The dress, symbols, &c., are often of the rudest design and execution. Among other coins which bear marks of great antiquity, are some Persian pieces, with the archer upon one side, and the hollow square upon the other. At one time, indeed, many of the coins and medals of Athens were square; and all over Asia and Africa there once circulated not only square, but octagon money. A kind of square money of red copper, was used in France, in the time of the Emperor Honorius, A.D. 420. Though the Athenians possessed mines of copper, yet they were so unwilling to employ this metal as specie, that they preferred gratifying their taste or vanity by cutting silver into such small pieces, that they were sometimes mistaken for scales of fishes. Gold was also very scarce at this time, when a copper coinage had not yet been adopted.

In the course of time, the Greeks acquired great elegance; evincing strength, beauty, and relief in their impressions. The modern medallist distinguishes the early Greek medals into *civic* and *monarchical*; or *cities* and *kings*: those of cities being generally the most ancient. The civic medals are usually stamped on the obverse, with the head of the genius of the city, or of some favourite deity; while



COIN OF AMPHIPOLIS IN THRACE, WITH THE HEAD OF APOLLO.

the reverse often presents some symbol used by the city, at the time when the piece was struck. The legend contains the initials, monogram, or whole characters of the name of the city. The civic coins interest by their variety, and are particularly useful in elucidating ancient geography. They present us with a view of the customs, laws, and religion of ancient cities; and likewise shew the wealth and power of each city and country.

“In the types of some of the earliest Greek coins, we find a spirit and boldness both in design and execution, with which many of the more elaborate productions of modern times will not bear comparison. The rude and often misshapen lump of silver, upon which these types are impressed, contrasts most singularly with the wonderful freedom and spirit of the design. Armour, weapons, animals, plants, utensils, and the most graceful representations of the human figure appear in infinite and astonishing variety within a

space so circumscribed, that the artists of antiquity would seem to have sometimes vied with each other in the production of the most striking representation within the smallest possible limits.”—AKERMAN.

The monarchical coins of Greece are often of the same construction with the civic; only that they bear the name of the prince on the reverse. They usually have the bust of some deity in front; and seldom the image of the prince. These coins chiefly interest by their portraits, and are important in clearing up ancient History. The most ancient series is that of Macedon, commencing about 500 B.C. By the time Philip II. became king, the Macedonian coins began to be beautiful: those of Alexander the Great, about 350 B.C., are wonderful; for in his time the art seems to have attained its highest perfection. It is to the Greek coins that were struck before the cities and sovereignties of the Greeks were included in the Roman empire, that the highest praise of the best judges has been awarded.



ANTIOCHUS V.



ANTIOCHUS VII.

The Grecian imperial coins are those which were struck when Greece formed part of the Roman empire: but it is usual to consider those Greek coins of cities, which have the head of an emperor or empress, as imperial Greek coins: while those which have no such impressions, are classed with Grecian civic coins, though struck under the Roman power. Of imperial Greek coins none occur in gold: but there are in silver, those of Antioch, Tyre, Sidon, and other trading cities in the then opulent and commercial cities of Western Asia: of this sort are the coins of Ephesus, many of which bear a representation of the celebrated temple of Diana, referred to in the nineteenth chapter of the Acts of the Apostles.



COINS OF EPHEBUS.

The Greek imperial brass coins are very abundant. Those of Antioch, which commonly have a Latin legend on the obverse, and Greek on the reverse, are so numerous as to furnish a series of almost all the emperors; being apparently struck for the purpose of paying the Roman forces in the East.

We shall not attempt to specify the precise values of coins, whether Greek or Roman; first, because it would be somewhat tedious and uninteresting; and secondly, because such values, in English money, are even now open to dispute. We must, therefore, content ourselves with observing, that as *weight* originally served for the principle of estimating money; still, in settling very large sums weight continued to be taken as the standard, long after coined money came to be used. Hence the *Mina* and *Talentum*, the former containing 100 silver Attic drachms; and the latter 60 mine. The mina and talent were therefore estimated by weight: but of the *coined* money, there were three chief sorts;—the obolus (brass) worth nearly 1½d. English; the drachm (silver) 9d.; and the Philip (gold) nearly 17s.

The term “Philip” became in the course of time a general

name of gold money in Greece, for many years after Philip, King of Macedon, in whose reign such gold pieces were coined. But the values of the obolus, the drachm, and the Philip, were various in different states of Greece; and there were likewise many multiples and divisions of the same.

ROMAN MEDALS claim the next place in the cabinet of the antiquary. The first Roman coins were large pieces of brass rudely impressed, and only on one side, with the figure of an ox, a ram, or some other animal; whence money was termed *pecunia*, from the Latin word *pecus*, cattle. In process of time this impression was changed to that of a bust of Janus upon the front, and the prow of a ship upon the reverse; and for more general use, pieces of inferior weight and value were coined.

The grand distinction which marks the Roman coins, considered as medals in a cabinet, lies between the *Consular* and *Imperial*. The Roman consular coins seldom or never bore the names or titles of consuls till towards the close of that sort of government; but they are nevertheless properly called *consular*, because they were struck in the consular times of Rome. Those of the later *as* are also often called *coins of families*, from the circumstance that the names of many of the principal families of Rome were placed upon the fields of the coins,—and they are always arranged alphabetically in families, according to the names which appear on them. The *brass* consular coins are not very interesting; as they consist chiefly of large unwieldy pieces, with types of insipid similarity. Few of them have any imagery or symbol. Such large pieces are generally kept in boxes apart, by those who are well acquainted with them. We are told however, that the Romans at first coined in lead, and afterwards, in the reign of Numa, in copper, before using brass. Servius Tullius made the *as* of brass, B.C. 550. The *silver* coinage began at Rome about 266 B.C. The denarius was the first and last form which it assumed; for the other sizes are so scarce, that very few seem to have been struck. On the later consular medals is seen much of that fine personification afterwards displayed on the imperial coins. About 62 years after the coining of silver, gold began to be coined at Rome. Of the consular coins and medals in copper and brass, there may be nearly 500; about 3000 in silver; and about 100 in gold. Most of the gold consular coins are of great beauty and high value.

The Roman imperial coins claim our attention more particularly, owing to the extent of the Roman empire and our own connexion with it; interesting us therefore as much, or more than those of our own country. These coins are often distinguished into those of the upper and lower empire: the upper empire commenced with Julius Cæsar, and ended A.D. 260; the lower empire lasted from thence to the taking of Constantinople by the Turks, A.D. 1453. All the imperial medals up to this date are usually reckoned among the antique; and yet there are none of any considerable beauty later than the age of Heraclius, who died A.D. 641. After the time of Heraclius, Italy became a prey to the barbarians; so that the coins and medals which appeared up to his time, seem to finish the set or series of imperial medals. To these, however, are added the coins and medals of the Greek emperors who reigned at Constantinople, to a later date. The Gothic medals are likewise considered to make part of the imperial ones: they are so called, as having been struck in the times of the Goths, and in the declension of the empire, and savouring of the ignorance and barbarity of the age.

The imperial series of *brass* coins begins of course, with Julius Cæsar; but some elegance and variety were exhibited in this coinage fifty years before Cæsar's time. It is of three sizes; large, middle, and small. The *large* brass coins form a series of surprising beauty and vast expense. In this series the various colours of the *patina*, or oxidation, have the finest effect; and the great size of the portraits and figures conspires to render it the most important of all the Roman coinage: so that it even exceeds the gold in value, though the intrinsic value of each piece is only about two-pence English. The series of the *middle* brass coins exceeds that of the large brass, but has not such elegance of work, or of types. Many coins are common in this series, which are rare in the other; and but very few examples occur to the contrary: hence this series is not so valuable as the first. There are, however, some rare and curious coins among them, particularly such as relate to the ancient history of this island, among which are some that personify the country *Britannia*, in a manner similar to what we have it on the copper coins of the present day. The *small* brass series has

many curious coins, and particularly of the usurpers in the latter days of the Roman empire.



ROMAN COINS.

The brass coins are distinguished by the letters S.C. *Senatus Consulto*,—by a Decree of the Senate; because the senate alone had the power of striking brass, while the emperor himself had that of gold and silver. If, therefore, the S.C. be found wanting on any brass coin, it is supposed that such coin was once plated for the purpose of forgery. The large brass coins are of the size of our crown-pieces; the middle brass are of the size of our half-crowns; and the small brass coins are not bigger than our shillings, and are also smaller. The small brass series extends from the beginning to the close of the Roman Empire, or to about 670 A.D.

The *silver* imperial coins are very numerous and various. This series is as complete as any, and of far cheaper purchase, as very few of the emperors are scarce in silver. Most types of even the large brass and the gold are found in the silver, which thus unites the advantages of all the metals. Sometimes the silver and gold coins, as being of one size, are struck from the same dye. But the imperial *gold* forms a series of wonderful beauty and perfection, attainable only by men of princely fortunes. In these the workmanship is carried to the greatest height; and the richness of the metal is surpassed by that of the types. As gold does not suffer from rust, the coins are for the most part in the same state as they came from the mint. Mr. Pinkerton infers that the number of Roman gold imperial coins may amount to 5000; the silver to 10,000; and the brass to 30,000; and that all the ancient coins together may reach to the number of 80,000; but this calculation, he says, cannot be very accurate.

We come now to the COLONIAL coins of Rome, as Roman colonies were settled in various parts of the empire, their coins have sometimes Greek, and sometimes even Punic legends; though generally, the legend on one side of such coins is Latin; but those with Latin legends only are



ANTIOCH IN SYRIA.

far more numerous. The colonial coins are only in brass: some of them are elegant; though most of them are rude and uninteresting. They begin with Julius Cæsar and Anthony. The only British Roman colony which had its own coins, was that of Camalodunum, supposed to be Maldon or Colchester, in Essex. This species of coin is one of Claudius, about A.D. 50; on the reverse is a team of oxen, with COL. CAMALODON. AUG.

On the reverses of Roman colonial coins, easily distinguished by their rude fabric, and the name of the colony on them, commonly beginning with COL. where an ensign stands alone, and without any persons, it shews a colony drawn from one legion; but when the ensigns or banners stand together, they evince the colony to have been drawn from as many legions as there are ensigns.

The subjoined is a representation of a coin belonging to Gadara, one of the towns of the Decapolis, of which we read in the Gospels of St. Matthew and St. Mark. The Decapolis was eastward of the Lake of Tiberias, and Gadara was the chief city of the Roman province of Perea. The inhabitants, being



COIN OF SADARA

remote parts of Europe, Asia, and Africa, at that time known.

The Romans, at the commencement of their civil polity, reckoned money by weight, as we observed before. Their chief coined money was the *as* in brass, the *denarius* in silver, and the *aureus* in gold. The *as* was worth rather more than three farthings of our money, the *denarius* almost 8d., and the *aureus* rather more than 20s.

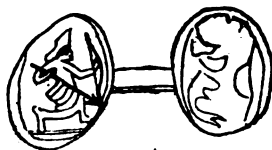
"It has been well observed that the military genius of the Romans is never more apparent than in their medals: in the warlike emblems which are constantly to be found upon them: in the frequent representations of harangues to their soldiers: and of rewards for military services. We are convinced by the same means of their extravagant superstition, from the frequent proofs of the deification of their emperors, consuls, and magistrates, of the superb temples which were erected to their honour, and the sacrifices which were regularly paid to their memory."—HALL.

We pass on now to make a few brief observations on the coins and medals of other nations, usually termed *barbarian*, premising that, by *ancient* coins, all before the ninth century, or age of Charlemagne, are meant; all after that period being deemed *modern*. No coins are found of Babylonian or Assyrian kings; the oldest found in those parts being Persian, and similar to the Greek. The Greeks seem to have preceded the Phœnicians in coining money, as the oldest Phœnician coins are not above 400 B.C. The great trading cities of Tyre and Sidon weighed their money; and coinage was long unknown in Egypt; for the thin, broad pieces of gold found in the mouths of mummies, and put there for the purpose of paying the passage of the souls into the infernal regions, have no mark upon them. India and China have no early coinage. The Lydian coins, therefore, seem to be the most ancient in Asia.



PERSIAN COIN.

Next to these are the Persian, well known by the ram, under which figure that state is alluded to in Scripture, in the book of Daniel; as also by the archer. None of these coins can be older than 570 B.C., when the Persian empire began. The famous Darics were issued by Darius Hystaspes, who began to reign 521 B.C. They occur both in gold and silver, and bear some resemblance to the coins of Ægina, before mentioned. The Darics, from their extreme scarcity, are supposed to have



THE GOLD DARIC.



PERSIAN COINS.

been melted down by Alexander the Great for his own coinage, when he conquered Persia. The gold Darics were worth rather more than the English guinea, and were preferred throughout the East for the fineness of their gold.

There is a second series of the Persian coins; that of the Sassanide, which begins about A.D. 220, when Artaxerxes overturned the Parthian monarchy. The Parthian coins have all Greek legends, but the later Persian bear only Persian characters; they are large and thin; with the king's bust on one side, and the altar of Mithras on the other, generally with a human figure on each side. The



PERSIAN COIN.

letters on Persian coins seem to partake of the ancient Greek, Gothic, and Alanic. The later Persian coins extend to the year A.D. 636, when Persia was conquered by the Arabian caliphs.

The Hebrew shekels are of silver. They were originally didrachms (1s. 3d.); but after the time of the Maccabees, about B.C. 140, when the Hebrew nation first struck money for itself, they were coined of the value of the Greek tetradrachm, (2s. 6d.) The brass coins with the Samaritan characters, are many of them earlier than the Christian era, but



JEWISH SHEKEL

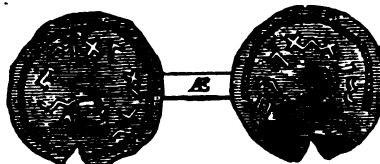
were not current until after the return from the Babylonish Captivity, B.C. 536. Most of the Jewish coins have the sprig on one side, and the vase on the other, as on the shekel; the sprig bearing reference to Aaron's rod that budded, and the vase to the censer of incense.

The coins of the heathens were usually stamped with the symbols of their idolatrous worship, to use which was a source of continual affliction to the Jews. In the time of Simon they were released from this grievance; and we find that on their own national coins, there is no representation of man or other creature upon it;—no portrait of any person, prince, or deity. In the annexed coin the ears of wheat are emblematic of the fertility of Canaan, and the tent refers to the Feast of Tabernacles.



JEWISH COIN.

There is also a curious old medal, which attests the truth of History, by referring to certain privileges which the Jews received from the Syrian monarch in the time of Simon,



OLD JEWISH MEDAL.

140 B.C. On the front, in the old Samaritan character, is "the fourth year," and on the reverse—"from the deliverance of Jerusalem."

The Phœnician coins, which begin to appear about 400 B.C., and of which we give one referring by the legend to the Sidonian goddess, Astarte, as also the Carthaginian, are rendered interesting by the ancient civilization and great power of those nations: their alphabets are nearly allied to the Syriac, Chaldaic, and Hebrew. Coins of Palmyra, the "Tadmor in the wilderness"—or "City of the Palms," have likewise been found with a similar mixed alphabet. The Tuscan coins are inscribed with a character connected with the old Greek and Latin. The ancient Spanish coins have a character belonging to old Greek, or Punic: they are ancient, and not all struck by the Punic colonies; for the legends are in different characters. The ancient coins of Gaul are also numerous, and many of them in base gold; but, unhappily, the most ancient have no legends at all.

It seems that our ancient British ancestors used brass, apparently coined, as a superior metal, as more advanced nations used gold; and also iron rings for money, examined and reduced to a certain weight. Rude coins of copper, much mingled with tin, are frequently found in England, and are perhaps the copper coins used by our forefathers in the days of old. We have many coins of Cunobeline who was king of the Trinobantes, and was educated at Rome, at the court of Augustus. These coins of Cunobeline are the only ones apparently ancient British. Most of them have



PHŒNICIAN COIN.



Cunobeline—Silver.

Cunobeline—Gold.

at least, CVNO on one side, with an ear of wheat, a horse, a kind of head of Janus, or some such symbol; and oftentimes CAMV, thought to be the initials of Camdolanum, the chief city of his kingdom, on the other side, with a boar and tree, and a variety of other badges.

It seems that, after the arrival of the Romans in this island, the Britons imitated them, coining both gold and silver, with the images of their kings stamped on them; but when the Romans had subdued the kings of the Britons, they also suppressed their coins, and brought in their own, which were current here from the time of Claudius to that of Valentinian the Younger, about 400 A.D. There are some coins of Antoninus Pius, about A.D. 160, the reverses of which present, as we before observed, almost the same type as that which we have on our present copper coinage.

All the kings of France down to Charlemagne range in this division. Liuva I., who began his reign A.D. 567, and the other kings of the Western Goths in Spain, appear upon their coins, encircled with Roman characters. Other Gothic kings, who reigned in Italy and other countries, after the

fall of the Roman empire in the West, likewise use the Roman language in their coinage. They most commonly occur in the size of medals, termed *small brass*. Many coins also occur with legends, which though meant for Latin characters, and in imitation of Latin coins, are so perverted as to be illegible: such are, in general, termed *barbarous medals*.

After the dissolution of the Roman empire, a species of coins termed *bracteates*, was circulated in the newly formed European states. These were, as the name implies, *plated* coins, and belong properly to the middle ages, or what we have termed in this essay, the commencement of modern numismatics.

Before quitting the subject of ancient medals, we must notice some of a remarkable character, which have been introduced into this paper. One of these was struck by the Senate in honour of Hadrian, the Roman emperor, about 130 A.D., in commemoration of the great benefits, which he had conferred on the empire. This medal is given at p. 86, and has for its legend—"To the Restorer of the world."

Constantine the Great was the first Roman Emperor who received the rite of baptism. This was performed for him just before his death, which took place, A.D. 337. One of the coins struck upon this occasion, is given below: it represents on the obverse the emperor in his robes, crowned with a wreath of laurel, with the legend, "The Emperor Constantine, Pious, Happy, August." On the reverse is a full length figure of him, cloaked, holding in his right hand a globe, and in his left a rod or wand, with the legend, "To Constantine, the Pious, August, born in Baptism." The letters in the exergue are said to imply that the medal was coined at London; but this is objected to.



MEDAL TO COMMEMORATE THE BAPTISM OF CONSTANTINE THE GREAT.

Another medal struck in honour of Hadrian is given at the conclusion of this paper. Under this emperor, a rebellion against the Roman authority broke out in Judæa, headed by the famous impostor, Barchochab (Son of the Star), who set himself up for the Messiah. This war lasted three years and a half. The Jews were completely subdued, and forbidden to even enter the City of Jerusalem. They purchased with money the liberty, not of entering the holy city, but only of looking at a distance on it, and going to mourn its fall and desolation. On the reverse of this medal is represented *Judæa*, kneeling in submission to the emperor, and three children imploring mercy of him.

In another Supplement, we shall enter upon *Modern Coins and Medals*, and continue the subject down to the present time.



MEDAL OF HADRIAN, COMMEMORATING HIS VICTORY OVER THE JEWS.



THE
Saturday Magazine.

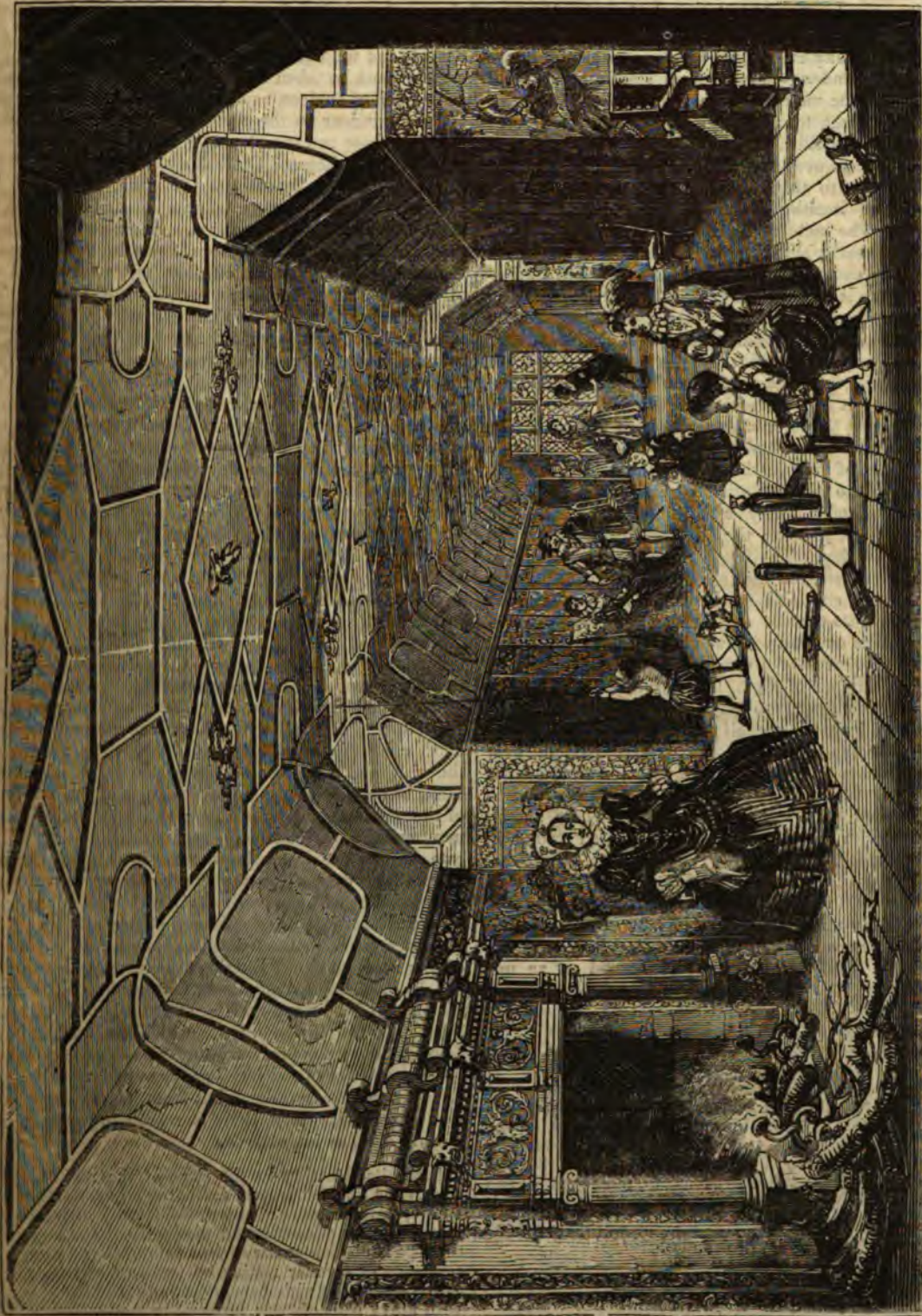
No. 557.

MARCH



6TH, 1841.

PRICE
{ ONE PENNY.



GALLERY OVER THE HALL, AT KNOWLE, KENT

KNOLE IN KENT.

See with majestic pride, the work of years,
Its reverend front the stately mansion rears;
Within whose ample space the eye surveys
The labour'd excellence of former days;
The model whose perfections art supplies,
Sculpture's light touch and Painting's deathless dyes.

Borrower's *Knole*.

THE stately mansion of *Knole*, or *Knowle*, in Kent, possesses much intrinsic interest, and by its great extent and the magnificence of its internal decorations attracts numerous visitors; it accordingly holds a distinguished place in the second volume of Mr. NASH's beautiful and instructive work, the *Mansions of the Old Nobility*. Through the kindness and liberality of its possessor, the public curiosity is gratified with a view of the house and grounds, and as this mansion stands at no great distance from the metropolis, it forms a most attractive object of interest to numbers. The house is erected principally in the Elizabethan style of architecture, and has an advantage over many of the other seats of the nobility, owing to the situation it occupies on a commanding and healthy eminence, near the town of Sevenoaks. The building itself covers a space of ground said to be nearly three acres and a quarter, and the park is very extensive and beautifully varied in its features. There is a luxuriant growth of timber, especially of oak and beech trees, for which the soil is naturally adapted; the girth of one of these venerable oaks is no less than thirty feet. Much assiduity and taste have been displayed in the arrangement of the plantations; the trees are not disposed in solitary clumps, but in broad and undulating masses, which rise and fall with the varying nature of the surface.

Two points of view in this noble park are particularly recommended to the attention of the visitor: the one from the end of a valley which lies in a south-west direction from the house; the other from a rising ground in the same valley. The first view presents a grove of majestic trees rising on each side; many of them beeches of the largest size, and feathered to the bottom; the mansion, with its towers and battlements, and a background of hills covered with wood, terminating the vista.—The other view is of a very different description: on gaining the summit of the hill, a prospect of great extent bursts at once upon the sight; woods, heaths, towns, villages, and hamlets, are all displayed in bright confusion. The eye commands the greater part of west Kent, a considerable portion of Sussex, and a distant view of the hills of Hampshire. The foreground is woody, the whitened steeples rising everywhere among the trees, with gentlemen's seats scattered round in great abundance.

The beauty of the beech trees in *Knole Park*, is so remarkable as to attract the notice of all who have a taste for richly-wooded scenery. Among the celebrated persons who have admired and appreciated this feature of the scene, Mrs. Radcliffe may be quoted as an undoubted judge.

In the park, abounding with noble beech groves, (says this gifted lady), is one, on the left of the road leading to the house, which for mass and overtopping pomp, excels even any in Windsor park, when viewed as you descend from the park gate, whence shade rises above shade with amazing and magnificent grandeur. In this mass of wood is one beech, that stretches upwards its gray limbs, among the light feathery foliage, to a height and with a majesty that is sublime. Over a seat, placed round its bole, it spreads out a light, yet umbrageous fan, most graceful and beautiful. With all its grandeur and luxuriance, there is nothing in this beech heavy or formal, it is airy, though vast and majestic, and suggests an idea at once of the strength and fire of a hero! I should call a beech-tree—and this beech above every other—the hero of the forest, as the oak is called the king.

The principal portions of the mansion of *Knole* form a spacious quadrangle, built in the castellated style, with several square towers. The front of the building is not

distinguished by ornamental details, but has an air of great plainness and simplicity. The admirer of architectural grandeur will probably be disappointed at the first view of *Knole*, and will look with curiosity rather than pleasure on the incongruous mass of buildings which make up the extensive pile. Still more will he be surprised on entering the building to observe the extraordinary number of rooms, galleries, staircases, &c., which surpass all modern conceptions of utility or convenience. Yet all these things are invested with peculiar interest, when we view them in connection with the times and modes of life for which they were adapted, so different to the manners and customs of our own day. The number of visitants hospitably entertained at the old baronial residences, and the extent of the retinue accompanying such guests, must be taken into consideration, ere we speak of these ancient edifices, as displaying a mere love of ostentatious grandeur on the part of those who reared them.

The manor and mansion of *Knole* were in possession of the Archbishops of Canterbury, during the reigns of Henry the Sixth, Seventh, and Eighth, but in the last of these reigns, they were voluntarily surrendered to the crown by Archbishop Cranmer. After passing through the hands of several possessors it was finally bestowed in the reign of Elizabeth, on Thomas Sackville, Esq., afterwards Baron Buckhurst and Earl of Dorset. The estate has continued almost uninterruptedly in this noble family of Sackville up to the present time; and in the reign of George the First, Lionel Cranfield, the seventh Earl of Dorset, was advanced to the dignity of duke. By the melancholy death of the late duke, a young nobleman of gentle disposition and promising talents, who was killed in hunting, when he had only just attained his majority, the manor devolved on his sisters and co-heiresses, the Countesses of Plymouth and De Lawarr. His grace is succeeded in his titles by Charles Sackville Germaine, Viscount Sackville, and Baron Bolebroke.

It would be in vain to attempt to describe the interior of this noble mansion of *Knole*, so as to give our readers any just idea of its extent and magnificence. We therefore confine ourselves to one of Mr. Nash's admirable views of this mansion, and select on the present occasion the gallery over the hall, at the same time directing those who would desire to see a faithful representation of other portions of this interesting building, to Plates 17, 18, 19, 20, 22, and 23, of the second series of Nash's *Mansions in the Olden Time*. These represent the rich and picturesque Staircase which adjoins the Hall, being a fine example of the style of the early part of the reign of James the First; the characteristic apartment called the *Brown Gallery*, with its ceiling of intricate design; the *Room leading to the Chapel*, supposed to be of the date of Henry the Sixth or Seventh; the *Spangled Bedroom*, with its antique furniture; the *Cartoon Gallery*, a splendid and stately apartment with rich carved and painted pilasters and panels, an elegant ceiling and gorgeous hangings, pictures, and furniture; the *Hall*, of noble dimensions, with its fine old screen, a specimen of the wood-carving of the reign of James the First; and the *Gallery*, from which we have taken the frontispiece to our present Number.

The purposes to which this gallery was formerly applied cannot now be ascertained, but from its enriched ceiling and tapestry-hangings, there is reason to suppose it was a room of some importance.

From its situation in the slope of the roof, (says Mr. Nash,) and its great length, extending all across the house, I have, in the absence of any probable conjecture, supposed it to be a place of exercise for the family. The boy pulling the rope is playing at the ancient dumb-bells; a contrivance consisting of a roller resting on two supports in the roof above, and having eight bars projecting at right angles, armed with heavy balls of lead: being set in motion by pulling the rope it revolves with great velocity, and constitutes a pretty strong exercise. One of these "dumb-bells" is actually in existence at *Knole*, and is occasionally used to this day.

POISONOUS ARTICLES OF FOOD.

II.

ANIMAL FOOD.

ANIMAL food may become poisonous, either by some diseased state of its system having existed in the animal prior to death, or by its having advanced to a state of putrefaction before being made use of as an article of food. The mere over-driving of animals before they are slaughtered produces important changes in their condition, for, although it is not proved that any dangerous symptoms have resulted from partaking of them, yet when any of their blood or raw flesh comes into contact with a scratch or wound a dangerous or even fatal inflammation results, and by becoming inoculated thus by the juices of the diseased animals the persons engaged in slaughterhouses have frequently lost their lives. In Germany an epidemic disease, termed Mitsbrand, frequently affects the cattle, producing extensive destruction among them, and the flesh of those which die while under its influence acts as a virulent poison upon persons who swallow it, while the mere handling the skin, entrails, &c., produces the same effect. It has been a point of discussion whether the putrefaction of animal food renders it poisonous to man, but it has been pretty generally answered in the affirmative. It is true that the epicure prefers his game, venison, &c., "high," or in other words, in an incipient state of putrefaction, and that many savage nations will consume rancid oil and putrid meat with avidity. But much must be allowed to the force of habit, for it is well known that those who are unaccustomed to "high food" loathe it, and often suffer severely if they partake of it, while persons who have been driven by hunger to feed upon rotten fish, eggs, or meat, have frequently perished in consequence, as the histories of several famines and sieges prove. A species of poison is generated in some articles of diet in Germany. Thus the smoked *sausages* so much consumed in Wirtemberg are often the cause of fatal poisoning; so that, from 1793 to 1827, 234 persons were affected, of whom 110 died,—the symptoms coming on from twelve to twenty-four hours after eating the sausage. The same has occurred in a less degree in Paris, and neither the investigations of the police nor of able chemists could detect the nature of the poisonous ingredient. Those parts of sausages which did the most harm were made of liver; and it has often been observed that the internal organs of animals produced serious mischief, while the ordinary flesh might be consumed with safety. Scoresby says that the flesh of the bear is wholesome and delicious, but its liver produces dangerous symptoms. The sausages were always boiled before they were cured, and the bad symptoms produced by eating them did not occur until slight putrefaction had commenced. The German chemists suppose this poison to reside in a fat acid which is then generated. *Cheese* and *bacon* are other articles which in Germany also often produce poisonous effects, and there being no difference in their smell or taste perceptible, fatal mischief sometimes ensues before the corrupted articles are suspected. Poisonous effects are said to be produced in some of the farms in Cheshire, when the curds are retained too long before they are made into cheese. In France and Switzerland, *milk*, especially that of goats and sheep, has produced at various periods symptoms resembling cholera, or even death itself.

Poisonous Fish. Fish, of all species of animal food, furnishes us with the most frequent and marked examples of poisoning. Exaggeration and difference of opinion, as upon most other subjects, have prevailed upon this; for while, on the one hand, sailors and other persons have often conceived an unreasonable and indiscriminating prejudice against various innocent species of fish, other persons deny that the instances of death from eating these animals result from any poisonous principle they contain, but are rather produced by some peculiarity of consti-

tution in the persons affected. Abundant proof, however, exists that the eating of certain fish acts as a poison both on man and animals, at certain seasons; these fish, however, are usually innocent at other times, while in some constitutions the most harmless species will, even in small quantities, always produce deleterious effects. It is in the tropical regions, and almost exclusively in the Caribbean Sea, that poisonous fish abound: these are especially the barraouda, the snapper, the dolphin, the king-fish, the conger eel, and the yellow-billed sprat: all these, with the exception of the last, are only poisonous at certain periods of the year, namely, the hottest months. The yellow-billed sprat is virulent almost beyond belief, for Dr. Chisholm relates that both the whites and the negroes of the Leeward Islands have been known to expire with the fish yet unswallowed in their mouths. In our own country several species of fish, when eaten out of season, are very indigestible, and sometimes even produce alarming symptoms; the flavour and odour distinctive of the particular fish, depending upon the presence of an aromatic oil, are then very deficient. This applies to the salmon, mackerel, herring, and shell-fish in general; but *muscles* and *oysters* are the species most remarkable for occasionally producing ill effects. There would seem to be good foundation for the saying, that neither of these are wholesome during the months which do not contain an *r*; these being the hottest, during which fish-poison has always been found most virulent. Instances of poisoning by muscles are numerous; but we need allude only to that related by Dr. Combe as occurring at Leith in 1827, and which produced such consternation there that the inhabitants of Leith and Edinburgh have since almost refrained from eating this fish. There were thirty people of the lower ranks of society seriously and alarmingly affected by eating muscles, which had been scraped from off the bar of the dock-yard: two of these died, but the others recovered by judicious treatment. Neither in taste nor smell did these muscles differ from their ordinary state. Salting or cooking fish has not been found preventative of the mischief; but M. de Rondeau asserts, that if muscles be boiled in vinegar and water containing a small portion of cayenne pepper, evil never results from eating them: this is denied by others.

The symptoms from eating poisonous fish are very varied, according to the species employed. In some, they cause violent oppression of breathing, swelled face, insatiable thirst, convulsions, and insensibility; in others, symptoms very like those of cholera. A very common effect is to produce a degree of palsy, while the shell-fish are especially liable to cause the troublesome disease of the skin called nettle-rash, which, owing to the sympathy existing between the alimentary canal and the skin, very often occurs from various other injurious articles of diet. The late Dr. Clarke remarked that women after childbirth who indulged in eating oysters, were very liable to convulsions and apoplexy. The manifestation of these symptoms is both more severe and more rapid in the tropical regions, and with us sometimes several hours elapse before anything serious is suspected. An emetic and brisk aperient should be at once given, and in this climate will usually succeed in preventing fatal mischiefs, although severe symptoms may still ensue, as it is surprising how small a portion of a bad fish will cause them.

The nature of the poison thus contained in these fish has given rise to numerous conjectures. Thus, a very popular opinion has been, that the fish were poisoned by feeding near copper banks, or the bottoms of ships; but inquiry has discovered the fish where copper did not exist, and no traces of such impregnation have been found on the examination of the bad fish by chemical tests. Again, various articles of food of the fish-tribe, as holothurixæ, medusæ, and manchineel apple, have each been charged with producing the change in them, but without

any good evidence. M. de Beume supposes the spawn of the *Stella marina* which lodges in the muscle, is the cause of the mischief. The opinion generally entertained is, that a poison, *sui generis*, is generated in the system of the fish at particular seasons, one marked effect of which is to produce the early putrefaction of the animal, upon which much of its deleterious nature depends; for persons who have eaten of a fish with impunity on one day, have been poisoned by it the next, although it has been salted in the mean time. Autenrieth, tracing the analogy between this poison and that contained in the old cheese and rancid sausages before-mentioned, believes he has detected it in a bitter principle found in combination with a rancid fatty matter.

THANK-OFFERING.

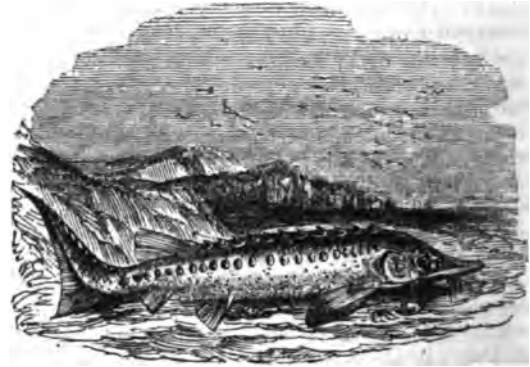
In every place, in every hour,
 Whate'er my wayward lot may be,
 In joy or grief, in sun or shower,
 Father, and Lord! I turn to thee.
 Thee, when the incense-breathing flowers
 Pour forth the worship of the spring,
 With the glad tenants of the bowers,
 My trembling accents strive to sing.
 Thee, when upon the frozen strand,
 Winter, begirt with storms, descends;
 Thee, Lord! I hail, whose gracious hand
 O'er all a guardian care extends.
 Thee, when the golden harvests yield
 Their treasures to increase our store;
 Thee, when through ether's gloomy field
 The lightnings flash, the thunders roar.
 Thee, when athwart the azure sky,
 Thy starry hosts their mazes lead,
 And when thou sheddest from on high
 Thy dew-drops on the flowery mead.
 Thee, when my cup of bliss o'erflows—
 Thee, when my heart's best joys are fled;
 Thee, when my heart exulting glows—
 Thee, while I bend beside the dead.
 Alike in joy and in distress,
 Oh! let me trace thy hand divine,
 Righteous in chastening, prompt to bless,
 Still, Father, may Thy will be mine.

LADY FLORA HASTINGS.

RESOLUTION.

THIS, of all the qualifications of a great man, is perhaps the most efficient and important. A retentive memory, a lively imagination, an acute judgment, and strong passions, may be all useful as qualities of a great man; but they all need *resolution* to bring them to a point. As in the case of a burning-glass, the ray would not burn without the glass, nor the glass transmit heat unless it had the property of collecting the rays into a focus, so it is *resolution* which combines and powerfully applies the other talents. Some are prolific in schemes of usefulness, but are miserably poor in *execution*. Like some trees, they spend themselves in blossom, and never yield fruit. A gentleman, last summer, showed me a fine tree in his grounds, which he said he had resolved to cut down; for, although for years it had produced a finer blossom than any other tree in his orchard, or garden, yet it never bore fruit. He mentioned this to a friend, who said,—“The fact is, the tree *spends itself in blossoms*. I advise you to cut the rind off it, nearly halfway round, and it will probably have less blossom, but it will bear fruit.” He did so, and the result was, that it afterwards produced more and better fruit than any other tree in the garden. Let me, therefore, advise you to cut some of the rind from your schemes, that they may not spend themselves in blossoms, but may work out into the fruits of usefulness. Sir Isaac Newton is said to have declared, that he did not consider himself to possess any advantage over other men, except, that whatsoever he considered of sufficient importance to begin, he had sufficient resolution to continue till he had accomplished his object. Dr. Johnson, on the other hand, confessed and lamented, that he was as deficient in this necessary qualification, that he could never do anything till he was forced to it, either by his appetite or his creditors. *Try*, therefore, to acquire the habit of resolution.—GRIFFIN.

THE STURGEON,

(Accipenser sturio.)

THE Sturgeon* belongs to that order of cartilaginous fishes, at the head of which stand the sharks and rays, and which includes the largest and most formidable of the whole class. In consequence of the peculiar structure of the skeleton of these fishes, they continue to grow as long as they live, so that, inhabiting the wide ocean, and meeting but few enemies, they attain such an enormous size, that their weight and dimensions appear almost incredible.

Sturgeons (*Sturionida*.) of which only one genus is known, are distinguished by being defended, as it were, by armour, the body being covered by hard bony tubercles in longitudinal rows, sometimes bearing a considerable resemblance to the shells of limpets, and at other times keeled or produced into spines. The head is also armed with bony plates: the mouth is small, and instead of teeth, it is furnished with a horny prolongation of the jaws. The mouth is so formed, as to be protruded and retracted at the pleasure of the animal. The gill-cover is an oval radiated plate; but the aperture is small, and its cover, by being edged with a membranaceous border, closes the aperture so accurately, as to exclude the air.

The common Sturgeon grows to a very large size: specimens have been taken, that measured more than twenty feet long. Its form is lengthened and slender; the snout very long in some species; and the mouth, as in most of the cartilaginous fishes, placed beneath. Several cirri, or worm-like appendages, are seated beneath the mouth, and near the muzzle: this latter organ consists of a transverse oval orifice without teeth, and containing a thick strong tongue; it is bordered above and below by a strong cartilaginous edge or lip, which can be retracted and closed at the will of the animal.

Sturgeons inhabit the seas of Northern Europe and America: they migrate during early summer, into the larger rivers and lakes, and after depositing their spawn, return again to the sea. In North America, sturgeons may almost be called fresh-water fishes, since they are seldom caught at any great distance from the shore. Pennant states, that in some of the rivers of Virginia they are so plentiful, that six hundred have been taken within two days, merely by putting a pole into the water, with a stout hook at the end, and drawing it up again on perceiving that it rubbed against a fish. Regular sturgeon fisheries are carried on during summer near Pillau, and in the river Garonne on the coast of France. In the Canary Islands, Sturgeons are so common, as not to be valued. In our own country, the rivers Eske and Eden are noted for Sturgeon; and from the former was taken one which weighed 460 pounds. Those brought to the London market commonly measure from four to eight feet, and sometimes weigh nearly 300 pounds. Notwithstanding its formidable appearance, the sturgeon

* The etymology of the word sturgeon is a subject of dispute. Some say that the name of the fish is derived from its great size, the Teutonic word *stuar* signifying great. Others contend that it is so called because it *stirs* up the mud as it swims.

is said to be mild, and even cowardly in its disposition. Its food is small fish and worms.

As an article of commerce the sturgeon is peculiarly valuable. It was in high repute among the ancient Greeks and Romans. Pliny states, that it was brought to table with much pomp and ornamented with flowers; the slaves who carried it being also adorned with garlands, and accompanied by music. The flesh of the animal, pickled, is sent all over Europe, and is a great delicacy. *Caviar* is prepared from the roe: this is freed from its membranes, then washed in vinegar or white wine, and dried by being spread on a board in the air. It is afterwards well salted; the salt being rubbed in with the hand; it is then put into a bag, and the liquor pressed out; it is finally packed in kegs, and is then ready for sale. This is the method of preparing caviar at the mouths of the Volga, Danube, Dnieper, and Don. In 1833, the quantity of caviar shipped from the ports of the Black Sea and the Sea of Azof alone, exceeded a million and a half English pounds weight, and this was but a very small part of the annual supply, because in consequence of the three annual seasons of fasting in Russia the consumption is very great. The principal exports are to Italy; the demand for caviar in England being small. The best caviar is dry and of a brown colour: it is eaten on bread with oil and lemon-juice, or vinegar.

Mr. Long, in his *Travels in North America*, speaks highly in favour of sturgeon broth, and suggests that fish-broths in general have not met with the attention they deserve. He states that at Albany, the sturgeon is so common, that it is sold at a penny per pound, and is called *Albany beef*. Many persons have noticed the resemblance of some parts of the Sturgeon to beef; but the resemblance of the white parts to veal is striking, and generally admitted. Mr. Donovan in his *Domestic Economy*, says:—

Slices of sturgeon, nicely dressed in the manner of a veal-cutlet, are only to be distinguished from the latter by the superiority of the meat, and a certain superadded flavour, which appears to me most to resemble that of the scallop shell-fish, and which exists barely in a recognizable degree. This resemblance to veal is equally observable in the appearance of the flesh, both raw and fried, as well as in the taste. It is usual to make Sturgeon pies, and these are scarcely distinguishable from meat-pies. Were animals to be classed according to their qualities as food, the Sturgeon would certainly be removed from the fishes, and placed amongst the land animals: even the back-bone, if such it may be called, it being mere cartilage, has the appearance and taste of the harder cartilages in veal. I believe the Sturgeon is the only fish which is roasted on a spit like meat.

The Sturgeon is in season during the winter quarter and part of spring. It sells in London at 1s. or 1s. 3d. per pound, but does not often appear in the market. It should be firm; if flabby, its value is greatly lessened. The roe in the recent state is little sought after in this country.

A smaller species of Sturgeon, called the *sterlet*, found in Russia, is in much higher esteem for the table, than the common species. The soup of this fish formed one of the favourite luxuries of that gigantic epicure, prince Potemkin of Russia, who, as Dr. Shaw relates, in seasons when this fish happened to be unusually dear, was content to purchase it at a price so extravagant that a single tureen, forming the mere prelude to his repast, cost him the sum of three hundred rubles: "a sum," says Swainson, "which, had it been expended in promoting the happiness of his miserable serfs, might have called down blessings on the head of this worthless sensualist."

The best isinglass is furnished by the Sturgeon. It is extensively prepared in Russia by the following method. The membranes of the fish, especially its air-bladder and sounds, which are remarkably large, are taken from the fish while fresh, slit open, washed in cold water, and exposed for a short time to the air in order to stiffen; the outer skin is then taken off and rejected. The other portions are formed into rolls about the thick-

ness of a finger, and in length according to the intended size of the staple; a thin membrane is usually selected from the centre of the roll, round which the rest are folded alternately, and about half an inch of each extremity of the roll is turned inwards. The proper dimensions being thus obtained, the two ends of what is called, "short staple" are fastened together by means of a small wooden peg; the middle of the roll is then pressed downwards, which gives it the form of a heart, and thus it is hung up to dry. The sounds which form the "long staple" are of a longer size, but the workman can add to the length by interfolding the ends of several pieces of the sounds. The ends are fastened with a peg as before, but the middle part of the roll is more considerably bent, and in order to preserve the shape of the three angles thus formed, a piece of stick is fastened in each angle: when sufficiently dry, the pegs and sticks are removed and the drying completed; lastly, the pieces of isinglass are collected in rows by passing a thread through the peg-holes for convenience of package and exportation. The "long staple" is the best isinglass, and is used in confectionary and at the table. The common sorts of isinglass, called "book" and "ordinary staple," are composed of membranes which do not admit of being formed into rolls; the pieces, therefore, after their sides are folded inwardly, are bent in the centre in such a manner, that the opposite sides resemble the cover of a *book*, whence its name.

Isinglass is one of the purest and finest of the animal glues and has no particular smell or taste. Beaten into threads, it dissolves in boiling water or milk, and yields a mild nutriment. Isinglass is gelatine nearly pure. Four parts of it convert one hundred parts of water into a tremulous jelly, and it is thus employed to enrich many soups and sauces. It is also used with gum to give lustre to ribbons and other silk articles: dissolved in alcohol with gum ammoniac, it forms the celebrated *diamond cement*, so called because the Turks employ it in setting their precious stones or jewellery, and if well made, the cement preserves its transparency after the setting. Diamond cement is much used in our own country for the humbler purpose of joining broken pieces of glass and china.

Isinglass is also used for "fining" various liquors: the brewer uses it extensively for making his beer transparent, for which purpose crude isinglass is dissolved in sour beer and thus poured into the cask, where, as it is commonly supposed, the floating particles are entangled by the fining stuff added; and the whole is carried down, as if by a net, straining the liquor from the top to the bottom.

Court plaster is made by covering taffety or thin silk with a coat of isinglass. Post office stamps are also made to adhere by means of a similar coating. Isinglass has also been made to perform the office of window glass. Sheets of wire gauze set in window or lamp frames, and plunged into a limpid solution of isinglass, when cold have the appearance of glass. If one dip be not sufficient to make a proper transparent plate, several may be given, taking care to allow one film to dry before another dip is made. The outer surface should be varnished to protect it from damp air. In the maritime arsenals of France, these panes of gelatine are usefully employed for lamps instead of horn; they possess the advantage of being almost as transparent as glass without being so brittle.

THE ancient philosophers comprised their wisdom in short maxims. To have made a wise maxim was to acquire renown. Thus in discoursing on prudence, one of them shows his wisdom in uttering these precepts: "*Begin nothing of which you have not well considered the end.*" "*Tate care of irrecoverable deeds.*" Crito, one of the seven wise men of Greece, declared, that the highest human wisdom was that sagacity which discerned in the present that which the future would disclose.—S.

THE SEVEN WONDERS OF THE WORLD.

ANCIENT writers relate the existence of certain masterpieces of art, which, for their vastness or beauty, have been denominated wonders. Every age has, doubtless, contributed its own wonders to these records of human ingenuity; and, to this day, every country of the world has its own class of wonders. But, the earliest authors have conferred a celebrity upon certain monuments of astounding labour, which the productions of subsequent ages have not exceeded in vastness or magnificence of character. These are distinctively termed **THE SEVEN WONDERS OF THE WORLD**; and though, different writers raise different productions to such pre-eminence, the following may be received as the most accredited enumeration of these wonders:

1. The Great Pyramid of Egypt.
2. The Walls of Babylon.
3. The Hanging Gardens of Babylon.
4. The Pharos of Alexandria.
5. The Temple of Diana, at Ephesus.
6. The Colossus of Rhodes.
7. The Tomb of Mausolus.

It must not, however, be concealed, that the descriptions of these works are so interspersed with fabulous history, that it is difficult to distinguish fact from fiction, especially as vastness is uniformly the characteristic of the objects described. Their proportions may have become more gigantic by that love of exaggeration which may be too frequently detected in the records of the works of man, by early writers. Contemporaries, who first chronicled these wonders, may have been accurate in their details, and their successors may have imposed upon the credulity of mankind; and, in most instances, the truth would be extremely difficult, if not impossible, to determine. However their monuments of art may have ministered to human vanity, it must be allowed, that the imperfections of their history, and, more than all, their disappearance, or present ruinous condition, furnishes an eloquent rebuke to the vain glory of their founders, and leads man from the admiration of these crumbling prodigies of art to the contemplation of the nobler works of him whose omnipotence reigneth for ever.

THE GREAT PYRAMID OF EGYPT usually ranks as the first wonder. This gigantic structure is named after its founder Cheops, King of Egypt, whose tomb it is supposed to be. Its building is stated by Pliny and Diodorus Siculus, to have occupied 360,000 men for twenty years. It is 700 feet in the side of its base, and 500 in perpendicular height, and stands on eleven acres of ground. A better idea to all acquainted with London is the fact, that the base of this Pyramid is the size of Lincoln's Inn Fields, and its height 127 feet greater than the cross of St. Paul's Cathedral, or equal to the spire of Salisbury Cathedral.

THE WALLS OF BABYLON, (for ages the most famous city in the whole world,) rather resemble the bulwarks of nature than the workmanship of man. Their extent is computed by Major Rennell at 34 miles, or $8\frac{1}{2}$ on each side. They were so broad, that, as ancient historians relate, six chariots could be driven on them abreast; or, a chariot and four horses might pass and turn. Their height was 50 cubits, or 75 feet, having been reduced to their dimensions from the prodigious height of 350 feet. Yet these walls are so "utterly broken," that it cannot be determined with certainty that even the slightest vestige of them exists. Mr. Buckingham, a few years since, discovered on the eastern boundary of the ruins of Babylon, on the summit of an oval mound from 70 to 80 feet in height, and from 300 to 400 feet in circumference, "a mass of solid wall, about 30 feet in length, by 12 or 15 feet in thickness, yet evidently once of much greater dimensions each way;" and this heap, Mr. Buckingham conjectured to be a part—the only part,

if such it be, that can be discovered of the walls of Babylon.

THE HANGING GARDENS OF BABYLON were distinguished by their romantic situation and vast extent. Their form was square, and, according to Diodorus and Strabo, each side was 400 feet in length, so that the area of the base was nearly four acres. They were made to rise with terraces, curiously constructed in the form of steps, and supported by stone pillars to the height of more than 300 feet, gradually diminishing upwards. This building was constructed by vast stone beams placed on pillars of stone, (arches not being then invented,) which were again covered with reeds, cemented with bitumen, and next was laid a double row of bricks, united by cement. Over these were laid plates of lead, which effectually prevented the moisture from penetrating downwards. Above all was laid a coat of earth, sufficiently deep for plants to grow in it, and the trees here planted, were ranged in rows on the side of the ascent, as well as on the top, so that, at a distance, it appeared as an immense pyramid covered with wood; and being situated upon the banks of the river Euphrates, water was supplied from thence by machinery, for the fountains and other sources for cooling the air and watering the garden. The different groves and terraces also contained parterres, seats, and banquetting rooms, and presented retirement in the midst of civic mirth and din; thus combining the splendour and luxury of eastern magnificence in art, with the simple pleasures of verdant and beautiful nature, the prospect from these elevated gardens was grand and delightful. From the upper area was obtained not only a view of the whole city of Babylon, and the windings of the Euphrates, which washed the base of the superstructure 300 feet below, but of the cultivated environs of the city and surrounding desert, as far as the eye could reach.

This surprising and laborious experiment, (Mr. J. Mason observes,) was a strain of complaisance in King Nebuchadnezzar to his Median queen, who could never be reconciled to the flat and naked appearance of the province of Babylon, but frequently regretted each rising hill and scattered forest she had formerly delighted in. The king, who thought nothing impossible for his power to execute, nothing to be unattempted for the gratification of his beloved consort, determined to raise woods and terraces even within the precincts of the city, equal to those by which her native land was diversified.

Yet, many writers doubt the existence of these gardens: Quintus Curtius refers to their description as "fabulous wonders;" and Herodotus, who describes Babylon minutely, does not mention the Hanging Gardens; and the only author who speaks of them on his own testimony, is Berosus. The most reasonable conclusion at which the moderns have arrived, from these and other conflicting testaments, is, that they were a vast hill cut into terraces, and planted; and some late travellers have fancied that they could discover traces of such a work. The immense height of these gardens, and their projecting in terraces, probably suggested the epithet of hanging.

The supposed remains of these gardens are detached portions of a wall, which probably composed the piers or buttresses of the terraces. In the ruins, lines of long passages and square chambers may be easily traced, which commanded a view of the city. Amongst these ruins stands a solitary tree, of a species altogether strange to this country. It bears every mark of high antiquity, its originally enormous trunk being worn away, and shattered by time, while its spreading and evergreen branches are particularly beautiful, and adorned with long tree-like tendrils; probably the last descendant of those hanging gardens, which were numbered among the wonders of the world*.

THE PHAROS OF ALEXANDRIA was a celebrated watch-tower, built upon the islet of Pharos †. It was finished

* HERREN'S *Historical Researches—Asiatic Nations*, vol. ii.
 † See *Saturday Magazine*, vol. xii., pp. 40, 208.

in the first year of the reign of Ptolemy Philadelphus; it having been begun several years before by order of Ptolemy Soter. The tower was a large square structure of white marble, and is stated to have been visible a hundred miles distant. It consisted of several stories and galleries, with a lantern at top, in which a light was continually burning, for the direction of sailors.

Ptolemy Evergetes, the successor of Ptolemy Philadelphus, is stated by several ancient writers to have placed in this Pharos, a mirror which represented accurately everything which was transacted throughout Egypt; and some writers affirm, that with this mirror an enemy's fleet could be seen at the distance of 100 leagues. It is scarcely necessary to observe the powers of this mirror must be strangely exaggerated; on which account the existence of the mirror has been disbelieved. Abulfeda, however, describes the mirror to have been of Chinese iron, and adds, that soon after Mohammedanism prevailed, the Chinese destroyed it by stratagem. Buffon thinks, that by Chinese iron, Abulfeda meant polished steel; but there seems more plausibility in the conjecture of an acute writer in the *Philosophical Magazine*, 1805, who supposes the metal to have been what is known to us by the name of *tutanag*, a Chinese metallic compound, which might be valued then, as it now is, for the high polish it receives. A French writer, Father Abbat, attempts to explain the exaggeration of the powers of this mirror, by observing that,—

If it existed, it is probable that it was the only one of its kind, and that no other means had been then found of viewing distant objects distinctly. It must, therefore, have been considered as a great wonder in those times, and must have filled with astonishment all who saw its effects, which, had they not been greater than those of a small telescope, could not fail to be regarded as a prodigy. Hence it is natural to think, that these effects were exaggerated beyond all probability, and even possibility. If we abstract these from the accounts of the mirror of Ptolemy, the evident exaggerations of ignorance, nothing will remain but, that at some distance, provided nothing was interposed between the objects and the mirror, those objects were seen more distinctly than with the naked eye; and that with the mirror many objects were seen, which, because of their distance, were imperceptible without it.

Of the once splendid Pharos, not a vestige remains at this day; the traveller only finding, instead, an irregularly built castle, from the middle of which rises a tower which serves as a lighthouse, but not to remind the spectator, except by contrast, of the beauty and grandeur of the ancient structure.

THE TEMPLE OF DIANA, at Ephesus, the capital of Ionia, in Asia Minor, is, by many olden writers, considered to have been the most surprising of these wonders. It was the great boast of the Ephesians, the principal ornament of their city, and the depository of the image of their tutelary goddess, Diana.

This superb structure was situated between the town and harbour of Ephesus. It seems to have been several times (Pliny says seven times,) ruined and rebuilt, a circumstance which occurs in ancient writers as to the dates and descriptions of these successive erections. One of them is expressly affirmed by Livy to have been completed in the reign of Servius Tullius, who flourished, at the latest, 500 years before Christ. Another is described, which was originally designed by Ctesiphon, a Cossian artist, 541 years before the Christian era, whose plan was continued by Demetrius, a priest of Diana, and at length completed by Daphnis of Miletus, and a citizen of Ephesus. One of its destroyers was the notorious Erostratus, 356 B.C., who set fire to the building on the night of the birth of Alexander the Great, his only object in burning the temple being to perpetuate his name. The temple, however, was rebuilt with greater magnificence than ever, by the Ephesians, whose women

contributed their trinkets towards the general funds raised for this purpose. The architect was the celebrated Dinocrates, who also built the city of Alexandria.

The dimensions of the temple were 420 feet long, by 220 feet broad. It had 127 columns, each 60 feet high, which were donations from kings. Thirty-six were carved; the order Ionic. It had eight columns in front. The folding doors were of cypress wood, which had been treasured up, highly polished, for four generations; and they were found as fresh and beautiful 400 years after, as when new. The ceiling was of cedar; and the steps for ascending the roof, of a single stem of a vine. The whole altar was full of the works of Praxiteles. The offerings were inestimable; and, among them was a picture by Apelles, representing Alexander armed with thunder; for which the painter was paid twenty talents in gold, about \$8,650.

This last temple was plundered by Nero, who carried off an immense quantity of gold and silver; afterwards, in the time of Gallienus, by Goths from beyond the Danube, who obtained a prodigious booty; but the particulars of its final distribution are not on record. Its ruins are now the residence of cowherds and their cattle: from their minute examination by recent travellers, they appear to have been cased and encrusted with rich marbles. The once splendid city of Ephesus is a poor village, called *Aiasoleik*.

Although we find the frequent destruction of the temple of Diana narrated in history, it is difficult to conceive that an edifice of stone could have been entirely destroyed by fire, or if destroyed, that it could have been replaced by the Ephesians, when we find that all the cities of Asia Minor contributed towards the original building, which occupied 220 years in its erection. The narratives of its destruction may, however, possibly relate to the burning of the roof, certain rooms, sacred utensils, and the injury of the costly embellishments. It was, at length, sacked of its valuables, many of which are stated to adorn the mosques of Constantinople to this day.

THE COLOSSUS OF RHODES, was a gigantic brazen image of Apollo, whom the Rhodians considered their tutelary deity. Muratori reckons its history among the fables of antiquity, and it so abounds with contradictions, that it would be a more tedious than useful task to attempt to reconcile the conflicting statements.

The first artisan employed upon this prodigious statue is said to have been Chares, the disciple of Lysippus, 300 years B.C. He had scarcely half finished the work, when, finding that he had expended all the money he had received for the whole, he was overwhelmed with despair, and hanged himself. Laches, his fellow countryman, finished the work in the space of three Olympiads, or twelve years. The statue was placed with its feet upon the two moles which formed the entrance of the harbour of Rhodes; and ships passed in full sail between its legs. Its height was 70 cubits, or 105 feet.

A winding staircase ran to the top, whence could easily be discerned the shores of Syria, and the ships that sailed on the coast of Egypt; some accounts state that in the right hand was a large lantern, from which circumstance the statue is supposed to have served as a light-house. It had stood scarcely 60 years, when the figure was thrown from its place by an earthquake, and broken off at the knees. Thus it remained for the space of 894 years, although the Rhodians received large contributions to repair it; but they divided the money amongst themselves, and cunningly frustrated the expectations of the donors, by saying that the oracle of Delphi forbade them to raise the statue up again from its ruins. At length, A.D. 684, it was sold by the Saracens, who then became masters of Rhodes, to a Jewish merchant of Edessa, the value of the brass being estimated at 36,000 pounds English money.

Some antiquarians have thought that the fine head of the sun, which is stamped upon the Rhodian medals, is

* Translated from *Les Anussemens Philosophiques*, Marseilles. 1763.

a representation of that of the Colossus; and the conjecture is reasonable.

The seventh wonder was the TOMB OF MAUSOLUS, king of Caria, which was built by his queen, Artemisia, in Halicarnassus, 351 B.C.; and whence a superb tomb is to this day called a Mausoleum. The principal architects of Greece laboured on this magnificent structure. It was an oblong square, 411 feet in compass, and 130 feet high. The principal side was adorned with 36 columns, and 24 steps led to the entrance. The top was conical, and surmounted with a chariot drawn by 4 horses, sculptured by Pythes. Bryaxes, Scopas, Leochares, and Timotheus made the decorations on the four sides; and Vitruvius thought that it was enriched by the sculptures of Praxiteles. Artemisia died before the completion of the monument, but the artists finished it without compensation, that they might not be deprived of the honour of their labour. The expenses of the building were so immense, as to have occasioned the philosopher Anaxagoras to exclaim, when he saw it, "How much money changed into stones!"

THE CHINESE FEAST OF THE LANTERNS.

THE commencement of the year in China is observed as the greatest festival in the empire, and the whole of the first month is a season of continued rejoicings. Of these the most splendid is the Feast of the Lanterns, which is held on the fifteenth day, when there is such a profusion of lanterns hung out of the houses that, to a stranger, the whole empire has the appearance of fairy land. All ranks contribute to this national festival. The grandees retrench daily, and reduce the expenses of their table, equipage, and dress, in order that they may expend more on their lanterns, some of which are said to cost two thousand crowns. The middle classes will expend fifty or sixty crowns on the occasion, and even the poorest will exert themselves to join the illumination. In short, in city and country,—on the coast and on the rivers, every person lights up his painted lanterns.

These lanterns are of various forms and sizes. Some of them are so capacious as to resemble mansions, wherein the Chinese eat, lodge, receive visits, have balls, and act plays. Those which are hung from the houses are framed of wood, richly gilt, japanned, and carved and decorated with streamers of silk or satin. Over these frames is stretched fine transparent silk, on which are painted various devices, as human figures, quadrupeds, birds, trees, flowers, &c., the colours of which are very brilliant, when the lantern is lit by lamps or wax candles. The largest lanterns frequently exhibit figures which are set in motion by hidden threads. In this manner the spectators outside the lanterns are often amused by the spectacle of horses galloping, ships sailing, and armies in full march. Some lanterns are lit by serpents, illuminated within from the head to the tail, and contrived to writhe about as if they were alive.

MANY persons pass much of their time in a state of iniquitude and constant irritation, although they are in health, and have the means of satisfying the common wants of life, and even abundantly. As to the present, they have some unreasonable desire, which cannot be satisfied, or which cannot be, without causing a suffering more intolerable than the unsatisfied desire. As to the past, they dwell on the memory of some good which they think might have been obtained, or on some wrong or blunder by which some good was lost. As to the future, they dread some possible evil, and the more because of the uncertainty of its nature, and of the time and manner of its coming, and which may never come. There are many persons who are habitually discontented. They find everything goes wrong. The weather is bad; their food is not as they would have it; no one does anything in the right time, or in the right manner; or that is done which should not be, or that is omitted which should be done. Such persons are always groaning, sighing, or grumbling. They dislike everybody, and everybody dislikes them; and particularly, their abundant *advice* is disliked, and their manner of giving it.—S.

THE FETISH.

THE term *Fetish* is derived either from the word *fetisse*, a block adored as an idol; or from *feticzeira*, an enchantress. The Portuguese first gave this name to the idols of the negroes on the Senegal; and afterwards the word received a more extensive meaning. The general application of *fetish* now seems to be to an object worshipped, not representing a living figure. Such a figure is more properly speaking, an idol. Hence, stones, arms, vessels, plants, &c., which are objects of worship, are *fetishes*.

Among the natives of the Gold Coast of Africa, the superstition of the fetish prevails to a baneful extent. The fetishmen, so called from their being supposed to possess supernatural powers, infuse into the minds of the people the belief of its influence, with the view of being consulted on every occasion of trouble. An individual who has been robbed, or has experienced some other calamity, immediately consults a fetishman to discover the thief, or cause of the evil; who, after making use of some pretended magic art, and having obtained answers to questions put by him to the applicant, unhesitatingly denounces some unfortunate being as the robber or witch. The fetishmen are without difficulty bribed, and they accept the bribe under the cloak of having first consulted the deity, who had agreed to receive a certain sum. They will afterwards demand more money in the name of the fetish, whom they will state as not being satisfied. So great is the dread of the natives to offend the fetish, that they even pawn their own children to raise the means of appeasing his wrath. When a person is afflicted with any alarming disease, application for relief is made to the fetishman, who, perhaps, will order an egg near hatching, or a chicken, to be laid on a certain spot in some highway, in order to transfer the complaint to the person who might unthinkingly tread upon it. Passengers noticing any of these charms lying in their way, carefully avoid them, and no one will dare to remove them out of their path.

At Cape Coast, the women, who are generally employed in celebrating the yam harvest, make public offerings in a body to the great fetish; which is a large rock lying close to the walls of the castle. It breaks the great waves of the sea that incessantly dash against it, and thus preserves the fortification from injury by the surge. Another great fetish which they have is a salt pond, in which large and delicious mullets are taken.

Previous to the offering to the fetish, consisting, generally, of yams, eggs, palm oil, and the blood of some animal, being made, the women with their faces and limbs chalked, parade the town in a body, each carrying her own portion in a calabash, or earthen vessel. They then visit the rock, on which they deposit their oblations; and, no sooner do they depart than the turkey buzzards, apparently aware of what is going on, approach and devour the offerings; and it is considered a great offence to the fetish to destroy any of these birds.

All families of consequence have also their own private fetish, which they keep concealed in their houses, but denote its presence there by signs hung outside on the doors. This has a great effect in deterring thieves from the premises*.

Captain Tuckey describes a fetish which he saw at Embouma, on the River Congo. It was about the size of a large doll, and the most grotesque figure imaginable. These fetishes are indifferently carved out of wood, or made of rags, the eyes and teeth are of shells, and the whole appearance as hideous as the workmanship is clumsy. They are such things as children would contrive in sport. Nevertheless, they are unceasingly worshipped and prayed to, though with no great ceremony or devotion. When a glass of brandy is given to an African, he puts it to his lips, then raises his fetish, into whose face he puffs his breath once or twice, with a blowing whistling noise; and then he swallows the dram. A similar action, or a whisper in the ear, takes place whenever the fetish is consulted.

* Communicated by Major Ricketts to the *Literary Gazette*.

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THE PHILOSOPHER LEIBNITZ.



LEIBNITZ'S HOUSE IN HANOVER.

THE above cut represents a house, which, however remarkable for its form and appearance, derives its chief interest from having been the residence of Godfrey William Leibnitz, an eminent natural philosopher and mathematician of the seventeenth century.

Leibnitz was born at Leipsic, in the year 1646. His father, secretary of the University, dying when Godfrey was only six years old, the latter was placed at school, where he distinguished himself by the ardour with which he studied the classical writers; and he performed his task with such ease and quickness that he used to have time to assist his less precocious school-fellows in the preparation of their lessons. At the age of fifteen he

went to the University of Leipsic, afterwards to that of Jena, and again to Leipsic. Here he studied philosophy and mathematics, and also became so familiar with the writings of Plato, Aristotle, and other Greek philosophers, that he used to ramble about the woods for a whole day at a time, pondering on what he had read, and endeavouring to reconcile the discordant doctrines of his favourite writers.

His advancement in the study of law was as rapid as that in classical learning, insomuch that at the age of twenty he was made Doctor of Laws in the University of Altorf, and was offered the Professorship of Law in the same university. Leibnitz declined the latter office,

and went to Nuremberg, where he became secretary to a society of alchemists. The reader is aware that the chemistry of those days consisted principally in attempts to discover the means of converting baser metals into gold, and of effecting other wonders which are now known to be unattainable. Leibnitz, however, did not remain long in this capacity; for having gained the favour of an influential man at Mayence, he was advised to apply himself to the study of history and jurisprudence, with a view to qualify himself for some creditable office at Frankfort. Here he soon gave another instance of the versatility of his talents, by writing an admirable treatise on the best method of teaching and learning jurisprudence. This work, and another, written about the same time, caused him to be appointed Councillor of the Chamber of Revision, in the chancery of the electorate of Mayence.

While he filled this last-mentioned office, his comprehensive mind was employed on subjects so very diverse that none but such a genius as his could have had any success in them all. He wrote a treatise on the doctrine of the Trinity, against a Polish writer who had impugned that doctrine. He wrote two treatises on mechanics, which astonished the philosophers of that age, by the boldness and originality of the ideas developed in them; and he also planned a new *Encyclopædia of General Knowledge*.

At this time the military successes of Louis the Fourteenth had made his capital the centre to which distinguished men from various countries resorted; and Leibnitz, who had a strong desire to visit Paris, was enabled to do so as a companion to the son of his patron. Here his genius took a new turn, by being applied to the study of mathematics, a science to which he had hitherto paid but a small share of attention. Huyghens, who had written a valuable treatise on the oscillation of pendulums, was then at Paris, and an intimacy arose between him and Leibnitz, which led the latter to attend to numerous questions in natural philosophy. At this time also he gave an honourable proof of the steadiness with which he adhered to protestant religious principles; for the Academy of Sciences at Paris, appreciating his distinguished talents, offered him a seat in their body, provided he would profess the Roman Catholic religion: this he declined to do.

His patron dying in 1673, Leibnitz came to England, where he was received with much distinction by the philosophers, who corresponded and conversed with him on many subjects of science. But his prospects received a sudden check by the death of the elector of Mayence, and the consequent discontinuance of the pension which Leibnitz had received. The Duke of Brunswick now testified his respect for the philosopher, by granting him an office and a pension, with liberty to devote as much of his time as he pleased to study. Leibnitz then devoted upwards of a year to the unremitting study of mathematics, and then proceeded to take his residence at Hanover, the capital of the Duke of Brunswick's territory, where he wrote a treatise on the national law of the Germanic empire. When the duke died, his successor (afterwards King George the First of England) continued to Leibnitz the favours which had already been awarded him, and also directed him to write a history of the house of Brunswick. This work he commenced on such an immense scale that the main body of the history has never been published: he spent three years in traversing Germany and Italy, for the collection of materials, and the published portions throw great light on the early history of the Germanic tribes in general, though circumstances prevented him from completing that portion which related to Brunswick.

Leibnitz was a man of amiable mind; and being distressed at the sufferings which the Huguenots, or French protestants, experienced, he and Bossuet, a

learned French Catholic prelate, entered into a correspondence, with a view of trying whether the differences between the two forms of faith might not be reconciled. In this correspondence Leibnitz displayed as extensive a knowledge of theology as he had previously shown of other subjects: but the attempt failed in its object.

Leibnitz having been chosen a fellow of the Royal Society of London, and seeing how much such a society tended to the advancement of science, he recommended the king of Prussia to found a similar society at Berlin, which was accordingly done in 1701, Leibnitz himself being appointed president, with liberty to reside either there or elsewhere. The Czar of Russia and the Emperor of Germany also consulted him on subjects which related to the progress of science, and he became looked upon as one of the most distinguished men in Europe. In his correspondence and literary productions he employed either the Latin or the French language, because those were the two which were most likely to be understood by the learned men to whom his writings were addressed: the consequence was that his mother tongue, the German, became so much neglected by him, that the few pieces which he wrote therein were in very inferior style.

A very profound and difficult branch of the mathematics, called the differential calculus, the nature of which can hardly be explained to general readers, was invented both by Sir Isaac Newton and by Leibnitz, each one proceeding in a path different from the other. Long controversies were carried on between the philosophers of England and France, as to which of the inventors deserved most honour; but in modern times the acrimony which distinguished this controversy has died away, and men now know how to do honour to both those great mathematicians, without striving to place one on a higher level than the other.

The personal or domestic character of Leibnitz does not yield those points of interest which so frequently arise from the contemplation of a distinguished man in the bosom of his family. Leibnitz was never married. One of his biographers says:—"At the age of fifty he had some thoughts of forming a matrimonial connexion; but as the lady he wished to espouse desired time to consider his proposal, Leibnitz also made his own reflections on the subject, and unluckily came to the conclusion that, though marriage is a good thing, a wise man ought to consider of it all his life." Leibnitz, although of a strong constitution, gradually sank under the immense mental exertions to which he subjected himself. He died on the 14th of November, 1716, at the age of seventy. In person he was of a middle stature, and had a sweet expression of countenance, blended with a studious air. He was short-sighted, but his vision continued excellent, even to his last moments, enabling him to read the smallest print, and to write in a small fine character. He was of a thin habit, but of a vigorous temperament; drank little, supped plentifully, and retired to rest immediately afterwards,—a plan which, in most cases, would be evidently detrimental to health. He remained in bed only a few hours, and sometimes he would even sleep in his chair, and on awaking would proceed to his studies, whatever hour it might be. When deeply immersed in study, he was known to have scarcely left his chair for days together.

There have been few men who have approached so near as Leibnitz to the rank of a universal genius. Theology, classical learning, jurisprudence, history, mathematics, natural philosophy,—all occupied his attention in turn, and all received the stamp of his powerful mind, and made him the wonder of his age. But the reader must not infer that the possession of universal genius is necessary to advance a man to an eminent position among his fellow-men. A clear and steady mind, devoted assiduously to *one* subject, will often produce results more valuable to society than if it were directed to

several; and the reason why such is the case will readily be understood. An attention to one subject concentrates and systemizes the knowledge which we possess on that subject, and renders it more available and valuable. It has been observed of Leibnitz, that though it is difficult to name any department of human knowledge which has not profited by his labours, or received fresh illustration from his genius, yet his reputation would perhaps have been more solid and permanent had he less ambitiously grasped the whole circle of human science. He has been excelled in theology, in classical learning, in jurisprudence, in history, in mathematics, and in natural philosophy, by others who have devoted their whole attention to one or other of these subjects; whereas he might probably have placed himself on a pre-eminent position in some one of them, had he more especially devoted himself to it. While, therefore, we admire the wonderful range of his genius, and respect his memory for the large accession which he made to the sum of human knowledge, we must not think any the more meanly of those members of society,—whether in past or present ages,—in our own or any other country,—who, with a less gigantic grasp of intellect, have devoted their powers to one particular department of study, making others subordinate to it

THE world around us, with all its changes—the shortness of our stay here—the uncertainty of all things with which we are conversant in this transitory life, from the seed that falleth into the ground to die and burst into new life with the return of spring, to the varied scenes of that busy theatre on which man himself, lord of created nature, acts his little day—all these things teach us plainly that this is but a life of trial,—that this vain earth is not our rest.—DAUBENY.

Curious anecdotes are related of the effect of music upon animals. Thorville has given the following amusing account of his experiments. "While a man was playing on a trumpet, I made my observations on a cat, a dog, a horse, an ass, a hind, some cows, small birds, and a cock and hens, who were in a yard under the window. The cat was not the least affected; the horse stopped short from time to time, raising his head up now and then, as if he were feeding on grass; the dog continued for above an hour seated on his hind-legs, looking steadfastly at the player; the ass did not discover the least indication of his being touched, eating his thistles peaceably; the hind lifted up her large wide ears, and seemed very attentive; the cows stooped a little, and, after gazing at us, went forward; some little birds that were in an aviary, and others on trees and bushes, almost tore their little throats with singing; but the cock who minded only his hens, and the hens who were solely employed in scraping a neighbouring dunghill, did not show in any manner, that the trumpet afforded them pleasure."

That dogs have an ear for music cannot be doubted: Steibelt had one which evidently knew one piece of music from the other; and a modern composer had a pug dog that frisked merrily about the room, when a lively piece was played; but when a slow melody was performed, particularly Dussek's Opera, 15, he would seat himself down by the piano and prick up his ears with intense attention, until the player came to the forty-eighth bar; but as the discord was struck he would yell most piteously, and with drooping tail seek refuge from the unpleasant sound under the chairs or tables.

Eastcot relates that a hare left her retreat to listen to some choristers, who were singing on the banks of the Mersey, retiring when they ceased singing, and reappearing as they recommenced their strains. Bossuet asserts, that an officer, confined in the Bastille, drew forth mice and spiders to beguile his solitude with his flute; and a mountebank in Paris, had taught rats to dance on the rope in perfect time. Chateaubriand states as a positive fact, that he has seen the rattle-snake, in Upper Canada, appeased by a musician; and the concert given in Paris to two elephants in the Jardin des Plantes, leaves no doubt in regard to the effect of harmony on the brute creation. Every instrument seemed to operate distinctly as the several modes of pieces were slow or lively, until the excitement of these intelligent creatures had been carried to such an extent that farther experiments were deemed dangerous.—MILLINGEN.

SILK FROM SPIDERS.

THE extensive use which is made of silk goods, and the value they have acquired in all civilized countries, have led to various experiments amongst ingenious persons, for the purpose of ascertaining whether a substance or substances might not be obtained from other sources, which should answer the same purpose as that to which the production of the silk caterpillar is at present so widely applied.

At the beginning of the last century a method was discovered in France of obtaining silk from the nests of some species of spiders. It is well known that besides the ordinary web of spiders, there is a small silky bag spun by particular species, for the protection of their eggs. These bags may often be found in the corners of windows, under the eaves of houses, in cellars and vaults, in hollow trees, and in similar protected situations, where neither wind nor rain can reach them. They are much stronger and more durable in their texture than the webs formed to entrap the spider's prey, and in shape they resemble the silkworm's cocoon when it is prepared for the distaff. When first formed, these spiders' bags are of a gray colour, but by exposure to the air and dust they soon acquire a blackish hue.

It was from the bags thus formed by spiders around their eggs that silk was procured, at the time above stated, by a M. Bon, whose dissertation on the mode of obtaining and preparing the silk is extremely interesting. An abstract from this dissertation, together with the observations made by M. Reaumur, and other celebrated naturalists, on the means which the spider possesses of furnishing the material in question, may not be unacceptable to our readers.

The method of classing spiders is usually according to their different colours, whether black, brown, yellow, &c., or sometimes by the number and arrangement of their eyes, some spiders possessing as many as ten of these organs,—others eight,—and others again six. M. Bon notices only two kinds as silk-producing spiders, and distinguishes them from each other, as having either long or short legs, the latter producing the finest quality of raw silk.

The spider is provided with fine papillæ, or small nipples, placed in the hinder part of its body, which are like so many wire-drawing irons, to form and mould a glutinous liquor, with which the insect is provided, and which, on being drawn out through these papillæ, and exposed to the air, immediately dries, and forms silk. Each of these papillæ consists of a number of smaller ones, so minute as not to be discernible, and only made evident by the effects produced. Several distinct threads issue from each, the number of which, on account of their extreme fineness, cannot be counted with any accuracy. The principal papillæ are five in number; but these being made up of innumerable smaller ones, and each of these smaller ones emitting a beautifully fine thread, the total number of threads uniting to form the filament used by the spider is astonishingly great. By this beautiful arrangement the threads can be applied in a greater or less number, according to the strength required in the spider's work; and when all these threads unite and form one, as they do at the distance of about the tenth of an inch from the body of the insect, the tenacity of the principal thread is increased, and its strength is greater than if it were not thus composed of many individual filaments.

In proceeding to notice M. Bon's attempt, and in giving his opinions on the subject, it is necessary to premise that that gentleman, delighted with his discovery, and determined to pursue it under all difficulties, was unconsciously led to exaggerate the advantages connected with it, and to make comparisons between the silkworm and the spider, as silk-producing animals, which were not wholly founded on fact.

A quantity of the spiders' bags were first collected

by M. Bon, and then treated in the following manner. Twelve or thirteen ounces of the bags were beaten with the hand or by a stick, until they were entirely freed from dust. They were next washed in warm water, which was continually changed, until it no longer became clouded or discoloured by the bags under process. After this they were steeped in a large quantity of water, wherein soap, salt-petre, and gum-arabic had been dissolved. The whole was then set to boil over a gentle fire, during three hours, after which the bags were rinsed in clear warm water, to discharge the soap. They were then set out to dry, during several days, and the carding operation was then performed, with cards differing from the usual sort only in being much finer. Thus was a peculiar ash-coloured silk obtained, which was spun without difficulty, which took readily all kinds of dyes, and might have been wrought into any kind of silken fabric. M. Bon had stockings and gloves made from it, some of which he presented to the Royal Academy of Paris, and others to the Royal Society of London.

The silk was affirmed by M. Bon to be stronger and finer than the common sort, and according to his statement, spiders were much more productive than silkworms, and there were besides the following advantages relating to them: spiders hatch spontaneously, without any care, in the months of August and September, the old spiders dying soon after they have laid their eggs: the young ones live for ten or twelve months without food, and continue in their bags without growing, until the hot weather, by putting their viscid juices in motion, induces them to come forth, spin, and run about in search of food.

The only obstacle, therefore, to establishing a considerable manufacture from these spider bags, that is, the difficulty of obtaining them in sufficient abundance, was attempted to be obviated by breeding young spiders in convenient apartments on a large scale. M. Bon commissioned a number of persons to collect and bring to him all the short-legged spiders they could possibly obtain. These, as he received them, he inclosed in paper coffins, or in pots covered with papers, which papers, as well as the coffins, were pricked over their surface with pinholes, to admit air to the prisoners. The spiders were duly fed with flies, and after some time it was found on inspection that the greater part of them had formed their nests. It was contended that these nests afforded much more silk in proportion to their weight than those of the silkworm, in proof of which it was asserted that thirteen ounces yielded nearly four ounces of pure silk, two ounces of which were sufficient to make a pair of stockings; whereas, stockings made of common silk weighed seven or eight ounces. It had been objected by some persons that the spider was venomous, and that this evil quality extended to the silk obtained from it. M. Bon, in answer to this prejudice, affirmed that he had several times been bitten by spiders, when no injury had followed; and that the silk, so far from being pernicious, had been found useful in stanching and healing wounds, its natural gluten acting as a kind of balsam. Willing to extract every possible good from his favourite pursuit, he subjected the spider-silk to chemical analysis, and obtained from it a volatile salt, preparing which in the same manner used for the once celebrated *Gutta Anglicanae*, he produced drops, which, as he believed, possessed yet greater efficacy: he called this preparation *Montpellier drops*, and prescribed its use in all lethargic diseases.

M. Bon's establishment for the rearing of spiders, at length engrossed a considerable share of public attention, and the subject being considered worthy a serious investigation, M. Reaumur was deputed by the Royal Academy of Paris to inquire into the merits of this new silken material. From the patient examinations of this eminent naturalist, it appeared that there were many serious objections to this plan; and such as were likely

to prove quite insurmountable. In the first place, the natural fierceness of spiders renders them unfit to be bred together. On distributing four or five thousand of these insects into cells or companies of from fifty to one or two hundred, it was found that the larger spiders quickly killed and ate the smaller, so that in a short space of time, the cells were depopulated, scarcely more than one or two being found in each cell. In the next place, the silk of the spider is inferior to that of the silkworm both in lustre and strength; and produces less material in proportion, than can be made available for the purposes of the manufacture. The filament of the spider's-bag can only support a weight of thirty-six grains, while that of the silkworm will sustain a weight of one hundred and fifty grains. Thus four or five threads of the spider must be brought together to equal one thread of the silkworm, and as it is impossible that these should be applied so accurately over each other as not to leave little vacant spaces between them, the light is not equally reflected, and the lustre of the material is consequently inferior to that in which a solid thread is used. A third great disadvantage of the spider's silk is, that it cannot be wound off the ball like that of the silkworm, but must necessarily be carded. By this latter process, its evenness, which contributes so materially to its lustre, is destroyed. That the silk articles produced from this material are really deficient in that glossy appearance which constitutes the principal beauty of silk, is fully confirmed by the testimony of M. le Hire, who, when the stockings of M. Bon were presented to the Royal Academy, immediately noticed their want of lustre. The last objection we shall notice against the raising of spiders, was one containing a calculation considered to be an exaggerated one, and it has been regretted that M. Reaumur should have taken extreme cases, if not actually improbable ones, to confute a system so little likely to advance itself as that of M. Bon. The advantages of the culture of silk from silkworms when compared with its production from spiders, must be too apparent to every reflecting person to render it necessary to dwell long on them, or in any way to exaggerate them. M. Reaumur's comparison is to this effect. The largest cocoons weigh four, and the smaller three grains each; spider-bags do not weigh above one grain each; and, after being cleared of their dust, have lost two-thirds of this weight; therefore the work of twelve spiders only equals that of one silkworm; and a pound of spider-silk would require for its production 27,648 insects. But as the bags are wholly the work of the females, who spin them as a deposit for their eggs, it follows that 55,296 spiders must be reared to yield one pound of silk: yet this will only be obtained from the best spiders; those large ones, ordinarily seen in gardens, &c., yielding not more than a twelfth part of the silk of the others. The work of 280 of these would therefore not yield more silk than the produce of one industrious silkworm, and 663,552 of them would only furnish one pound of silk!

An old philosophical gentleman had grown, from experience, very cautious in avoiding ill-natured people. To endeavour to ascertain their disposition he made use of his legs, one of which was remarkably handsome, the other, by some accident, crooked and deformed. If a stranger at the first interview regarded his ugly leg more than his handsome one, he doubted him, but if he spoke of it, and took no notice of his handsome leg, that was sufficient to determine the philosopher to have no further acquaintance with him. Every body has not this two-legged instrument; but every one, with a little attention, may observe signs of this carping, fault-finding disposition, and take the same resolution of avoiding the acquaintance of those infected by it. I therefore advise those querulous, discontented, unhappy people, if they wish to be respected and beloved by others, and happy in themselves, to leave off looking at the ugly leg.—
DR. FRANKLIN.

ON CHESS.

VI. ORIGIN OF THE NAMES OF THE CHESS-MEN,
concluded.

THE ROOK. The most ancient form of this piece after the introduction of the game into Europe is uncertain: but it was probably that of an elephant, as appears by Charlemagne's chess-men: and this form, with or without a tower, has been retained by the modern Germans, Russians, and Danes.

The Spaniards, Italians, French and English (as Mr. Madden remarks), in more recent times adopted a tower or castle as an epitome of the figure (in the same manner as they took a horse's head for the knight), and hence arises the strange anomaly of a castle representing the swiftest piece on the chess-board.

The earliest form of the chess rook is preserved on the ancient seals of those families both in England and Germany, who bear chess rooks for their arms, on which subject there is much curious information.

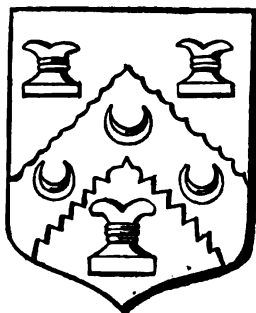
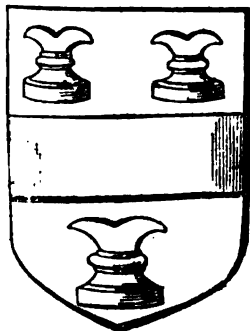
Before the general introduction of cards the game of chess was a great favourite with our ancestors, and we gain some idea of the high esteem in which it was held from the fact that no fewer than twenty-six English families have emblazoned chess-boards and chess-rooks in their arms: it must therefore have been considered a most valuable accomplishment. Gwillim in his *Display of Heraldry* endeavours to show that the arms borne by distinguished persons contain representations of implements or instruments which generally have some relation to the occupation or talents of the first owner of those arms. After speaking of the peculiar implements represented in various arms, he proceeds:—

All these have sundry instruments, which may be (and doubtless have been) borne in coat-armour; but because they are not usual I will refer them to each man's own observation, and will give some instances in the last kind of arts of delight, which we call *Playing*, which comprehendeth either theatrical recreation or other games whatsoever.

And forasmuch as their first institution was good, and that they are in themselves the commendable exercises, either of the body or of wit and invention (and if there be in them any evil, it is not in them *per se*, but *per accidens*, because they are abused by those that do practise and exercise them), I have thought good to annex them unto the same: such are table playing, chess, dice, racket, balloon, &c. The things wherewith these games are practised, are borne in coat-armour, as by these examples following may appear.

After describing the arms of a family whose shield contains three backgammon boards, he proceeds to speak of the arms of the Bodhenam family.

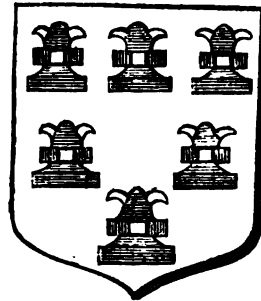
It beareth *azure*, a fess between three chess rooks *or*, by the name of *Bodhenam*, and was borne by that great lover and promoter of heraldry, Sir Winfield Bodenham, Knt. It seemeth these were first called rooks, for being the defence of all the rest; and therefore they stand in the uttermost corners of the chess-board, as frontier castles. This is a game of noble exercise for the mind, as requiring much forecast and understanding. King William the Conqueror was much addicted to this delight, and lost great lordships at this play. And indeed, were it not too serious a recreation, and going beyond the nature of games, it might well besecm a king, because therein are comprised all the stratagems of war or plots of civil states.



It beareth *argent* on a chevron engrailed between three chess rooks *sable*, as many crescents *or*, by the name of Walter, and was granted to Sir Robert Walter, Lord Mayor of York, 1st of October, 1603, in the first year of the reign of King James the First. The said Sir Robert, upon receiving the king when he came out of Scotland, received the dignity of knighthood.

Azure, a fess *argent*, between three chess rooks *or*, is borne by the name of rooks, and was attested (under an escutcheon of the same painted on vellum) to belong to George Rooks of London, by Sir John Burrough, Garter, 18th of May, 1640.

Arms of the family of ORROOK. *Argent*, a chevron *gules*, between three chess rooks *sable*;—But now he gives *sable* or a chevron *or*, between three mullets *argent*, as many chess rooks on the field.



It beareth *argent*, six chess rooks, three, two, and one *sable*, by the name *Rokwood*, and is borne by Nicholas Rokwood of Kirby, in Suffolk, Esq.

Smith of Methuen: *azure*, a burning cup between two chess rooks in fess *or*.

Many other families have chess rooks and chess boards engrafted on their arms; such as the Rookewoods of Norfolk, the Rooks of Kent; the Rockwoods, Rokewoods, Rokeles, Rockliffes, Rokes, Rockes and Rocolds; but these examples will suffice to show the high esteem in which chess was held until it was to a certain extent superseded by cards. It was never pretended that cards were superior to chess, but they were preferred because unskilful players had a better chance of winning. Before the introduction of cards, chess was in such vogue that both the kings of Spain and Portugal pensioned the great players, whilst they also staked considerable sums on the event of a game. Salvio speaks of three Italians who set out from Naples for the court of Philip the Second, where there was a famous player, and by concealing their strength won very large sums of money. Circumstances of this kind threw discredit on chess, and as it was then the fashion to degrade this noble game by playing for money, persons became afraid to play when they did not know the precise strength of their antagonist, and thus the game went into disuse. Hyde also states that chess was much played both in Wales and Ireland, especially in the latter, where estates often depended on the event of a game.

Augustus, Duke of Brunswick Lunenburg, was an ardent admirer of chess. He published a work on the game at Leipsic, in 1617, under the fictitious name of Gustavus Selenus. He also named one of his towns *Rokstet* with a chess rook for its arms. This town was also obligated to give to every new bishop a silver chess-board with silver men, one set of which was gilt.

The forked head of the rook shown in the preceding figures was supposed by Dr. Hyde to represent the two hunches of the *ruch* or dromedary, under which figure this piece occurs on the Eastern chess-board. In Iceland the piece is called *Hrokr*, a brave warrior or hero, which seems to have been the meaning of the ancient Persian term applied to this piece, viz., *rokh*, a valiant hero seeking after military adventures, in which character, says D'Herbelot, it was introduced into the game. Some have attempted to derive the term rook from *ruch* or *roe*, the fabulous bird of the Eastern tale: while Sir William Jones states that the rook is to be deduced from *roth* of the old

Hindoo game of chess, which was an armed chariot; this, he says, the Persians changed into *rokh*, the etymology of which latter word has given rise to so much discussion.

The modern French term for this piece is *la tour*, and the English sometimes call it the *castle*. In the early Italian treatises it is represented as a castle, although called *il roccho*. This term having been confounded with *rocca*, a fortress, has given rise to much conjecture.

THE PAWN. The pawns appear always to have been so called by the English. In the middle ages the French used a multiplicity of terms, such as *paon*, *paonnet*, *paonnetz*, *paonniers*, *paons*, *paonnes*, and *pionnes*. In an old French romance they are called "garçons." Dr. Hyde derives our pawn from the Spanish *peon* or French *pion*, which he thinks a contraction of *espion*, a spy, or *peton*, a footman. Mr. Douce thinks all the foregoing terms derivable from *pedones*, a barbarous Latin term for foot-soldiers, which in this game were represented by the pawns. By the Italians they were called *pedone*, by the Spaniards *peones*. The Russians and Poles make them also foot-soldiers: but the Germans, Danes, and Swedes have converted them into *peasants* (Bauern).

BEAUTIFULLY is it said in the Bible, that "God has set one thing over against another;"—has balanced the real advantages of different human conditions. Were I called upon to select the condition which I should deem most congenial to happiness, I should find myself in doubt and difficulty. I should have to balance abundance of food on the one hand, against abundance of appetite on the other; the habit superinduced by the necessity of being satisfied with a little, with the habit of being disgusted with the trial of much. There are joys, numerous and vivid, peculiar to the rich; and others, in which none but those in the humbler conditions of life can participate.

In the whole range of the enjoyment of the senses, if there be any advantage, it belongs to the poor. The laws of our being have surrounded human enjoyment with limits, which one condition can no more overleap than another. It is wonderful to see this admirable adjustment, like the universal laws of nature, acting everywhere and upon everything. Even in the physical world, what is granted to one country, is denied to another; and the wanderer who has seen many strange lands and cities, in different climates, only returns to announce, as the sum of his experience and the teaching of years, that light and shadow, comfort and discomfort, pleasure and pain, like air and water, are diffused in nearly equal measure over the whole earth.—F.

TRIFLES.—There are a great many trifles in this life, when considered as a whole; it is a common failing to magnify them into serious matters. They may relate to dress, food, visitings, insignificant purchases, management of children, treatment of, and remarks upon, domestics, and a multitude of little matters on which difference of opinion arises. Now, it may not be of the least possible consequence in the long run, whether the matter be disposed of in one way or another, provided no moral duty be broken; yet a sudden observation, in an ungentle voice, will produce an irritating reply, and this a severe rejoinder, and presently the affair

Resembles Ocean into tempest wrought,
To waft a feather, or to drown a fly.

This ungentleness, when exhibited in parents, has a mournful effect on the character of children. It is wholly useless, and worse than useless, in asserting authority; it can only be classed among those sad mistakes which tend to make this a miserable world. How can any two rational beings, who must live in familiar intercourse, while they do live, so misapprehend the purposes of life, as habitually to torment each other on insignificant trifles! If any one should be unhappily betrayed into an unbecoming expression, silence best becomes those who hear it.

It is with our judgments as our watches: none go just alike, yet each believes his own.—POPE.

THE SILPHIUM, A NORTH AFRICAN PLANT.

THE *Silphium* appears to have been a plant held in much repute by the ancients, from the accounts of it which have been handed down by Pliny and others. When Captain Beechy was travelling in Northern Africa he met with the plant, or at least one which he supposed to be the *Silphium*, and takes the opportunity of collecting together much useful information respecting it. To his valuable narrative we shall be principally indebted for our account of this plant.

Captain Beechy introduces his remarks concerning *Silphium* in the following manner:—

It may here be proper to mention that, on the third day after our departure from Mergé, we observed a plant about three feet in height, very much resembling hemlock, or, more properly speaking, perhaps, the *dauca*, or wild carrot. We were told that it was usually fatal to the camels who ate of it, and that its juice, if applied to the flesh, would fester any part where there was the slightest excoriation. This plant had much more resemblance to the *Silphium* of ancient times (as it is expressed on the coins of Cyrene) than any which we had hitherto seen; although its stem is much more slender than that which is there represented, and the blossoms (for it has several,) more open. In some parts of the route from Mergé to Cyrene we lost sight of this plant altogether; while at others we found it in considerable quantities, growing chiefly wherever there was pasturage. Immediately about Cyrene we observed it in great abundance; and soon ceased, from its frequent occurrence, to pay any attention to it. It is extremely probable that the plant here mentioned is the *laserpitium* or *silphium* in such repute among the ancients.

It appears that the *silphium* was described by Theophrastus as a plant with a large and thick root; and the stem he tells us, resembled that of the *ferula*, and was of about the same thickness. The leaf resembled that of Parsley! the seed was broad and foliaceous; and the stem annual, like that of the *ferula*. Pliny says, that the first appearance of the *silphium* in Cyrenacia (a district in Northern Africa) was occasioned by a sudden and heavy fall of rain, which completely drenched the ground, and that the *silphium* which grew on the spot extended itself over a space of 4000 stadia, and that its nature was wild, and unadapted to cultivation, retiring towards the desert whenever it was too much attended to. How much of this is true is now not easy to decide.

Silphium appears to have been eaten in various ways. The stem and the root were eaten much in the same way that we eat celery. It was so much esteemed, that it constituted a material part of the commerce of Cyrene. In the time of Pliny, *Silphium* had become so scarce in the market, that a single stalk of it was presented to the Emperor Nero as a present of extraordinary value; and Strabo tells us, that the barbarous tribes who frequented the country about Cyrene had nearly exterminated the plant altogether (in an irruption which they made on some hostile occasion), by pulling it up designedly by the roots; as this was evidently done to injure the inhabitants, it proves that *silphium* was regarded as valuable.

Alexander the Great discovered a "bill of fare," engraved on a brass column in the royal palace of the kings of Persia; and among the good things that formed the daily provision of the monarch's table, was a talent weight, (about sixty-five pounds, according to Captain Beechy,) of the *silphium* plant, and two pounds of the extract or juice of the *silphium*, termed by Pliny *laser*. This *laser* seems also to have been used as a drug, and to have commanded a high price.

The *silphium* appears to have sprung up in the pasture lands; and the sheep are reported to have been so fond of it that whenever they smelt it they would run to the place, and after eating the flower, would scratch up the root and devour it with the same avidity; on this account, as Arrian states, some of the Cyreneans used to drive their sheep away from the parts in which the

silphium was produced; and others surrounded their land with hedges, through which the sheep were not able to pass, when they chanced to approach near the plants. As to the effect which the plant produced on them, it appears to have been somewhat contradictory. According to Pliny, a sign that a sheep had eaten silphium was that he fell asleep, while a goat, under similar circumstances, began sneezing. It appears, generally speaking, to have acted first medicinally upon animals, and afterwards to have fattened them; giving at the same time an excellent flavour to the flesh. Whenever they were ill, it either speedily restored them or else destroyed them altogether; but the first of these effects was most usual.

It is probable, however, (says Captain Beechy,) that it only agreed with those animals which were accustomed to it; at least the plant now observable in the Cyrenaica, which answers to the description of the silphium, is very frequently productive of fatal effects to the animals (particularly the camels) who ate of it, not being accustomed to the soil. One of the reasons advanced by the son of Shekh Hadoo, Abou-Buckra, for putting a high price upon his camels at Mergé was, that they were going into the country where the silphium was found, which, he said, was very dangerous for them to eat; and the camels which were sent to us from Bengazie, when we were about to leave Grenna, were kept muzzled during the whole time of their stay in those parts where the plant was known to be produced.

As for the effects of silphium upon the human frame, if we are to judge from Hollands' translation of Pliny, made about the year 1600, they were truly marvellous; indeed, at this time, when the qualities of plants were made, by the false science of Astrology, to depend upon planetary influence, it is no wonder that those qualities should be so exaggerated as to appear to us extremely ridiculous.

Of the *laser*, a syrup of silphium, we are told that,

It reduceth those to their natural health who are starved and benumbed with extreme cold. Taken in drinke it allaieth the accidents and grief of the nerves. A great restorative it is with meat, and quickly setteth them on foot who have lien long, and been brought low by sickness. Taken in drinke it doth extinguish the venom left in the bodie, either by poisoned dart or serpent's sting. Being laid, too, with rue or honey, it is excellent for the carbuncle and the biting of dogs. Being incorporate with sal-nitre, and well-wrought withall beforehand, and so applied, it taketh away the hard horns and dead corns arising in the feet. It is an excellent drawer to the outward parts for to fill up the skin and make a bodie fat.

If any one have a hoarseness, let him (if he can,) get some silphium syrup, for it

Presently scowreth the pipes, cleareth the voice againe, and maketh it audible.

But this is not all:—

Taken in a broth or thin supping, it is good for the pleurisy, especially if the patient purpose to drinke wine after it. It is given with leekes and vinegre to those that wheeze in their chest, and be short-winded, and have an old cough sticking long by them; likewise with vinegre alone, to such as have supped off and drunke quailed milke which is cluttered within their stomacke.

Let us be cautious how we use silphium when we are afflicted with the tooth-ache:—

I would not give counsell (as many writers doe prescribe), for to put it in the concavities or hole of a decayed tooth, and so to stop up the place close with wax, for fear of that which might ensue thereupon: for I have seen the fearful sequels of that experiment, in a man, who upon the taking of that medicine, threw himself headlong from an high loft and broke his necke; such intolerable pains he sustained of the tooth-ache: and no marvell; for doe but anoint the muffle or nose of a bull therewith, it will set him on a fire and make him horne mad.

Lastly, we may state, for the consolation of those who may be so unfortunate as to have had a flogging, that,

A liniment thereof made with wine and oile is a most familiar and agreeable medicine for the black and blue marks remaining after stripes.

SONG OF BIRDS.

We rose one morning early, while Hesperus was yet in heaven, and the dew lay heavy on the grass, while a few constellations glittered towards the south, and gray twilight gave unspeakable serenity to the face of nature. The cattle were reposing on the meadows, and as yet no curling smoke appeared among the trees.

We stationed ourselves beside an aged tree, whose branches waved over the dark and troubled waters that gushed beneath them; but as the morning began to break, we went down into the valley, and again ascended a woody path that led to the summit of a neighbouring hill, listening to the song of the wakeful nightingales whose sweet mellifluous notes resounded through the woods. He occupied an acacia, that sprung from out a rugged bank, surmounted with aged beech-trees, which in other days kept off the cold east wind from a stately mansion, of which only broken walls and roofless chambers remained. There he concealed himself where all, beside the gray old ruin, seemed bursting into life and beauty, and there he seemed to warble an unknown drama, intermingled occasionally with the most extravagant bursts of joy, and plaintive notes of recollection. Strange, that such a powerful voice can reside in so small a bird, such perseverance in so minute a creature. At one moment he drew out his note with a long breath, now diverging into a different cadence; now interrupted by an unexpected transition. Sometimes he seemed to murmur within himself, and now again his note was full, deep, and clear.

At length all was still; the rushing of a torrent came from a distance on the ear, and the wood-lark, which also loves the silence of the night, poured fourth her music. These sounds had scarcely been heard before, so entirely is the ear entranced, when listening to the full deep melody of the unrivalled nightingale.

But now the morning began to dawn. The stern old ruin was brightened by the first beams of the sun, and threw its long gray shadows over the young green foliage of the beautiful acacia. The lark rose high in air, bearing his song towards the gates of heaven, raising his note as he ascended, till lost in the immensity of space; yet still his warblings came remotely upon the ear, though the little musician was himself unseen. Presently he descended with a swell from the clouds, still sinking by degrees as he approached his nest, the spot where all his affections were centered, and which had prompted all his joy.

How delightful are the feelings which the song of the lark calls forth, whether we include under this general appellation those birds of this species which soar through the clouds, or delight in the shelter of the woods; or as the titlark, in mossy lanes and hedges, though distinguished, rather by the variety, than the sweetness of their notes. The accompaniments of the landscape, the golden break of day, the fluttering from branch to branch, the quivering in the air, and the answering of their young, associate with the song of these wakeful birds, an indescribable feeling of hilarity, which tends to elevate the mind to a state of the highest, and yet most harmless exultation. How often on the breezy common that rises from my native village, have I listened to the cheerful notes of the common lark, when, as Walton well observes, he cheers himself and those that hear him, and then quitting the earth, and singing, he ascends higher in the air, till having ended his heavenly employment, he grows mute, and concerned to think, that he must descend to the dull earth, which he would not touch but from necessity. And now the blackbird and the throistle with their melodious voices bade welcome to the early morning, and bodied forth such enchanting notes, as no instrument, nor sweet sound of warbling voice could imitate. Other wakeful birds were heard in all directions: the laverock, the titlark, the little linnet, and honest robin, who loves mankind both alive and dead. The note of the contented cuckoo was also heard, monotonous, yet cheerful. It is a note, which more than any other of the feathered race calls up the recollections of early youth. Something of melancholy is occasionally blended with it, but it is a melancholy that may lead to a review of our past lives, and the lives of those with whom we have been acquainted. While endeavouring to recall the changes, which a gradual progress from childhood to youth, and from youth to manhood, has occasioned in our friends, we are taught to place less confidence in ourselves, and in those connections which are rapidly being dissolved.

PERSIAN AMUSEMENTS.

THE every-day life of the King of Persia has many interesting peculiarities for the European reader. Of these, Sir John Malcolm presents an entertaining picture, in his *Sketches of Persia*.

The religious duties of the King of Persia require him to rise early. On leaving the interior apartments of the palace, he is met by officers in waiting, and proceeds to one of his private halls, where all the young princes of the blood attend his morning levee. After this is over, he calls for breakfast. The preparing his meals is superintended by the *nauzir*, or chief steward of the household. The viands are put into dishes of fine china, with silver covers, and placed in a close tray, which is locked and sealed by the steward. This tray is covered with a rich shawl and carried to the king, when the steward breaks the seal, and places the dishes before him. The chief physician is invariably in attendance at every meal. His presence is deemed necessary, the courtiers say, that he may prescribe an instant remedy, if anything should disagree with the monarch; but this precaution, no doubt, owes its origin to other suspicions. When his public duties are performed, the king usually retires to the harem, where he sometimes indulges in a short repose. Before sunset, he reappears in the outer apartments, and either again attends to public business, or takes a ride. His dinner is brought between eight and nine, with the same precautions and ceremonies as at breakfast. He eats, like his subjects, seated upon a carpet, and the dishes are placed upon a richly embroidered cloth. Some of the former kings used to indulge openly in drinking wine; but none of the reigning family have yet outraged the religious feelings of their subjects, by so flagrant a violation of the laws of Mahomed. Bowls filled with sherbet, made of every species of fruit, furnish the beverage of the royal meals; and there are few countries where more pains are bestowed to gratify the palate with the most delicate viands. After dinner, the king retires to the interior apartment, where it is said, that he is often amused till a late hour, by the singers and dancers of his harem.

The royal family not only attend personally to public business, but are continually practising manly exercises, and ardently engage in field sports. The present king is an expert marksman and excellent horseman; few weeks pass without his partaking of the pleasures of the chase. The king has always a historiographer, and a chief poet. The one writes the annals of his reign; the other, who has a high rank at court, composes odes in praise of the royal munificence. A giant and a dwarf were at one period of the present reign part of the royal establishment; and it is never without a jester, at whose witticisms it is courtly to laugh, even when they are most severe. There is little difference between the office of jester at the modern court of Persia, and that which, some centuries ago, existed at every court in Europe.

In the court, there is always a person who bears the name of "story-teller to his majesty;" and the duties of his office call for a man of no mean acquirements. Though passionately fond of public exhibitions, the Persians have none that deserve the name of theatrical entertainments; but, though strangers to the regular drama, their stories are often dramatic; and those whose occupation it is to tell them, sometimes display so extraordinary a skill, and such varied powers, that we can hardly believe, while we look on their altered countenances and listen to their changed tones, that it is the same person, who at one moment tells a plain narrative in his natural voice, then speaks in the hoarse and angry tone of offended authority, and next subdues the passions he has excited by the softest sounds of feminine tenderness. The art of relating stories is attended both with profit and reputation. Great numbers attempt it, but few succeed.

The story-teller is always in attendance upon his majesty. It is equally his duty to beguile the fatigue of a long march, and to soothe the mind when disturbed by the toils of public affairs; and his tales are artfully made to suit the disposition and momentary humour of the monarch. Sometimes he recites a story of the genii; at others, he recounts the warlike deeds of former sovereigns, or the love of some wandering prince.

Mr. Buckingham relates that he saw in the streets of Ispahan a little boy who was singing, with the notes of the lark, in the clearest and most delightful strain. His voice was one of the most melodious that the fastidious ear could desire; but the thrill of it, which charmed at a distance, was produced by quick and violent thrusts of the end of the

fore-finger against the windpipe; while, from the length of time which some of these notes were held, the boy's face was swollen to redness; every vein of his throat seemed ready to burst; and his fine black eyes, which were swimming in lustre, appeared as if about to start from their blood-stained sockets. Yet, with all this, no one could wish to interrupt such charming music.

CHINESE DINNERS.

A FESTIVAL given at Canton by one of the Hong merchants, or, as he is more generally termed, "the squire," to a select party of English, is thus described by one of the party.

We sat down in number about fifteen. First, was handed to us bird's-nest soup in small china-ware cups. There were about twenty courses, and dishes innumerable. I counted sixty on the table at one time: they consisted chiefly of small basins, or cups, of the most beautiful china-ware, and were arranged in three rows down the centre of the table. We were told we had the happiness to partake of stewed pigeon's eggs, wild cat, fricassied frogs, dried worms, (particularly recommended as a *bonne bouche* for wine at dessert,) sea slugs, shark's fins, and other delicacies, which, whatever they may really have been, were rendered extremely palatable by the application of a little Japan soy. All the meat, pheasants, partridge, and venison were minced, and served to us in small cups, which, considering that we had no knives or forks, but simply a brace of round smooth and slippery chopsticks, made of ivory, tipped with silver, was extremely embarrassing. All their dishes are remarkably rich; so much so, that it is requisite to drink with them salehing, a kind of wine, or rather spirit of white colour, and not unpleasant taste; the little cup out of which it is drunk, is about the size of one belonging to a doll's tea-service; the ceremony of drinking health is to take up the cup with both hands, bow, and shake heads at each other for some time, drink off the wine, and show your friend the bottom of the cup to convince him that it is empty.

Another grand dinner, with a sing-song, or play, is thus described by the same writer. The place in which it was given, was an immense hall, one end of which was occupied by the stage, and the other with the dinner tables. The sing-song commenced directly we sat down, and continued till we came away. The play opened with the music of cymbals, gongs, bells, trumpets, &c. The performance was a kind of historical pantomime: for the first hour it was one continued battle of various success. The warriors were very splendidly apparelled, and some were decorated with little flags; they were armed with shields, bows, battle-axes, &c. These heroes rushed to the combat with a rotatory motion, like our modern rockets, and went whizzing round and round with great velocity, brandishing their weapons in every direction, and yet contriving to pass without touching each other. The subject of the pantomime appeared to be the setting up, crowning, and pulling down, and killing of emperors. The next exhibition was a kind of comedy, or farce, in which the characters and scenes were more modern and intelligible. Between the acts, tumbling was introduced. There was one very singular feat: they placed a table in the middle of the stage, and the whole troop, to the number of: between twenty and thirty, threw themselves over it head foremost, one after another as fast as possible, and sometimes three and four plunging over at the same time. Another feat was the formation of a human pyramid, the men standing upon one another's shoulders; which when complete, whirled round with wonderful rapidity.

Tea-drinking in China materially differs from the custom of this country. Green tea is thought very highly of by the Chinese, and is but rarely drunk. "Indeed," says the writer just quoted, "during the whole time I was in China, I never once tasted green tea, black being the only kind drunk by the Europeans as well as the Chinese. The latter are eternally drinking tea: in every shop there are always some small tea-cups on the counter; they put the tea-leaves at the bottom of the cup, pour hot water on them, put a cover over, and let it stand till ready; they never add milk, and seldom sugar."

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RESIGNATION, BY FLAXMAN

JOHN FLAXMAN AND HIS WORKS.

I.

First, elder Sculpture taught her sister art
Correct design, where great ideas shone,
And in the secret trace expression spoke:
Taught her the graceful attitude; the turn,
And beauteous airs of head; the native act,
Or bold, or easy; and, cast free behind,
The swelling mantle's well-adjusted flow.—THOMSON

WE are told that the father of JOHN FLAXMAN was a sculptor, or rather a "moulder of figures," and that, when he was pursuing his vocation in the city of York, the subject of this narrative was born on the 6th of July, 1755. When only six months old, the younger John, who was named after his father, was removed to London, together with his brother William, who was afterwards eminent for his skill in carving wood. The elder Flaxman was skilful and industrious in his business: he worked for sculptors who employed him, and likewise kept a shop in the Strand, for the sale of plaster figures.

The younger Flaxman was slightly deformed from his birth, and in his earliest years of a weak and ailing constitution; but his temper was quiet, and his mind enthusiastic. Hence he felt a propensity to shun the society of boys of his own age, and to seek amusements for himself. These amusements were naturally of a mental description. At the counter of his father's shop, he usually sat, during the day, sometimes engaged in reading; at other times in drawing in black chalk. By his grave, but cheerful deportment; by his desire for knowledge, and his love of drawing, he attracted the notice of people who frequented his father's shop. They saw that he was no common child;—that, in these tender years, he took delight in poets, sculptors, and heroes;—that he not only copied figures around him, but that he also referred at once for the antique to Homer, and attempted to think and design for himself.

At the age of from five to seven years he seems to have shown a decided predilection for everything which, in any way, exhibited a sculptured device. He was fond of examining the seals of every watch he saw, and endeavoured to obtain an impression of any one which pleased him. When he was reminded of this, after he had become eminent in his art, he gravely observed that "we are never too young to learn what is useful, or too old to grow wise and good."

In boyhood he was very much noticed and befriended by the Rev. Mr. Mathew, who found in him a natural courtesy and deference to others, such as he evinced towards mankind at large, when, in after days, his fame had spread far and wide. His hours were given to his books and models; and he produced a great number of such models in plaster of Paris, wax, and clay; some of these specimens of inborn talent are still preserved, and have considerable merit. They were, certainly, promises of that genius which he displayed in after years.

By the time he had arrived at the age of ten years, a great change for the better took place in his constitution. He had been hitherto weak and sickly; long fits of illness had repeatedly interrupted his studies, and he had enjoyed little of the air, and exercise, and active sports, which are so common and so salutary to boys of his age. But now health seemed to come upon him all at once: he grew strong, lively, and active, and the crutches were thrown aside, never to be resumed.

We are told by one of his biographers, that the invigorating excitement of health seemed to fill him with a new spirit, and that for a while he could think of nothing but adventures, such as happened to heroes of romance; and he longed for opportunities of showing his generosity and courage. This feeling was produced by the perusal of Don Quixote.—

He was so much delighted with the amiable, though eccentric hero, (writes one of his biographers,) and his account of the duties and honourable perils of knight-

errantry, that he thought he could not do better than sail forth to right wrongs, and redress grievances. Accordingly, one morning early, unknown to any one, armed with a little French sword, he set out, without a squire, in search of adventures which he could not find. After wandering about Hyde Park the whole day, without meeting enchanter or distressed damsel, he returned home rather ashamed of his romantic flight, and never again sought to emulate the exploits of him of La Mancha, though he always retained a great admiration of his character.

We are told by Allan Cunningham, the clear spirited writer of the lives of the British artists, that, when health and strength came upon him, Flaxman made up his mind to follow sculpture as a profession. He modelled and drew very assiduously: his father's shop was his only academy, and the antique statues which stood there, imparted to him form and proportion: the serenity of sentiment which they presented, accorded with the emotions of his own mind. Hence, it was particularly painful and mortifying to him to have to encounter the shot of ridicule. In a moment of confidence he showed a drawing of a human eye to a friend:—"Is it an oyster?" inquired the other. This joke made a deep impression upon him, and he resolved to exhibit in future with more care and caution his attempts with the modelling tool and the pencil. His confidence in his own natural abilities was not dashed by a few light words, and accordingly he had already resolved to attempt something by which his name might be honourably continued to the world.

When he was about ten years old, his mother died, and upon his father's second marriage, he seems to have been fortunate in a step-mother, who showed herself prudent and kind, consulted her husband's interests, and treated his sons with great tenderness. Mr. Mathew, his friend, now introduced him to his wife, a gifted and agreeable woman, and the companion of Mrs. Montague, Mrs. Chapone, and Mrs. Barbauld. In the company of these distinguished ladies he frequently passed his evenings. He was always a welcome visitor, and heard Mrs. Mathew read Homer and Virgil, and discourse upon sculpture and verse. Here he was encouraged in his study of the dead languages, so necessary to him in his profession: thus he learned to think with the authors, and to embody the ideas of the old Greek poets in such a manner as no modern artist has ever yet exceeded. His mode of education was, consequently, of a desultory character; he gathered his knowledge from many sources; and mastered what he was deficient in by some of those ready methods, which seem to form part of the inspiration of genius.

The talent of the sculptor—that which was inlaid in the mind of Flaxman—consisted in the ready ability to personify or embody the characters and descriptions of poetic fancy. Such of his juvenile productions of Homer as still exist, are marked with the quiet loveliness and serene vigour manifested long afterwards in his famous illustrations of the same poet. He now began to obtain praise, and friends arose to foretell his future eminence.

Flaxman became a student in the Royal Academy, when he reached his fifteenth year. His artistical distinction hitherto had been greater with the pencil than with the modelling-tool: he was, at first, a better painter than sculptor. In 1770, he exhibited a wax figure of Neptune; and by the time he was twenty years of age, he had sent only ten pieces to the Academy. His success in pictures was so great during these early years, and before the spirit of sculpture completely overshadowed him,—that one of his productions, in oil colours,—Cecipus and Antigone,—was lately sold by auction for a Belisarius of Dominichino. It seems, in many instances, to have been Flaxman's wish to see how his designs looked in colour, before he modelled them. It is the opinion of Wilkie and other distinguished painters, that such was the practice of the old classical artists they began first to learn to paint, and then to

work in marble; as painters of the present day frequently model figures before they paint them.

He was now known at the Academy, as an industrious and enthusiastic student, and he began to be spoken of as one from whom much was to be expected. In his fifteenth year he gained the silver medal, and he became, in due time, a candidate for the gold one, the reward of the highest merit. The name of the student who was opposed to him was Engleheart. A subject for modeling was given by the council: the students delivered each his specimen; and the prize—the gold medal—was awarded by the President, Sir Joshua Reynolds, to Engleheart.

By the concurrent testimony of his biographers, the subject of this contest is the only unpleasant, inauspicious part of a narrative of the life of Flaxman: "in no other story," says Cunningham, "has conceit ever been coupled with his name." This seems to be true: for he is reported to have felt ever after great humility in regard to his own merits, and to have looked on his disappointment as a fortunate humbling of a spirit puffed up with pride. But still, we feel bound to consider this subject a little further, with reference both to the competitors, and to the adjudicator of the prize.

When Flaxman gave in his model, (we use his own words,) he believed the medal was his own. He had made up his mind that he was to win, and had even invited some friends to cheer themselves at his table till he should return from the Academy with the prize! He determined, he says afterwards, to redouble his exertions, and to put it, if possible, beyond the power of any one, to make mistakes for the future. This alludes to Sir Joshua's decision. His biographers tell us that he thought himself injuriously treated, and that he was incensed at the decision. They then go on to reflect upon the conduct of the president of the Academy, and to accuse him, if not of positive partiality, at least of want of penetration and judgment.

It is the opinion of persons best informed on the subject of education in all its branches, an opinion borne out by the general experience of the world, that a prize, or other scholastic honour, gained in the days of youth, is not necessarily to be taken as the passport of excellence in a man. Such stimulants are useful, as they foster a spirit of industrious excellence. Thus, no one would have known Engleheart, the gainer of the prize, but for the publication of the biography of Flaxman; and all of us have come to know Flaxman, who lost the prize. It might have been, in spite of the biographers, that, at the time, Engleheart surpassed Flaxman; though the latter, by his natural genius and untiring industry, eventually outshone the former. It is only agreeable to human nature, and accordant with self-love, that the adjudication of a prize should leave the unsuccessful discontented, and expose the judge to charges affecting either his head or his heart. There was, perhaps, never a prize awarded in any age or country, where the competitors appeared in the plural number, without raising, and perhaps prolonging, the feelings we have alluded to. All this occurred to our artist between his fifteenth and twentieth year,—a time of life when self-sufficiency is not likely to be corrected by experience.

Soon after this, Flaxman was profitably and agreeably employed in making sketches and models for the pottery of the Wedgewoods. Before this time the porcelain of England had little external beauty to recommend it. The Tuscan vases and the architectural ornaments of Greece, supplied him with the finest shapes: these he embellished with his own inventions; and a taste for elegant forms began to spread over the land. Rude and unseemly shapes were no longer tolerated; the eye grew accustomed to elegance, and desired to have it at the table.

Though he continued at this time to model and sketch for all who employed him, he was by no means as yet

distinguished as a worker in marble: so that, when commissioned, about this time, to make a statue of Alexander the Great in marble, he employed another hand to complete the work.

During the ten years preceding his marriage in 1782, he had exhibited about thirteen works at the Royal Academy, including five portraits in wax or in terra-cotta. The others were models of ancient historical subjects: some were terra-cottas and in relief; others were in plaster of Paris; and one in clay. These seem to show, at least, his early pecuniary difficulties; for, if patronage had smiled upon him, the plaster model would have been converted into marble, and his proficiency herein the sooner attained.

While labouring for Wedgewoods, during these years, he produced his celebrated chess models. Occasionally, when his daily task was over, he would work at the bust of a friend; but it was his chief delight to make designs from the poets, from the Bible, and from the *Pilgrim's Progress*.

We have thus passed through the days of the youth of our artist: we will, in our next paper, enter upon the scenes and productions of his manhood.

TATTOOING.

Few of the practices of semi-barbarous tribes are more striking than the mode of ornamenting their skins. It corresponds with the love of finery and extraneous ornament, which is indulged by polished nations; while the ingenuity of the aboriginal decoration, and the elaborate beauty of its figures, are scarcely reconcilable with the crude notions of savage life.

The process of tattooing merits description. It is generally practised in the Pacific Islands; but none are believed to have carried the art of tattooing to so high a degree of perfection as the natives of the Washington Islands. The operation is performed by certain persons who gain their livelihood by its practice; and those who perform it with the greatest dexterity, and evince the best taste in the choice of ornaments, are as much sought after and encouraged as the best tailors are in civilized countries.

The principal strokes or patterns of the figures to be tattooed are first sketched upon the body, with the same dye that is afterwards rubbed into the punctures or piercings, and to make the latter, they use the wing-bone of a tropical bird, which is jagged and pointed at the end like a comb, and of various forms, according to the required figure. This instrument is fixed into a bamboo handle, about the thickness of the finger, with which the puncturer, by means of another cane, strikes so dexterously, that it only pierces through the skin, to allow the blood and lymph to ooze through the orifices, over which is rubbed a thick dye, composed of ashes from the kernel of the burning nut mixed with water. This, at first, occasions slight smarting and inflammation; it then heals, and after a few days the figure appears in bluish-black lines.

In the Washington Islands, many of the natives seek as much to obtain distinction by the symmetry and regularity with which they are tattooed, as the people of more refined nations do by the elegance of dress; and, although no real elevation of rank is designated by the superiority of these decorations, yet, as only persons of rank can afford expensive or elaborate ornaments, it becomes, in fact, a badge of distinction. As soon as a youth of these islands approaches manhood, the operation is commenced, and this is considered a memorable period of his life. In the first year, only the outlines of the principal figures upon the breast, arms, back, and thighs, are laid: some addition is constantly made to them at intervals of from three to six months, and this is sometimes continued for thirty or forty years before the whole tattooing is completed.

The women of the Washington Islands are very little tattooed, differing in this respect from the inhabitants of the other South Sea Islands. The hands are punctured from the ends of the fingers to the wrists, which produces an appearance like that of gloves; on the feet and ankles the tattooing resembles highly-ornamented half boots; and the arms are decorated with long stripes, and with circlets which have the appearance of bracelets worn by European ladies.

The patterns for the tattooer are selected with great care. They consist of sketches of men, birds, dogs, and various

animals; squares, circles, crescents, angles, diamonds, and, in short, of every variety of form. The head of a man is usually tattooed in every part. The common ornament for the breast is a shield-like figure, and that for the back is a large cross, beginning at the neck: on each side of the calf of the leg is an oval figure. We may add, that the observer can scarcely fail to be struck with the similarity of effect which exists between the tattooed decorations of the South Sea Islanders, and the armour of the warriors of antiquity.

The tattooing of persons in middle life is performed in houses erected for the purpose, and the expense varies with the number and intricacy of the chosen decorations. A common mode of payment is by hogs; but the poor islanders, who have not a superabundance of swine thus to dispose of luxuriously, but themselves live chiefly upon bread-fruit, are tattooed by novices, who take them at a very low price, as subjects for practice; but their works are easily distinguishable from those of an experienced artist. Among the rich islanders, the addition of ear-ornaments to a female, or a bracelet tattooed about her arms, is often the occasion of a joyous feast.

In New Zealand the art of tattooing has been brought to great perfection, and is as much admired as superb clothing. When a chief throws off his mats, he seems as proud of displaying the beautiful ornaments figured on his skin, as any civilized votary of fashion is in displaying himself in his last modish attire. Tattooing is likewise as essential a part of warlike preparations in New Zealand as are the accoutrements of an European soldier. Mr. Earle describes a whole district thus preparing, and an ingenious artist engaged to tattoo the warriors. He was considered by his countrymen a perfect master of his art, and men of the highest rank and importance were accustomed to make long journeys to put their skin under his hands. A highly finished face of a chief, tattooed by this artist, is as greatly prized in New Zealand as a head from the hands of a celebrated painter is among us; and a warrior, having killed a chief whom this artist had tattooed, appreciated the work so highly, that he skinned the chieftain's thighs, and covered his cartouch-box with it.

POISONOUS ARTICLES OF FOOD.

III

POISONOUS HONEY.

HONEY would seem to vary much in its nature and the effects it produces on the animal economy, according to the description of flowers whence it is procured. Delicious in its taste, and usually harmless in its effects, it has been found in various parts of the world to possess poisonous qualities. Mr. Abbot, writing to the Zoological Society from Trebizond, says, that he has there seen the identical symptoms produced by eating the honey, procured by the bees from the odorous *Azalea pontica*, which were described by Xenophon and Diodorus Siculus as affecting those of the army of the Ten Thousand, who ate the honey in the fields during the siege of Trebizond. The persons so affected act just like men inebriated by strong drink. Dr. Barton states, that after the removal of several hives from Pennsylvania to the savannahs of New Jersey, where the *kalmia* was the principal flowering shrub, the bees themselves thrived exceedingly well, but that every one who partook of their honey became as if intoxicated, and seized with dim vision, vertigo, and delirium, followed in a few cases by death. Aristotle, Pliny, and Dioscorides, mention that at certain times of the year, the honey in the neighbourhood of the Caucasus becomes poisonous. Tournefort says, that a constant tradition has prevailed along the coasts of the Black Sea, that the honey collected from the azalea is dangerous; and Guldenstaedt, the companion of Pallas, says the honey thence derived is dark and bitterish, and produces insensibility. Roulox Borro, in his voyage to the Brazils, mentions that the Tapuias make an intoxicating beverage, called *grappe*, from wild honey. Seringe relates, that Swiss herds having eaten of honey procured from the wolfsbar, were convulsed and delirious. M. Augustus de St.-Hilaire gives an interesting account of the escape of himself and com-

panions from the effects of the honey of the Lecheguana wasp, of which they had eaten in the Brazils: he says, there are two species of honey produced by it, one white and harmless, another dark and frequently deleterious.

POISONOUS GRAIN.

WHEAT is sometimes rendered black by disease of the ears, when it is said to cause cholera and other diseases, if made into bread; and the same effects are said to result in various parts of France, when unpropitious weather compels the farmer to cut his wheat before it is entirely ripe: the wheat which is cut in this country before ripening, does not however produce similar effects. Corn has more frequently been rendered hurtful by the accidental admixture with it of some of the seeds of the darnel grass (*Lolium tremulentum*), the only poisonous species of the natural order of the grasses. Several years ago, eighty persons were seized with alarming symptoms in the Sheffield work-house, from having breakfasted upon oatmeal porridge, contaminated by this herb. A similar accident took place at the house of correction at Freyburg.

SPURRED RYE.

RYE has produced the most unquestionable and highly poisonous effects. Triflingly as it enters into the articles of consumption of the people of this country, little is known here practically about the diseases it engenders, but the accounts we have of the various severe epidemics which have prevailed in France and Germany from its use, supply us with abundant information. In its natural state rye furnishes an useful article of food, though of a very inferior nourishing power compared to wheat, but it becomes by disease converted into a blackened substance termed ergot, or spur of rye, which, when used in small quantities, forms a valuable medicine, but when entering into the composition of bread proves a dangerous poison. The production of the ergot or spur of rye (*Secale cornutum*), has been referred to various causes: some suppose it to consist in a diseased state of the juices of the plant; De Candolle believes it caused by the growth of a parasitic mushroom of the genus *Sclerotium*, while the majority of observers assert, that it is the production of an insect. This last opinion has been confirmed by the observations of General Field, of Vermont, who has seen small flies puncturing the ear of the rye, while in a milky state: he imitated the process himself in other instances with a needle, and the black spur was gradually formed.

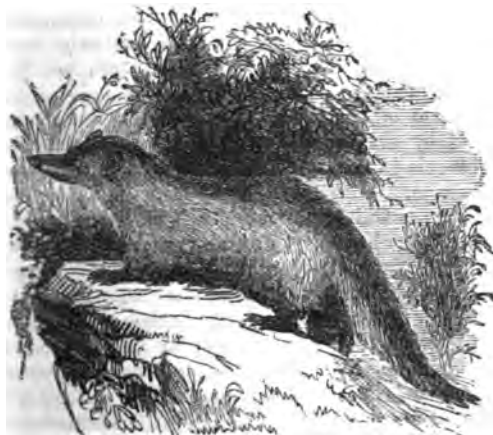
Epidemics arising from the admixture of this spurred with good rye, have occurred at various periods in Europe, and although some of these have been attributed rather to the famines caused by poverty and misery, yet there is ample evidence to show that the rye, on many occasions, has been instrumental in producing them; while direct experiments have at the same time shown its poisonous effects upon the lower animals. From the symptoms which the imperfect records of the time detail, it is very probable that many of the epidemic visitations of the tenth and eleventh centuries, known in France under the names of St. Anthony's Fire, the Sacred Fire, and the "Mal des Ardens," were produced by this grain; but the earliest positive accounts we have, relate to an epidemic which occurred in 1596, in Saxony. There are numerous records of similar occurrences from time to time, during and after the seventeenth century, in France, Siberia, Denmark, Sweden, and Lombardy, and in 1661 the disease appeared in England. Towards the end of last century, in consequence of the investigations which the various states instituted into the subject, and of the improved conditions of the lower orders, the epidemic attacks of Ergotisme (as it is called by the French) became much less frequent and less severe, yet have several visitations occurred even during the present century in France and Germany. The rye chiefly becomes spurred in wet seasons, and in moist clayey soils,

and thus the district of Sologne, situated between the rivers Loire and Cher, is found to be the portion of France by far the most frequently affected. The Abbé Tessier, who in 1777 made a careful investigation of the subject, found that a forty-eighth part of the thrashed corn was ergotized, and that in bad seasons the proportion mounted up to one-third or one-fourth of the whole quantity. Similar observations as to the localities favourable to its production have been made in Germany, and Wildenow says, this diseased state of the rye may at any time be induced by sowing the corn in rich damp soil, and watering the plants profusely in warm weather.

It is not our intention to describe minutely the symptoms which result from the use of spurred rye, but we may notice the curious fact that they vary so much in different epidemics, that the French writers denote them under two distinctive appellations, namely, Convulsive Ergotism, and Gangrenous Ergotism,—in the first, a great disposition to convulsive and spasmodic diseases manifests itself; in the latter, various parts of the bodies of those who eat the bread containing the damaged rye, are destroyed by gangrene or mortification, from which cause these unhappy victims frequently lose a hand, a foot, or the nose. In Germany, the disease is popularly termed “the creeping sickness.”

Maize or Indian corn is said to be liable to a similar disease in Columbia, and while in that state, produces a loss of hair and teeth of those who partake of it.—J. C.

THE ICHNEUMON.



THE little animal we are about to describe was well known to the ancients, and much celebrated in their fables. It was held in such high estimation by the Egyptians that funds were set apart for its support; it was tended with great solicitude, and fish, bread, and milk were supplied to it as food. It was also a forbidden thing to kill it; and, on its death, honours were paid to it, as to an object of worship. Elian, and other ancient writers, celebrate the combats of the ichneumon and the aspis: Pliny describes its stratagems against the crocodile, and it is on account of the reputation it has for diminishing the numbers of these formidable creatures, that the ichneumon has gained so much celebrity. According to the statements of the above writers, the ichneumon had the sagacity to arm itself, previous to the battle, with a coating of mud. If mud were not at hand, it bathed itself in water, and then rolled itself in the sand, and as the nostrils were the most vulnerable part, it took care to cover them by the sinuosities of its tail. Aristotle still further vaunts the wisdom of the ichneumon by stating that it never goes to battle without first summoning its friends and allies. Pliny relates the stratagem it employs against the aspis as we give it from *Holland*:—

Now when he is lulled as it were fast asleep with this pleasure and contentment of his, the rat of India, or ichneumon,

epieth his advantage, and seeing him lie thus broad gaping, whippeth into his mouth, and shooteth himself downe his throat as quicke as an arrow, and then gnaweth his bowels, eateth a hole through his body and so killeth him.

It is difficult to account for the above extravagant notions of this animal, for there is nothing in its character or habits, as at present described by naturalists, that can warrant them. The ichneumon is diminutive in size, timid in disposition, and has neither the courage nor the power to attack serpents or crocodiles, whether they be asleep or awake. It is fond of mice, rats, small birds, &c., and is particularly destructive to eggs. In this way it is of great service; for by feeding on the eggs of crocodiles, serpents, and the larger kind of lizards, it reduces the numbers of these formidable creatures. At the close of day, it glides through the ridges and inequalities of the soil, and shows much prudence in searching after its prey, and in endeavouring at the same time to evade danger. It possesses great perseverance, and will remain for hours in the same place, attentively watching for the animal it has marked out as its prey. When it has made its way into some unknown spot it immediately explores every hole and corner, and its chief power of research seems to lie in its sense of smell, which is uncommonly powerful and acute; the other senses appear comparatively feeble. Cuvier thus notices the animal, which he places with the civets, and the genets, intermediate between foxes and hyenas in the system.

The *mangouste* of Egypt, so celebrated under the name ichneumon, (*Viverra ichneumon*, Linn.)

Grey, with a long tail terminated by a black tuft, larger than our cats, as slender as our martens. It searches peculiarly for the eggs of crocodiles, but also subsists on all kinds of small animals. Domesticated in houses, it hunts mice, reptiles, &c. The Europeans at Cairo call it *Pharoah's rat*; the people of the country, *Nems*. What the ancients related of its jumping down the throat of the crocodile to put it to death is fabulous.

Hasselquist, speaking of the ichneumon of the Nile, says that it is met with in Upper and Lower Egypt living during the inundations of the Nile in gardens and near the villages, but in the dry season dwelling in the fields and near the banks of the river. It creeps slowly along, as if ready to seize its prey, and feeds on plants, eggs, and fowls, killing the latter in the night, when it frequents the villages. He mentions likewise its services in Upper Egypt in searching out the crocodiles' eggs that lie hid in the sand, and devouring them.

The execution committed by the ichneumon among young animals may be judged of by the fact, that when a dozen full-grown rats were turned into a room in the Tower of London, sixteen feet square, with one of these animals, the ichneumon killed them all in less than a minute and a half.

The haunts and habits of the members of this subgenus are nearly all alike. Wherever they abound, the country is subject to periodical overflowings of water, and a consequent abundance of aquatic animals; so that the office of the ichneumon in the economy of nature seems to be the keeping of such animals within due bounds by preying on their eggs. From M. F. Cuvier we have a description of an ichneumon, brought from the peninsula of Malacca, and from Dr. Horsfield an account of the ichneumon of Java. Of these two species, therefore, we proceed to give a brief notice.

The mangouste, or ichneumon of Malacca, is rather more than a foot in length, the tail about a foot, and the height at the most elevated point of the back five inches and a half. Owing to a peculiar faculty which it possesses of elongating or shortening the body by some inches, it is a difficult matter to measure it correctly. The colour of this animal is a dirty grey, resulting from a succession of black and whitish yellow rings which cover the hairs; the circumference of the eye, the ear

and the extremity of the muzzle are naked, and of a violet colour; the tail is the same colour as the body, very thick at the root, and terminating in a point with yellowish hairs. This ichneumon, though extremely tame, permitting itself to be handled, and taking pleasure in caresses, grew extremely ferocious at sight of those little animals which constitute its prey. It was particularly fond of birds, and when they were put into a large cage, it would spring forward with a rapidity that the eye could not follow, seize them, break their heads, and then devour them with the utmost voracity; as soon as its appetite was satisfied, it would lie down in the most obscure corner of its retreat. When irritated the hairs of its tail would bristle up. Its cleanliness was remarkable.

These little animals are said to inhabit holes in the walls, or burrows in the vicinity of habitations, and to perform much the same part in India that weasels and polecats do among ourselves, destroying great numbers of young animals and committing much devastation.

The mangouste, or ichneumon of Java, differs but slightly from that of Malacca. It is somewhat larger, and its fur is a mixture of black and brown instead of black and white. It is known in Java by the name of garangan, and is found there most abundantly in the large teak forests; its agility is greatly admired by the natives; it is reported among them that it will attack and kill serpents, and that when the snake involves it in its folds the ichneumon inflates its body to a considerable degree, and when the reptile is about to bite, again contracts, slips from between the folds, and seizes the snake by the neck.

It is very expert in burrowing in the ground, which process it employs ingeniously in the pursuit of rats: it possesses great natural sagacity, and from the peculiarities of its character willingly seeks the protection of man: it is easily tamed, and in a domestic state is docile, becomes attached to its master, and follows him like a dog; it frequently places itself erect on its hind legs, regarding every thing which passes with the greatest attention; it is of a very restless disposition, and always carries its food to a very retired place in order to consume it, and if it is disturbed there, it exhibits great anger. One of the principal articles of food among the Java-nese is the common fowl; and as the ichneumon is very artful in surprising and catching young chickens, it is not to the interest of the people to keep it in the domestic state. They are likewise very fond of cats, and are unwilling in most cases to be deprived of their society for the sake of introducing the ichneumon

A MOTHER'S LOVE.

The bird may leave its nestled young,
The sun may cease to shine above,
Man may forget his native tongue,
But who can change a mother's love!
The flowerets may withhold their bloom,
And gentleness forsake the dove;
Man may forget the blighting tomb,
But changeless is a mother's love.

EVERY one admits that the mind, and moral faculties, are to be developed and strengthened, and made to do the best, by exercise. This is equally true of physical power. Every action which it can be proper to do at all, ought to be done in the best way; otherwise the end of being is not answered. In the vegetable and animal departments, all proper care and cultivation tend to use and beauty. Is there any reason why the physical powers of man should not have care and cultivation to the same ends? Those who prefer a stooping, louncing, awkward, graceless, figure and motion, may be on one side of the question; those who think that it was intended that man should be an upright, easy, frank, comely, and convenient being to himself, and pleasant to all within whose observation he may come, will be on the other.—S.

USE OF TEA IN VARIOUS COUNTRIES.

THE plants employed as tea in different countries do not resemble each other so much as their general denomination might lead the reader to imagine. Their external varieties are, however, exceeded by the modes of making beverage from them: for, it is curious to observe, that in scarcely any two countries where tea is drunk, is it prepared precisely in the same manner. That of China approaches nearest to the fashion of our own country.

The Emperor Kien-long, the royal poet of China, composed an ode eulogising tea. He first describes the mode of drawing tea, which, when divested of his peculiar and methodical phraseology, is nearly the same as our own. "On a slow fire," he says, "set a tripod, whose colour and texture show its long use. Fill it with clear snow water. Boil it as long as would be sufficient to turn fish white and crayfish red. Throw it upon the delicate leaves of choice tea. Let it remain as long as the vapour rises in a cloud, and leaves only a thin mist floating on the surface. At your ease drink this precious liquor, which will chase away the five causes of sorrow. We can taste and feel, but not describe the state of repose produced by a liquor thus prepared." The Chinese, however, drink their tea simply, without the addition of sugar or milk. The common people, who have a coarser tea, boil it for some time in water, and make use of the liquor for usual drink. Early in the morning the kettle, filled with water, is regularly hung over the fire for this purpose, and the tea is either put into the kettle, inclosed in a bag, or by means of a basket pressed to the bottom of the vessel, that there may not be any hindrance in drawing off the water. The Bantsjaa tea only is used in this manner; its virtues, being more fixed, would not be so fully extracted by infusion.

One mode of using tea, among the higher ranks in China, is by grating into the cup, balls made of the most valuable leaves, cemented together by some kind of tasteless gum.

Neither the Chinese, nor natives of Japan, ever use tea before it has been kept at least a year; because, when fresh, it is said to prove narcotic, and to disorder the senses. The Japanese reduce the tea into a fine powder, by grinding the leaves in a handmill; they then mix them with hot water into a thin pulp, in which form it is sipped, especially by the nobility and wealthy persons. It is made and served up to company in the following manner:—the tea-table furniture, with the powdered tea inclosed in a box, are set before the company; the cups are then filled with hot water, and a small quantity of the powder is taken out of the box, put into each cup, and then stirred together with a curious notched instrument till the liquor foams, in which state it is handed to the company, and sipped while warm. Du Halde states this method to be used in some provinces of China, as well as in Japan. To make tea, and to serve it in a genteel and graceful manner, is an accomplishment, in which persons of both sexes in Japan are instructed by masters, in the same manner as Europeans are in dancing, and other branches of polite education.

Tea is also the common beverage of all the labouring people in China, one scarcely ever sees them represented at work of any kind, but the tea-pot and tea-cup appear as their accompaniments. Reapers, threshers, and all who work out of, as well as within, doors, have their attendants. In public roads, and in all places of much resort in Japan, and even in the midst of fields and frequented woods, tea-booths are erected; as most travellers drink scarcely any other beverage on the road.

The tea drunk by the working people in China, however, must not only be of an inferior class, but very weak; as the native attendants on Lord Macartney's embassy were continually begging the refuse leaves, which had been already used by the English, so that they might pour fresh water over them, and thus obtain

a better beverage than they usually enjoyed. On the other hand, some tea presented by the Emperor Kien Long to Lord Macartney, was found to want somewhat of the astringency which the British tea-drinker values in the infusion.

Thrice at least in the day, every Chinese drinks tea, but all who possess the means enjoy the refreshing beverage oftener: it is a constant offering to a guest, and forms a portion of every sacrifice to their idols.

Mr. Ellis, in an account of one of Lord Amherst's visits of ceremony to Kwang, a mandarin of high rank, says, "The tea served round was that only used on occasions of ceremony, called Yu-tien: it was a small leaved highly-flavoured green tea. In Lord Amherst's and Kwang's cups there was a thin perforated silver plate, to keep the leaves down, and let the infusion pass through. The cups used by the mandarins of rank, in form, resemble coffee cups, and are placed in a wooden or metal saucer, shaped like the Chinese boats."

Tea has long been common in SOUTH AMERICA, and is grown in large quantities in Paraguay, the tree called Yerva Mate, being nearly peculiar to that district. We find, in the beginning of the seventeenth century, that this plant was in general use; and there can be no doubt but the Indians taught it to the Paraguayans. The quantity used by a person who is fond of this tea is an ounce. In Paraguay, La Plata, Peru, and Quito, it is made at all hours of the day, by putting a handful into a tea-pot, from the spout of which, the hot liquid is drunk; some mix sugar with it, and others add a few drops of lemon-juice. Five millions of pounds are annually obtained from Paraguay, half of which is sent to Chili, whence Lima and Quito are supplied: the rest is consumed in the viceroyalty of Buenos Ayres. The people of South America attribute innumerable virtues to this plant: it is certainly aperient and diuretic; but the other qualities ascribed to it are doubtful. Like opium, it produces some singular and opposite effects; it gives sleep to the restless, and spirit to the torpid. Those who have once contracted the habit of drinking it, do not find it easy to discontinue its use, or even to drink it in moderation; though when taken to excess, it brings on similar disorders to those which are produced by the immoderate use of strong liquor.

Dr. Walsh, in his *Notices of Brazil*, describes what is by some considered another plant, named the conhonga, which is used universally as tea. It grows in marshy places, and resembles an orange tree: the leaves are dried, or rather, roasted on twigs before the fire, where they crackle like cannel, and are then reduced nearly to powder, and kept in pots. Dr. Walsh drank this tea prepared in three different ways: either an infusion of fresh leaves, or made with the dried leaves like China tea, or boiled with sugar, and then drained off. The clear infusion resembles that of common green-tea, but has neither its flavour, odour, nor refreshing qualities.

Brick tea is much used by the Mongols, and most of the people of Middle Asia: it serves them both for food and drink. The Chinese carry on a great trade in this kind of tea, but never drink it themselves. It consists of the dry, dirty, and rejected leaves and stalks of the tea, which are mixed with a glutinous substance, pressed into moulds, and dried in ovens: these blocks being called, on account of their shape, brick tea. The mode of using it is, to pound a piece in a mortar made for the purpose, and throw the powder into a cast-iron vessel full of boiling water, which is suffered to stand a long time over the fire, during which salt and milk, and sometimes flour fried in oil, are added. This tea, or broth, is called Satouran, and is believed to be very nourishing.

Throughout the continent of Europe, tea is comparatively but little used, coffee being the almost universal beverage as a luxury, or necessary of life. In Germany, tea is so seldom drank, that it acts like a medicine when

taken by a native; and, in that country, persons have been known to decline a cup of good bohea, with the excuse, "No, I thank you; I am quite well at present." In Bavaria, it is the practice to flavour the tea with a few slices of lemon, so that it resembles bad lemonade. Even in France, the making of tea is but ill understood or managed; and in Great Britain only, in Europe, can this beverage be drunk in perfection. Nevertheless the tea purchased on the Continent is, generally speaking, both good and cheap. The Russians are fastidious in tea-making and tea-drinking, and understand both arts fully as well as, if not better than, the English. Their tea-urn is quite a piece of machinery. The perfume and stimulant qualities of their best sort of tea is said to have a distressing effect upon the nerves. The teas used in St. Petersburg, reach that market direct from China overland; and it is presumed that from the circumstance of its not travelling by sea, the Russian tea retains all its bloom and strength, which the English tea loses during a long sea-voyage; but this does not appear probable.

The mode of making tea in England is too well known to need description; but a few notices of its introduction may be more acceptable. From a single sheet found in Sir Hans Sloane's Library, in the British Museum, it appears that tea was known in England, in the year 1657, though not then in general use. The writer of this paper says, "that the virtues and excellencies of this leaf and drink are many and great, is evident and manifest by the high esteem and use of it, (especially of late years,) among the physicians and knowing men in France, Italy, Holland, and other parts of Christendom; and, in England, it hath been sold in the leaf for six pounds, and sometimes for ten pounds the pound weight; and in respect of its former scarceness and dearth, it hath been only used as a regalia in high treatments and entertainments, and presents made thereof to princes and grandees, till the year 1657."

Mr Samuel Pepys, Secretary to the Admiralty, in his *Diary*, makes the following entry: "Sept. 25, 1660. I did send for a cup of tea (a China drink,) of which I never had drunk before, and went away;" but the writer does not say where he had his drink. In 1662, tea appears in an advertisement of a coffee house, in Exchange Alley; which refutes the commonly received statement that it was first brought into this country from Holland, by Lord Arlington, in the year 1666. In a letter from Mr. Henry Savill, from Paris, dated August 12, 1678, the writer refers to "friends who call for tea, instead of pipes and bottles after dinner; a base unworthy Indian practice, (adds he,) the truth is, all nations have grown so wicked as to have some of their filthy customs."

In 1678, the year in which the above letter is dated, the East India Company began the importation of tea as a branch of trade, the quantity received at that time amounting to 4713 pounds. The trade did not, however, considerably increase during the early part of the eighteenth century, for the importation between the years 1700 and 1710, amounted to less than 800,000 pounds. It was still a scarce luxury, confined to the wealthy: it was made in small pots of the most costly China, holding not more than half a pint, and drunk out of cups, which held little more than a table-spoon. In the century between 1710 and 1810, the teas imported into this country, amounted to upwards of 750,000,000 pounds; between 1810 and 1828, the total importation exceeded 427,000,000 pounds, averaging 23,000,000 and 24,000,000 a year; and, in 1831, the quantity imported was 26,043,223 pounds.

The uses of tea, as a beverage, were at first so little understood in England, that instances are related of the herb having been served at table as a vegetable, with a sauce of melted butter, the water in which it was boiled being thrown away as useless.

The beneficial results of the introduction of tea and coffee, have been strangely overlooked or underrated. It has been, however, well described as leading "to the most wonderful change that ever took place in the diet of modern civilized nations,—a change highly important both in a moral and physical point of view. These beverages have the admirable advantage of affording stimulus without producing intoxication, or any of its evil consequences. Lovers of tea and coffee are, in fact, rarely drinkers; and hence the use of these beverages has benefited both manners and morals*."

* MACCULLOCH, in *Dict. Commerce*.

CHINESE FUNERALS.

THE funeral ceremonies of the Chinese have many interesting peculiarities, which are highly descriptive of the manners and customs of this extraordinary people. They keep dead bodies above ground for a very long time: the rich delay the funeral even for a year, or longer, the time denoting their degree of respect and reverence for the deceased. When the body lies in state, it is placed in the largest room of the house, entirely hung round with white, which is the Chinese colour for mourning. The coffin is ornamented with painting and gilding, and is made during the life-time of the deceased: indeed it is the practice of the poorest Chinese to reserve a sufficient sum to secure a reputable shelter for their lifeless bodies.

On the day of the funeral the relations walk in procession to the grave. The corpse is preceded by musicians, playing melancholy airs upon various instruments, and by persons bearing painted scrolls and silken banners, on which are inscriptions indicative of the rank and character of the deceased. Incense-bearers follow these; and then, under a white canopy, the coffin, covered with a white pall, is borne by men. Upon each side of it are persons employed in burning pieces of paper and pasteboard, with inscriptions upon them: some are circular, and some are cut into fantastic figures, all which, it is believed, are wafted upwards with the soul, and accompany it in its next state of existence, either as coin, bread, or whatever else the inscription denotes. After the corpse come the relatives of the deceased, in white clothes, which are soiled, dirty, and unornamented; or, the eldest son, wearing a canvass frock, having his body bent, and leaning on a staff, follows near the coffin; behind him are his brothers, in couples, leaning on crutches, as if unable to support themselves. In some funerals, every mourner has a friend, or supporter, on each side, and a servant bearing over him a huge umbrella with a deep white fringe, which nearly screens the mourner from the public gaze. If women follow, they are borne in small coaches similar to our sedans. The procession is closed by the friends of the deceased. The mourners often howl and shriek most vehemently, and fill the air with their loud lamentations.

The burial-places are erected in the usual shape of grottoes, without the towns. They are divided into small cells, in each of which a coffin is laid, and as soon as the cells are filled, the sepulchre is closed. No religious service takes place; the coffin is deposited in its receptacle with great solemnity, and the procession returns. At a short distance from the tomb are halls, where tables are spread with provisions for the mourners and attendants. If the deceased were a grandee of the empire, his relations do not leave the tomb for a month or two, but reside in apartments prepared for them, and renew their respects to the dead daily. The magnificence of these funerals, of course, varies with the rank of the deceased. That of one of the emperor's brothers was attended by upwards of sixteen thousand persons.

Distinguished persons are generally buried in mountains and solitary places; and if the tomb be erected in a valley or plain, a large heap of earth is raised over it and covered with white plaister. In the vault, an altar is built, whereon are placed meats, incense, lighted tapers, and figures of slaves and animals, which are believed to be of service to the dead in another world.

If the deceased held any important office, his most virtuous actions are sculptured on marble and fixed up in front of the tomb, about which also are ranged figures of officers, eunuchs, horses, stags, camels, lions, and elephants. About the tomb are planted cypress-trees, which add to the solemnity and gloom of the scene.

Other means, beside the erection of tombs, are taken to

perpetuate the virtues of the great. Each family of respectability has erected on its estate a large building called the *Hall of Ancestors*, against the wall of which is placed a table which bears the figures of the most distinguished ancestors; or the names of the family, with their ages and dignities, are merely inscribed on tablets.

The Chinese have likewise periodical ceremonies to cherish the memory of the dead. In spring, the relations assemble at the family hall, where the wealthiest of them prepare a banquet; but none of the viands are touched till an offering has been made with due solemnity. The poorer classes, who have no hall wherein to honour their ancestors, place the names of the deceased in the most frequented part of their houses.

The Chinese likewise consider it an imperious duty to visit the tombs of their ancestors once or twice a-year, when they pluck away the weeds from about the grave, and place wine and provisions upon the tomb, whilst others freshen, with paints of different colours, the characters of the epitaphs.

No corpse is allowed to enter the gates of Pekin without an imperial order, because it is said a rebel entered in a coffin in the reign of Kienlung. However, even at Canton, and in all other cities of the empire, no corpse is permitted to enter the southern gate, because the emperor of China ascends his throne with his face towards the south.

THE SMOKE-JACK AND THE SMOKE, A FABLE.

THERE was a nobleman who had much money and built a fine house, and, being fond of company, he made a large kitchen, which was fitted up with a spacious fire-place, an excellent smoke-jack, and every thing else that could tend to make the department perfect. Dinner parties followed in quick succession, and the feasting gave universal satisfaction. Each day as the spits were taken from the fire, the praises and mutual congratulations of the cooks, at the admirable roasting of the joints, ascended in grateful accents to the ears of the smoke-jack; and as it so happened that the kitchen chimney passed up the wall of the dining-room, the pleasing strain was continued by the approbation overheard from the guests as each haunch of venison, or sirloin of beef, or Norfolk turkey, graced the table. Praises often repeated will make the best of us giddy, and the heads of smoke-jacks have proverbially a tendency to turn round! so was the result with the jack, the hero of this fable. Elated by the applauses which greeted him, he exclaimed with impassioned energy, "How great is my influence and how extensive my powers of pleasing! not only do I excite the admiration of the menials below, but I enable my noble master to exercise his hospitality and call forth the lavish commendations of the illustrious friends who throng his table! mine would be a great and enviable position were it not for this filthy smoke, which is constantly puffing in my face and covering me with blacks and soot! I will allow it no longer; therefore, smoke! I warn you off my premises immediately."

The poor smoke, checked by this repulse, meekly changed his current and curling up the opposite side of the chimney was soon lost among the clouds and vapours of the sky. For the next day a large dinner party was invited, but who can describe the consternation of the poor cooks when preparing for the feast, they found the smoke-jack immovable! jerking, poking, shaking, oiling, proved alike in vain. My lord was complained to, a smith was summoned, and the jack, being pronounced useless, was quickly taken down and sold for old iron.

But even iron, old and rusty though it be, may yield a moral for our use; it may teach the rich and great, that their power, however vast, is not independent of the humbler beings by whom they are surrounded. They may dread contamination and renounce their fellowship, but if the working current of the poor be withdrawn, the power of the rich, must, like the smoke-jack, stop, and lacking means to call it into action, its influence must cease. This reflection may excite a sense of pride in the poor man's mind, but let him not forget, that when the smoke had quitted the alliance and the guidance of the jack, he was left to follow a course through which impurity marked his progress to an unprofitable end.

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THE CHINESE INVENTORS OF BANK-NOTES.

It is well understood, that the Chinese discovered the properties of the magnet; that they not only invented writing materials, but the art of printing; and were the first to manufacture silk, porcelain, and gunpowder. But it is not so well known that they were the original contrivers of a paper currency.

The most striking trait in the general character of the Chinese is their aversion to every sort of improvement or *progress*. They believe that their social, moral, and political institutions, are perfect; and their laws absolutely forbid the least alteration. Thus it is that, though the Chinese were the first to use a mariner's compass, they are ignorant of navigation: though they invented gunpowder, they prefer bows and arrows to guns; and lastly, although the invention of paper-money has been traced to them, their commercial dealings possess none of those facilities which a paper currency affords.

Most authorities, when consulted as to who were the inventors of paper-money? answer the Mongols. This is a mistake, arising from a passage of the celebrated Venetian traveller, Marco Polo, who first made known to Europe the existence of credit-papers, which were used in his time by the Mongols, the then masters of China. These people afterwards introduced a representative currency into Persia, where it was extensively employed in the thirteenth and fourteenth centuries.

The error of attributing to the Mongols what really belongs to the Chinese is one of those misapprehensions which an advanced knowledge of the Chinese language, and the industry of M. Klapproth, have effectually removed. That learned orientalist, in a paper addressed to the Asiatic Society of Paris*, has furnished—from several of the elaborate native historical works with which China abounds—some very interesting particulars concerning the origin of paper-money, which fixes the invention of it upon the Chinese.

It appears that for *four centuries and a half* before the time at which modern historians usually date the invention of paper-money, a species of nominal currency was in use among the Chinese, namely, in the year 119 B.C. The native annals of that date contain the most ancient record of a financial speculation ever yet discovered. During the reign of *Ou-ti*, an emperor of the Han dynasty, the expenses of the state outran the imperial revenues; to make up this deficiency, the minister of *Ou-ti* caused the skins of certain white stags that were fed in the imperial park to be cut up into pieces a foot square, ornamented with paintings and inscriptions, and issued as a currency: each skin passing for 40,000 deniers, or about 12*l.* 10*s.* They were called *phi-pi*, or "value in skins," but only circulated among the courtiers and grandees of the empire. Whoever was invited to the repasts and ceremonies at the palace was obliged to cover the tablet they held before the face, in presence of the emperor, with one of these *phi-pi*.

But the first instance of a regular paper-currency occurs in the history of the reign of Hian-tsoung, of the *Thang* dynasty of Chinese monarchs, towards A.D. 807. The preceding reigns had been marked by the utmost anarchy and confusion, so that the regular currency was so much neglected that all sorts of things were used for money; such as small round pieces of iron, clothes cut up, and even pasteboard. Copper coins having become exceedingly scarce, Hian-tsoung forbade any kind of utensil to be made of that metal, and obliged all merchants visiting the capital, and certain rich native families, to contribute to the public coffers. For these contributions, bills were exchanged called *-hsian*, or "voluntary money." In the year 960 A.D.,

* To be found in the *Journal Asiatique*, and also in KLAPROTH'S *Mémoires Relatifs à l'Asie*.

a new kind of note was issued, derived from the privilege granted to merchants to deposit their goods in the various public treasuries; precisely, it would appear, upon the principle of pawnbroking as at present practised. In acknowledgment of the deposit of their wares, the merchants received a paper answering to the "duplicate," which was called *pian-hsian*, or "accommodation money," and negotiable; being received everywhere with eagerness.

The two last-mentioned notes were manufactured of such paper as was in general use among the Chinese at the period; namely, that derived from the bark of a species of mulberry-tree, known to the natives as the *tchu*, and to naturalists as the *Morus papyrifera*. The notes were of a large size, being, like the *phi-pi*, a foot square; their current value was legibly printed on them, and an official seal was also attached.

These securities can hardly be called a nominal currency, because an intrinsic value equal to the sum they represented was deposited in the public treasuries; and it was not till between the years 997 and 1022 that a true system of artificially representing wealth was introduced. At that time, China proper was divided into several separate states: the large province now known as *Szu-tchuen* was one of these, and called the Kingdom of Chon. Here a certain *Tchang-young* introduced a credit-paper called *tchi-tsi*, or "cheques," to replace the iron-money then in use, which was heavy and inconvenient. Out of these a new system of credit-currency arose, and to which may be traced the origin of bills of exchange; for the "cheques" were succeeded by *kiao-tsu* or "changes," which bore a date and were payable every three years: thus in sixty-five years there necessarily occurred twenty-two "changes" or terms of payment. A regular banking system may now be said to have commenced. The monarch deputed sixteen of the most opulent merchants to superintend the new currency, and these actually became bankers. This company failed, and the sovereign, *Tchang-yang*, was obliged to take the whole affair into his own hands, which he did by establishing a bank of issue at Y-tchéon. The *kiao-tsu* was equivalent in value to 1000 deniers, or an ounce of pure silver. We subjoin a drawing of a Chinese "cash," the modern denier. The *kiao-tsu* were of the same manufacture and appearance as the former notes; only their dates of issue and expiration were in all probability printed in addition to the amount they represented.



Forgeries first make their appearance in Chinese history in 1068, for spurious *kiao-tsu* were then found to be in circulation. Though this was a new offence not contemplated by the unalterable Chinese statutes, the innovation of a *new* law was not attempted to provide against it; but the punishment denounced against those who counterfeited the imperial seal was also made the reward of forging bank-notes. By the commencement of the twelfth century, a banking system had spread itself all over China, and there was scarcely a province without its bank and its paper "changes;" but the notes of one district were not current in another. The terms of payment and modes of circulation were frequently changed.

Under the Emperor *Kao-tsoung*, (of the *Soung* dynasty,) the Hon-pon, or minister of the treasury, hit upon the expedient of paying some of the public creditors in a new security; but this not succeeding, another was tried in 1160, called *hoai-tsu* or "contracts," of 1000 deniers value; and, in 1163, under *Hiao-tsoung*, others were issued for the several sums of 500, 300, and 200 deniers; so that in 1166 the existing issue amounted to 28,000,000 ounces of silver! Besides these, particular provinces had their particular issues, and the country was

inundated with paper-money. The value of each note deteriorated from day to day; and, despite a new security was made, called *yu-kouan* or "money-bonds," and many expedients to lessen the national embarrassments occasioned by the glut of paper-money, the Mongols, who put an end to the Soung native dynasty in the latter half of the thirteenth century, found the monetary affairs of their new subjects in the utmost confusion.

By these statements, the Chinese historians prove that the Mongols were *not* the inventors of paper-money. On the contrary they found in the country innumerable bank-notes and banks: the Chinese had had their monetary crises, and their bankrupts, and their forgers: in short, every good and evil attendant upon paper-issues. The conquerors increased rather than rectified the embarrassments of the Chinese.

In 1284, *Koublai-khan*, the first of the new dynasty, ordered the mandarin *Lou-chi-joung* to prepare a plan for the establishment of a new paper-circulation. This appeared in (and indeed was confined to) the year 1287; for the new plan was a failure, and the emperor was simply obliged to increase the quantity of those bills called *pao-tchhao**, or "precious paper-money," calling in as many as possible of the old notes of the Soung dynasty. These notes, though similar to former ones, were most elaborately ornamented. In 1351 the entire system had become so rotten that fresh changes were made, but without raising the funds; and when the Mongols were driven from China, they had entirely ruined it by their paper-money.

The Ming (native dynasty), which succeeded that of the Youan or Mongols, caused a total revision of the *tchhao*, and issued six different sorts of notes, respectively for "strings" of 1000, 500, 400, 300, 200, and 100 deniers. But though every expedient was tried to keep up their value, such as forbidding the people to traffic in gold, silver, and precious articles, the value of seventeen "strings" in paper was soon only equal to thirteen in copper. At length, in 1448, only *three* deniers could be obtained for a note for *one thousand*! This seems to have brought about the final crisis. But the government was unwilling to give up the point without the most strenuous efforts; metal coin was forbidden to be passed, and, in 1455, the public taxes were decreed to be paid in *tchhao*, which had now become a "substitute for metal-money." All was, however, of no avail; paper gradually disappeared from the circulation, and nothing more is mentioned about it in the minute Chinese histories after the last-named year.

We prefix to this article an engraving of a bank-note, or *tchhao*, issued by the *Mings*.

The upper division may be called the obverse, and the lower one the reverse, of the note; for, like the leaves which form Chinese books, it is doubled back and pasted together, so as to have the appearance of having been printed on both sides. The writing at the top signifies that it is a (*Pao-tchhao*) note of the Emperor Zong-King, of the Ming dynasty; that within the border states the amount for which it is to pass, namely, a string of 1000 deniers. The following is a translation of the writing in the lower half or reverse of the note: *At the petition of the treasury board, it is ordained that the paper-money thus marked with the seal of the imperial dynasty of the Mings, shall have currency, and be used in all respects as if it were copper-money. Whoever disobey will have their heads cut off!* It is not recorded whether this terrible penalty was ever enforced; but in spite of it, as we have already seen, these notes became as waste-paper.

At the present time, it would appear that a system of paper-currency, upon a better foundation than any hitherto tried, is slowly gaining ground. This system

* The word *tchhao* signifies "substitute for metal" or money, and is the general name for any sort of paper-money in the Chinese language.

is still in its infancy, and the bad state of public and private credit in China interposes many obstacles to its ever coming to maturity. In large trading cities there are numerous banks both of deposit and issue. They are not controlled by government, but conducted by private individuals, who issue notes in the nature of checks or *coupons*, like the *pian-tchian* before-mentioned; for the document is cut in half, one portion being presented to the depositor for circulation, and the other retained as a check by the bankers. Bills of exchange have been, in few instances, found convenient by the Chinese; but bad faith has hitherto hindered their extensive employment†.

† *China Opened*, by the REV. CHARLES GUTELAFF, vol. II., p. 21.

If ever household affections and loves are graceful things, they are graceful in the poor. The ties that bind the wealthy and the proud to home may be forged on earth, but those which link the poor man to his humble hearth are of the true metal and bear the stamp of heaven. The man of high descent may love the halls and lands of his inheritance as a part of himself, as trophies of his birth and power; the poor man's attachment to the tenement he holds, which strangers have held before, and may to-morrow occupy again, has a worthier root, struck deep into a purer soil. His household gods are of flesh and blood, with no alloy of silver, gold, or precious stones; he has no property but in the affections of his own heart; and when they endear bare floors and walls, despite of rags, and toil, and scanty meals, that man has his love of home from God, and his rude hut becomes a solemn place.—DICKENS.

THERE is one in the world who feels for him who is sad, a keener pang than he feels for himself; there is one to whom reflected joy is better than that which comes direct; there is one who rejoices in another's honour, more than in any which is one's own; there is one on whom another's transcendent excellence sheds no beam but that of delight; there is one who hides another's infirmities, more faithfully than one's own; there is one who loses all sense of *self* in the sentiment of kindness, tenderness, and devotion to another. That one is Woman.—S.

IN reference to the periods which mark the various stages of the progress of the cuckoo through the season, I have somewhere met with the following couplets—

In April,
Come he will.
In May,
He sings all day.
In June,
He alters his tune.
In July,
He prepares to fly.
Come August,
Go he must.—YAKUBEL.

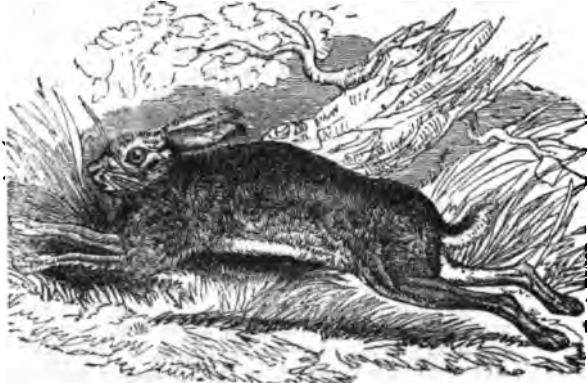
THE RAINBOW.

Soft glowing in uncertain birth,
'Tis Nature's smiles and tears,
The bow, O Lord! which thou hast bent,
Bright in the cloud appears.
The portal of thy dwelling-place,
That pure arch seems to be,
And, as I bless its mystic light,
My spirit turns to Thee.
Thus gleaming o'er a guilty world,
We hail the ray of love;—
Thus dawns upon the contrite soul
Thy mercy from above;
And as thy faithful promise speaks,
Repentant sin forgiven,
In humble hope we bless the beams
That point the way to heaven.

LADY FLORA HASTINGS.

RURAL SPORTS FOR THE MONTHS.
MARCH.

Like some poor exiled wretch
The frightened hare leaves her late dear abodes,
O'er plains remote she stretches far away,
Ah never to return! for greedy Death
Hovering exults, secure to seize his prey.—SOMERVILLE.



THAT branch of hunting in which the dogs employed pursue their game by sight, and not by scent, is denominated "coursing," and is a practice of high antiquity and considerable celebrity. There is reason to believe that a dog, quick of sight, and somewhat swift of foot, was known to the ancients nearly 4000 years ago; and in the time of Arrian, who flourished A.D. 150, the practice of coursing had been reduced to a systematic form. Yet the early representations of dogs employed in coursing the hare, present little conformity with the elegant make, and limbs so especially adapted for fleetness, which distinguish our modern greyhound.

Of the latter animal, however, it has been truly said that, "Admire him as much as we will, when we examine him on anatomical, physiological, and true philosophical principles, we must be constrained to consider him as wholly an artificial animal." The coursing of the ancients was of a bolder and more masculine character than that of our own times, for the stag, wolf, wild goat, fox, and other swift animals, were thus pursued; and besides the employment of fleet dogs of various kinds, the huntsmen were provided with suitable weapons, such as bows, spears, darts, &c. The modern practice of coursing is confined to the pursuit of the hare only, and is followed either in its simple form, or with the additional stimulus of matching the dogs of different individuals against each other, and adjudging prizes to the victors.

Simple, or unmatched coursing, though originally considered a sufficiently interesting employment, and still possessing many advocates, is too monotonous in its character to please the zealous admirer of more enlivening sports. An old writer calls "hunting of the hare with greyhounds a ryght good solace for men that be studious, or them to whom nature hath not given personage or courage apte for the warres; and also for gentilwomen which feare nether sonne, nor wynde, for appayryng their beautie; and peradventure, (adds he,) they shall be therat lesse idell than they shold be at home in their chambers." Arrian's panegyric of this sport is as follows:—"Concerning coursing with greyhounds—the which is doubtlesse a noble pastime, and as meet for nobility and gentlemen, as any of the others before declared, especially the course of the hare, which is a sport continually in sight, and made without any great travaile; so that recreation is therein to be found without immeasurable toyle and payne: whereas, in hunting with hounds, although the pastime be great, yet many times the toyle and payne is also exceeding great; and then it may well be called eyther a painfull pastime, or a pleasant payne."

The practice of coursing has been decried even more perhaps than that of hunting, on account of its inhumanity; the chances of escape for the hare being fewer, and the speed to which she is pushed far greater. But it is by no means considered in this light by sportsmen themselves. They hold it unfair and unsportsmanlike to pursue their game at a great disadvantage, and therefore make it a rule that a brace of greyhounds only shall be used in the pursuit of a single hare, and that when a hare is found on her form, it is disgraceful to put her up without withdrawing the dogs to a fair distance, so that the pursuers and the pursued may be nearly on a par. Three greyhounds to one hare was even in olden time considered against the laws of coursing, seeing that "a brace of dogges is enow for such a poor beaste."

Match coursing is a much more exciting pursuit than the one we have just alluded to, inasmuch as it includes something of the competition and anxiety which attach in a still greater degree to horse-racing. The chase of the hare is in this case entered on principally as a trial of speed in greyhounds matched against each other; and these animals, by the exertion of that fleetness for which they are so remarkable, earn a sporting celebrity for their respective owners, and gain for them the prizes awarded on the occasion. Clubs are established in various places, for the promotion of this sport.

But we must turn our attention from the pursuers to the pursued, and examine the history of the timid and inoffensive animal, thus made the object of interest and eager contention. The genus *Lepus*, to which the hare belongs, includes many species of animals, having points of great similarity with each other, and is considered as one of the most natural as well as most numerous and remarkable families in the class of rodent, or gnawing mammalia. Hares, properly so called, or animals of the allied sub-genera agreeing well with them in their main characters, are distributed over most countries on the face of the earth; being found alike in warm regions, on the margins of deserts, in wild and hilly countries, in cultivated lands, and on the verge of perpetual snow. All the species are perfectly defenceless, and find their only chance of safety in the fleetness of their movements; they are all alike under the influence of an almost perpetual fear, and their quick perception of sounds, which would be inaudible to many other animals, renders them watchful and alive to danger. This excessive timidity and apprehension cannot be regarded as otherwise than painful to the animal, and it has been remarked by one of our naturalists that "all but sportsmen must pity creatures which exist constantly under the excitement of acute fear."

The common hare is sufficiently known as to its general figure, which is framed for extraordinary powers of locomotion. The fore-legs are much shorter and more slender than the hind-legs, and by this peculiarity greatly assist the saltatory motion of the animal. It is a singularity of this species to have the palms of the feet covered with hair, which protects them from the injury they would be likely to receive from the rough, dry soil they prefer, and in some measure compensates for the want of that elastic padding, which in the dog and other animals affords so good a security to its possessors. The eyes of the hare are admirably adapted to its habits and necessities. They are very prominent, and the pupil is elongated in a horizontal direction. Thus the field of vision is sufficiently large to allow the animal to keep its pursuers in view, without altering the position of the head. As it is impossible, however, that the hare can look in two directions at the same time, it has been known to run into the very danger it was seeking to avoid. The upper lip of the hare is cleft. The nostrils are circular, and almost hidden in a fold, by which means they are capable of being closed. The tongue is thick and soft. The great length of the ears, and their mobility in every

direction, are very favourable to the reception of sound, and the anatomy of these organs shows that they are particularly calculated to receive such sounds as come from behind. Like the nostrils, they are capable of being closed, and thus, in a state of safety and repose, the animal has the power of lessening that acute perception of sounds which would be unnecessary, as well as irksome at such a time.

Besides these characters which are common to all the genus, the hare has certain peculiarities as a species, the most prominent of which is colour. This, in the natural state of the animal, is always grayish-brown, with the exception of some of the Alpine species, whose colours change with the seasons. The tail is invariably white on the under side, and blackish on the upper part. There is a spot over or around the eye, in many cases white, and always lighter coloured than the surrounding fur, and this spot is, in a state of nature, never wanting. The under part of the body is white, and the tips of the ears are black; the body, especially the upper part, is covered with two sorts of hair, the one long and silky, the other short, fine, and woolly:—the latter is extensively used in the manufacture of hats as a substitute for the hair of the beaver, to which, however, it is greatly inferior in durability and in retention of the colour given by dyeing. In those countries of Middle and Southern Europe, which, compared with our own country, are but thinly peopled, and indifferently cultivated, the number of hares taken annually is immense, so that their skins form an important article of commerce, being exported for the use of the hat manufacturer, as well as employed locally as warm articles of clothing. It is understood that the small kingdom of Bohemia alone furnishes nearly half a million skins in the course of the year, Austria Proper nearly double that number, and Russia and Western Siberia a still larger proportion.

Hares multiply rapidly, and if undisturbed, it is supposed their increase would prove greater than that of most other quadrupeds. A tuft of grass, or heather, or a mere hollow formed on the bare ground, is often the birth-place and dwelling of the young leverets, until they are old enough to provide for the supply of their own wants. The young are suckled by the dam for little more than three weeks, and then begin to separate and make their own forms. They arrive at maturity in one year, and the term of their natural lives is supposed to be eight or nine years.

Hares do not burrow like rabbits beneath the earth; they merely look for a convenient hollow place in a furrow, where, by their similarity in colour with the soil around them, they escape the notice of all but experienced eyes. This is called their seat, and here they pass the greater part of the day, till the approach of evening gives them courage to go abroad in search of sustenance. They have been observed by shepherds and those who are in the habit of watching their proceedings, to change their seat, according to the weather, generally seeking the more elevated ground when rain prevails. In severe weather they repair to the woods, where they will prey on the bark of almost every tree, and are often very injurious to young plantations. Their food consists of vegetables, and they show the greatest relish for milky and succulent plants.

The hare is commonly considered to possess no great degree of intelligence, yet the way in which it doubles to avoid its pursuers seems to evince much sagacity. Fearful as these animals are in their natural state, they have yet been soothed by gentle treatment into a degree of confidence and boldness quite unexpected in creatures of such acknowledged timidity. A French naturalist describes one of these animals as having become entirely domesticated in his house, and having lost its natural wildness, with respect to all the inmates; but showing tokens of fear on the approach of strangers. In winter, it sat before the fire between two large Angora cats, and

a sporting dog, with whom it lived on the best of terms; at table it was generally close to its master looking for food, and if thwarted in its expectation would beat with its fore-paws on the hand and arm of the person so treating it.

The age of the hare is, as we have said, reckoned to extend to eight or nine years; but one of Cowper's favourites lived eleven years and eleven months. Of this animal he speaks in the following lines.

..... One sheltered hare
Has never heard the sanguinary yell
Of cruel man exulting in her woes.
Innocent partner of my peaceful home,
Whom ten long years experience of my care
Has made at last familiar; she has lost
Much of her vigilant, instinctive dread,
Nor needful here beneath a roof like mine.
Yes, thou may'st eat thy bread, and lick the hand
That feeds thee; thou may'st frolic on the floor
At evening, and at night retire secure
To thy straw couch, and slumber unalarmed;
For I have gained thy confidence, have pledged
All that is human in me to protect
Thy unsuspecting gratitude and love.
If I survive thee, I will dig thy grave;
And, when I place thee in it, sighing say,
I knew at least one hare that had a friend.



HARE IN HER FORM.

GARDEN HERBS.

RUE.

Here did she drop a tear; here, in this place,
I'll set a bank of rue, sour herb of grace;
Rue even for ruth, here shortly shall be seen,
In the remembrance of a weeping queen.—SHAKESPEARE.

THE name *herb of grace*, given to this plant in the above lines, was in common use in Gerard's time, and is supposed to have arisen from the custom of the Romish clergy of sprinkling holy water from bundles of bitter herbs.

Rue belongs to an extensive natural order of plants called *Rutaceæ*, inhabiting widely different situations from each other, and forming, as they are thus united, an interesting, but somewhat heterogeneous group. This order contains thirty-seven genera, or families, most of which are strong-scented plants. Some of them are shrubby in their habit, some arborescent: many of them possess medicinal qualities, as the *Guaiacum*, (one species of which yields also the *lignum vitæ* of commerce): others are favourite plants in greenhouses, as the *Diosmas*, and are very easy of cultivation. Common garden rue is the type of the order. It is a native of the South of Europe, and is said to have been first cultivated in this country in 1562, but writers of that period, and of a still earlier date, make mention of it as of a common and well-known plant. Thus we find Tusser, who wrote before that time, saying,—

..... What savour is better,
For places infected, than wormwood and rue!

The plant is accurately described in the quaint language of Gerard.

Garden rue, or planted rue, is a shrub full of branches, now and then a yard high, or higher; the stalks whereof

be green: the leaves hereof consist of divers parts, and are covered with a whitish hark, the branches are more divided into wings, about which are certaine little ones, of an odd number, something broad, more long than round, smooth, and somewhat fat, of a gray colour, or greenish blew: the floures in the tops of the branches are of a pale yellow, consisting of four little leaves, something hollow, in the middle of which standeth up a little head or button, four-square, seldom five-square, containing as many coffers as it hath corners, being compassed about with divers little yellow threads, out of which hang pretie fine tips, of one colour. The seed groweth in the little coffers: the root is woody, and fastened with many strings. This rue hath a very strong and rank smell, and a biting taste: it joyeth in sunnie and open places: it prospereth in rough and brickie ground.

Among the ancient Greeks and Romans this herb was held in great esteem. The Greeks used it, together with parsley, for the bordering of their gardens, and as the gardens could not be entered without passing this border, it became a proverb among them, when any persons were about to enter on an undertaking, but had not yet taken any steps towards it, "You are not yet arrived at the parsley and rue." The uses to which the ancients applied this plant were many of them very superstitious, and it was generally believed that the efficacy of the plant was enhanced by stealing it from a neighbour's garden. In Aristotle's time rue was worn about the neck as a charm against witchcraft.

That rue was planted to a considerable extent among the Romans appears from the directions of Pliny to rue gatherers,—that they keep their hands well gloved, to avoid the blisters which the pungency of this herb is apt to produce. The same author notices the poisonous nature of the juice of rue, when taken in too great quantity, especially that drawn from the rue which grew in Macedonia, about the river *Aliacon*, and in Galatia, and states that juice of hemlock destroys this poisonous quality. The juice of rue was kept in boxes made of brass or copper, and was used against the sting of serpents, scorpions, bees, hornets, &c., and for the bite of mad dogs. It was employed to foment the limbs of persons benumbed with cold: it was drunk with wine to cure the head-ache: it was taken likewise to prevent the consequences of excess in drinking. The leaves were eaten by engravers, carvers, and painters, as a preservative to the eye-sight: others just touched the corners of their eyes with the juice, to cure weakness of vision. A drink was made from it for the cure of all complaints incident to four-footed animals: its reputed virtues are, in fact, too numerous and too contradictory to be recounted here.

Besides the medicinal uses for which this herb was valued among the Romans, it was also esteemed on account of the flavour it imparted to their wines. Columella, in speaking of it, says,—

And *rue*, which the Palladian berries' taste excels; and Pliny informs us that when Cornelius Cethegus was chosen consul with Quintus Flaminius, he gave to the people, after the election, a largess of new wine, aromatized with rue. This would probably be very repugnant to modern taste, for this herb is intolerably bitter.

The leaves of rue are said to have formed a principal ingredient in the famous antidote to poison, used by Mithridates, king of Pontus. This antidote, with slight alterations, has been in use for nearly nineteen centuries, and is still employed on the Continent. It has been exploded in Britain, and laughed at as an absurd farrago, ever since Dr. Heberden published his *Antitheriaca*.

Pliny tells us that the weasel is so well acquainted with the virtues and powers of rue, that before he attacks the serpent he eats the herb to prevent the poison from taking effect. Macer, who wrote his Latin poem about twenty years before the Christian era, notices the same thing, and an old naturalist has given the following translation of the lines:—

And weezels teach, it can withstand strong poyson's spite,
Which, when they are about with serpents black to fight,
In wondrous sort do first of all rue nibble, eat, and bite.

If we look into the writings of the old medical practitioners and herbalists of our own country, we shall find the qualities of this plant described in much the same exaggerated strain that we have noticed in the ancient authors of Greece and Rome. One tells us that the very smell of rue has been known to preserve from infection during pestilence, and therefore we are to wear a nosegay of it whenever we visit a person ill of any contagious disease; and that if we would be still farther secured from danger, we must chew some of the leaves, or eat of a conserve of rue. Another affirms that by eating the leaves of rue, persons may cure themselves of the king's evil. A third tells us that the juice of rue, made hot in the rind of a pomegranate, and dropped into the ears, is a cure for the ear-ache, and is also a remedy for shingles, St. Anthony's fire, and other disorders; that the herb itself, a little boiled or scalded, kept in pickle, and eaten, is good for dimness of the eyes, and, boiled in vinegar, relieves shortness of breath and pain in the chest, side, or joints. A fourth ascribes to it the virtue of curing gout and dropsy, and of removing ringworm, warts, and all diseases of the skin. A fifth pronounces it to be excellent in all illnesses of the stomach which proceed from a cold cause, and only dangerous in the too frequent use of it; and a sixth is so full of its praises, that at the close of his remarks he declares that the greatest commendation he can bestow upon it falls short of its merits.

But we would not have our readers misled by these extravagant eulogiums, or induced, by this slight mention of them, to employ the herb in the way, or for the purposes above named. Let them rather attend to the opinions of modern and better-skilled persons, who assure us that its usefulness is uncertain and unimportant, and who at the same time acquaint us that large and repeated doses produce parching thirst, burning pain of the stomach and bowels, head-ache, delirium, and death.

Wild rue is much more energetic in its action than the cultivated sort, and therefore more caution is required in using it. Gerard declares it to be virulent and pernicious, and says that it sometimes "furneth out a vapour or air, so hurtful that it scorseth the face of him that looketh upon it, raising up blisters, wheales, and other accidents: it venometh their hands that touch it, and will infect the face also, if it be touched with them before they be clean washed, wherefore it is not to be admitted into meat or medicine."

Rue is a hardy shrub, and is easily cultivated by planting the seeds, or slips, or cuttings, early in the spring months. It blossoms in July and August, or, if it be in a warm country, or in a sheltered situation, still earlier. According to Pliny, there is such friendship between it and the fig-tree that it prospers nowhere so well as under a fig-tree. Plutarch notes the same circumstance in his first books of the *Symposiacks* or Feasts, and says it becomes more sweet and mild in such situations, because it takes away some of the sweetness of the fig-tree, and parts with some of its own bitter flavour.

CHRISTIANITY is not a latitudinarian religion, proposing a variety of independent doctrines, and leaving to the choice of its professors, which they will embrace, and which they will reject: but it is a religion precise and definite; it proposes a system of truths, mutually connected with and dependent on each other; it represents those truths as the fit objects of a Christian's faith; and to a sincere and conscientious belief and profession of them it promises happiness; on a wilful disbelief and rejection of them it denounces woe.

—BISHOP MANT.

FRESH-WATER FISH, INTRODUCTION.

Each rising charm the bounteous stream bestows,
The grass that thickens, and the flower that blows.
And while the vale the humid wealth imbibes,
The foaming wave sustains the finny tribes:
The carp, with golden scales, in wanton play,
The trout in crimson-speckled glory gay;
The red-finned roach, the silver-coated eel;
The pike, whose haunt the twisted roots conceal;
The healing tench, the gudgeon, perch, and bream;
And all the sportive natives of the stream.

WHEN we consider that water occupies more than two-thirds of the globe, we shall have no difficulty in admitting the statement made by naturalists, that fishes constitute by far the most numerous class of vertebrated animals, both as respects the number of individuals and the variety of their forms. Indeed, the constant accessions which are being made to our knowledge of fishes, and other considerations, lead us to suppose that not more than half the existing species are known and described. The natural history of fishes is more imperfect than that of quadrupeds, birds, and insects, because their native abode is of vast dimensions, and can to a very limited extent only be explored by man, from whose curious eye fishes can easily withdraw themselves into haunts inaccessible to the inhabitants of the land; thus the study of Ichthyology, interesting and beautiful as it is, presents more difficulties than any other department of natural history.

Fishes were arranged by Linnæus in six principal orders, and subdivided into several tribes. Four of these were marked by the position of their ventral or belly fins, and two by their gills. But the most approved arrangement is that of Cuvier, who places fishes in the fourth class of organic beings, the first three comprising beasts, birds, and reptiles. The class of fishes he divides into two sub-classes, viz., 1st, cartilaginous, and 2nd, osseous fishes. In the former the bones are gristly, and in the latter firm, although far less compact than in the higher orders of animals.

The general form of fishes is cylindrical, pointed more or less at each end, and slightly compressed at the sides; but this form is subject to many extraordinary variations, adapted to the economy of the animal; some fish are short and round—others are elongated;—some are compressed—others depressed: the most common form, however, is that first given, a familiar example of which is presented by the mackerel, which exhibits, as Mr. Yarrell remarks, “the highest degree of elegance in shape, and when recently taken from the water, is so rich and so varied in its colour, as to be fairly entitled to be considered one of the most beautiful among British fishes.”

It is almost superfluous to remark that the forms of fishes are admirably adapted to their general habits and economy, because we know how much gracious provision is made by the Almighty for all His creatures. This fact is so constantly witnessed by the naturalist, and he sees it illustrated in so many thousand ways, almost at every advancing step which his improving knowledge leads him, that while it constitutes a principal charm in the study of natural history, it often brings up to his mind the gentle monition of the Saviour, that God, who forgetteth not the sparrows, who feedeth the ravens and clotheh the grass of the field, will not discontinue His watchful care over those whom He has declared to be far better than they.

The external form of fishes tends to celerity and ease of motion: man has imitated this modelling in the build of those ships in which the quickest despatch is needful; but human competition against the perfection of nature's works always fails, for all the larger fishes can not only overtake the fastest-sailing vessel, but play around it, apparently without any unusual effort.

Most fishes, in addition to the great fin on the tail, are furnished with two pairs of fins upon the sides, two single fins upon the back, and one upon the belly, or between the belly and the tail. These fins are highly important as organs of motion, and they enable the naturalist, by their structure, position, and number, to distinguish orders, families, and genera. But the chief instrument of velocity is the tail, aided by the strength and pliancy of the back-bone: by the impulse of this organ alone the animal darts through the water with the swiftness of an arrow, the wedge-shaped head enabling it to divide the water with ease. But whether in pursuit of prey or avoiding an enemy, the smaller fins are all laid close to its body: these fins are too minute and flexible, compared with the animal's weight, to impel it so quickly; their peculiar office is to adjust and modify the motion imparted by the energy of the tail. The ventral and dorsal fins keep the fish in its proper position, and by means of the former fin the fish is probably assisted in raising or depressing its body in the water. The pectoral fins assist and regulate progressive motion: by extending them, the progress is stopped when swimming rapidly; and by folding either, while the other continues to play, the turn to the left or right is accomplished. The balancing use of the fins has been shown by experiments on several large-headed fish.

Fishes are furnished with certain protecting organs, which have been divided into the three distinct processes of skin, scales, and spines. The skin consists of the dermis, or true skin, a mucous tissue, and an epidermis, or cuticle. The mucous tissue, which in all animals is the seat of colour, is remarkable in fishes for its brilliant tints and iridescent reflections. The cuticle is generally covered with a mucous secretion, which also extends to the scales. The scales when viewed by the microscope present a wonderful and beautiful construction: they serve many important purposes in the general economy of fishes. The sharp spinous appendages, which are placed in different parts of the body in different fishes, seem intended as weapons either of defence or of offence.

The inhabitants of the waters as well as those of the land depend upon the oxygen of the atmosphere for respiration: the quantity of air necessary to sustain the life of a fish is smaller than that required by warm-blooded animals; but a greater or less supply of air is essential to every living being. The death of fish in a severe frost is in consequence of the congelation of the surface of the water, whereby the external air is excluded: the poor animals below the sheet of ice must perish unless an opening be made to admit the air: we see the fishes themselves bear witness to the fact that they cannot live without air, in the eagerness with which the suffocating creatures crowd round any opening made in the ice. The inconvenience they suffer is so great as to deprive them on these occasions of their natural timidity, for they can be caught by the hand without difficulty. The peculiar motion of the fish's mouth and gill-lids as if in the constant act of drinking, (whence the vulgar saying, “as thirsty as a fish,”) is nothing more than the act of respiration. The gills, which act the part of lungs, are placed externally: they may be described as consisting, in the bony fishes, of four arched bones placed in succession close behind the mouth on each side, and covered by an operculum or gill-lid. On these arched bones are spread out several fine laminae, or thin membranous folds, in which the artery bringing the blood from the heart, spreads itself out into very numerous and minute ramifications. The operculum is moveable by means of muscles attached to it. The fish in respiring takes a mouthful of water, and passing it to the back of its mouth allows it to remain there a moment in contact with the gills, through which at the same time the blood is passing freely. Water, exposed to the air, always contains a portion of that fluid, and the air thus dissolved by the water acts upon the fish's blood; the fish then lifts its

operculum and causes the water to be discharged backwards. The blood being thus aerated is again collected from very fine branches into trunks, which, running from each of the branchial ribs, finally unite and form the aorta for conveying the blood to the whole body. From this, the blood is returned by the veins to a simple auricle, thence it passes into a single ventricle, which, in turn, drives it into the branchial artery, and so back to the gills again. "From what we have said of the mode of respiration, it is clear that a trout, before it attempts to breathe, must turn its head up against the stream. Were it to attempt this operation facing down the stream it would in vain try to let out the water from its gills, for as soon as it had lifted its operculum, the current would pour in water from behind, in place of suffering it to discharge what was there. It therefore becomes part of the angler's art, to keep the head of the trout he has hooked down the stream, in which situation it cannot attempt to breathe, and is therefore the sooner exhausted." (*LORD'S Popular Physiology.*)

Many fishes are furnished with a bladder filled with air, and placed in the upper part of the abdomen close against the spine; this has been thought to assist the function of respiration. It is however more probable that the air-bladder is destined to assist the animal's movements; for we find it largest in such fishes as move with great velocity. This organ is wanting in flat-fish, where, however, the large lateral fins supply its place; also in the lamprey, which, in consequence, moves but slowly along the bottom of the water. There seems however but little doubt that this organ enables fishes to maintain and adapt their specific gravity to the various depths of the element in which they move.

In whatever way then we regard fishes, we see that by their internal structure and outward shape they seem equally well furnished with the means of enjoying life as birds or quadrupeds. When the senses of fishes, and other faculties pertaining to their organization are examined, we find that nature having intended them for less perfect beings has been proportionably sparing in her endowments. The brain is very small. The organs of smell and the nerves supplying them, are perceptible in most fishes; but as air is the only medium for the diffusion of odours, we can scarcely suppose that residing in the water they are affected by them; but it has been supposed that the olfactory membrane serves them instead of a distinguishing palate, in the same way as we distinguish by our taste.

The taste of fishes must be imperfect, if its delicacy arises from the softness of the organ; since the whole mouth of most fishes is covered with a hard bony substance, by which they cannot discriminate bodies by the palate. Salt-water fishes have been known to swallow the fisherman's plummet instead of the bait: indeed, the greediness of the inhabitants of salt-water is prodigious: the lines of the fishermen are coarse and clumsy; the baits are seldom more than a piece of fish or the flesh of some quadruped, stuck on the hook in a rude manner. On the banks of Newfoundland, the hook, which is only hidden by the entrails of the animal last taken, is dropped into the water, the cod seizes it at once, and the fishermen have but to pull up as fast as they can throw in: but it is otherwise in fresh water, for, as Mr. Daniel observes, "The lines must be drawn to a hair-like fineness, be tinged with the peculiar colour of the stream, the bait must be selected with care, or formed with the nicest art, and still the fishes approach with diffidence, and often swim round it with disdain, while hours are wasted in fruitless expectation, and the patience of an angler passes into a proverb."

The eyes of fishes are peculiarly adapted to vision in so dense and highly refractive a medium as water. The outer surface of this organ is flat, and the internal one spherical: the flat cornea sustains less injury than a projecting one, especially in the absence of eyelids and other

projecting coverlids: this flatness, however, is compensated by the greater magnifying power of the crystalline lens. But the particular form and situation of the eyes of fishes vary in different species according to their position in the waters, their general habits, and the mode in which they pursue their prey. When we look upon the surface of the waters, and our eye seeks in vain to penetrate the depth, we must not suppose that their inhabitants are similarly circumstanced with respect to us. When we are on the outside of a room, we know how difficult it is to distinguish objects within, especially when the solar light falls obliquely upon the glass: but those within the room have no such difficulty: they can see clearly all that passes without; and this we may fairly presume to be the case with fishes—they can see clearly objects out of the water, while we cannot often see them in the water. Much light is absorbed below certain depths from the surface, and we find that those fishes which dive deep have very large organs of sight.

It is a very common error to suppose that fishes are destitute of hearing: those which have the gills free have no external openings for the ears, but two such openings are discovered in fishes which have fixed gills. In both cases, however, internal provision is made for this very important function: indeed, the custom is as old as the ancient Romans to keep pet fish in ponds, and train them to swim to a certain spot, at the sound of a bell, to be fed. Mr. Swainson tells us, as "a well-authenticated fact, that the Chinese, who breed great numbers of gold-fish, call them together, at the time of feeding, by a whistle; and the same mode of summoning other species by a noise, in aquatic preserves, is upon record."

The teeth of fishes are so constant and permanent in their characters as to be second only to the fins in determining character. The food of most fishes is of an animal nature, and they seem as if impelled by urgent and constant necessity to pursue their prey. This appetite surpasses both in strength and activity those bounds which in other orders of the animal kingdom Nature seems to have prescribed. Every aquatic animal falls a victim to the indiscriminate voracity of fishes. Insects, worms, or the spawn of other tenants of the waters, sustain the smaller tribes, which, in their turn, are pursued by larger and more rapacious enemies.

From their extraordinary voracity, (says Yarrell,) their rapid digestion, and the war of extermination they carry on among themselves, the greater and more powerful fishes consuming the smaller and weaker, from the largest to the most diminutive: add to this, the constant and extensive destruction effected by the numerous sweeping nets of ruthless man, and it is probable that comparatively but few fishes die a natural death.

The same talented naturalist remarks that "the wounds of fish heal rapidly; and they appear to have but few diseases, probably owing to the uniformity of the temperature in the medium in which they reside."

We have thus far given a brief and general view of the structure and habits of fishes. We are about to invite the reader's attention to the principal individuals which inhabit fresh water; and, in a course of illustrated articles, we propose to state the natural history of each fish, so far as it is well authenticated by the united observations of credible naturalists: at the same time, we shall avail ourselves of such curious antiquarian and anecdotal information which will tend to illustrate the state of knowledge as it existed in former days.

HE who looks not beyond this world, cannot feel pleasure in anything which tends to disturb his comforts, or thwart his will.—H. W. B. DAUBENEY.

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SUPPLEMENT,

MARCH, 1841.

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OVERLAND JOURNEY FROM INDIA TO ENGLAND.



TOKAT, IN ASIA MINOR.

SECOND ROUTE.

BY WAY OF THE PERSIAN GULF, PERSIA, ARMENIA, ASIA MINOR, AND CONSTANTINOPLE, TO EUROPE.

In inviting our readers to accompany us in a second overland journey from India to England, we deem it necessary to recall attention to the different routes usually taken, in order to explain the arrangement which we shall adopt. Some travellers embark at Calcutta, Madras, or Bombay; sail across the Indian Ocean to the Red Sea; ascend that sea to a port on the western shore; travel across a sandy desert to the Nile; and follow this river to its exit in the Mediterranean. Another route is, to ascend the Persian Gulf instead of the Red Sea, and to travel overland to the northern part of Persia; from whence three distinct routes conduct the traveller to Europe: 1st. northward through Russia;—2nd. along the south shore of the Black Sea to Constantinople;—3rd. along the north shore of the same sea to Russia, Austria, &c. Lastly, the route which is most correctly termed "overland," is that wherein the traveller sets out from the north-west frontier of India; traverses the dominions of the Sikhs, the Afghans, the Bokharians, the Uzbeks, and other semi-civilized tribes; and finally arrives at the shores of the Caspian, from whence he takes one of the homeward routes already mentioned. With regard to the route by way of the Red Sea and Egypt, we do not deem it necessary to devote a Supplement thereto, since the only "overland" passage is from Cosseir, on the shores of the

Red Sea, to Dendera, on the banks of the Nile, a distance of less than 100 miles. The other routes may be so arranged as to give a tolerably complete notion of the subject in three Supplements. We have already traced the course from Bombay to Bassora by sea, touching at Muscat; then through Persia, by way of Bagdad, Kermanshah, Teheran, and Tabriz; and thence over Mount Caucasus to Europe, Captain Keppel being our chief travelling companion. On the present occasion we propose to land at Bushire instead of Bassora; to proceed by way of Shiraz and Ispahan to Northern Persia; and thence westward through Asia Minor to Constantinople; availing ourselves chiefly of the descriptions by Sir James Alexander and Mr. Baillie Fraser. Another Supplement, treating of the route by way of the Afghan country, will complete the subject.

Ships proceeding from Bombay to the Persian Gulf put in very frequently at Bushire, and the passengers proceed thence by land through Persia. This sea-port is situated on a sandy beach, in a dead, flat country; eastward are a few date trees, and at the distance of forty miles rises a lofty range of dark blue mountains. The town has been said to present the appearance of a half-built city, from the incomplete state in which many of the houses are left. A curious practice prevails in the construction of the houses, for alleviating the excessive heat of the air in summer: on the flat roofs of the houses are square *wind* towers, sometimes rising to the height of sixty or a hundred feet, and pierced on each side with three or four longitudinal openings, through

which every breath of wind is conveyed to the sitting apartments beneath. Those who are accustomed to the domestic comforts of an English city will be surprised to hear that no water fit for drinking can be procured within three miles of Bushire, and that Arab women fetch the whole of the water required by the inhabitants, carrying it on their backs in sheep-skin bags or pouches.

The mode of travelling throughout Persia is almost exclusively by horse or mule, for the want of roads, and the attacks of predatory tribes, render vehicles ill-fitted for such a country. Accordingly, travellers, on leaving Bushire, bargain with the horse and mule dealers for the hire of these animals at so much per diem. Sir James Alexander's party, when he made the overland journey in 1825, consisted of about twenty persons, including servants. The gentlemen purchased horses for themselves, and hired mules for their servants and baggage; and the mode of travelling which they arranged was as follows:—To leave the halting places every evening an hour and a half before sunset, strike the tent, and pack up all the utensils; march on with one servant and a horse-keeper; completing a march, generally of sixteen or eighteen miles, by ten o'clock; sleep on the ground till sunrise, by which time the baggage mules would have arrived, the tent pitched, and arrangements made for visiting the surrounding country during the day. By this arrangement, the time of travelling was confined to the cool hours of evening.

On leaving Bushire for Shiraz and Persepolis, the traveller passes through a country presenting few points of attraction. The sandy soil is in many parts covered with salt marshes; here and there are to be seen fields of bearded wheat, and wells for the refreshment of the traveller; but the districts between the villages are generally rather sterile. At one spot several naphtha and sulphureous streams issue from the hills, round the bases of which the road winds, and cross the path: this impregnated water is lukewarm at the fountain-head, and leaves a sediment of whitish-gray earth, which is of an acid and saltish taste, and is used by the Persians for acidulating sherbet.

Along this road are several small towns and villages, most of which are provided with caravanserais. Most of our readers are probably aware that these are houses of accommodation for man and horse, in Oriental countries. In general, they have the form of a hollow square, the interior faces of which consist of rooms for travellers; and in the corners are passages leading to ranges of stabling behind the apartments of the travellers. The entrance gateway is always in the side facing the road; and in some cases there is an underground apartment in the centre of the square court, to which travellers may retire when the weather is oppressively hot. It is a common practice to sleep on the roof of the caravanserai, with no other covering than a light curtain to keep away the mosquitoes,—the usual attendants of an Oriental traveller.

The sterile and sandy district of which we have lately spoken, is succeeded by a mountainous country, in which are the ruins of a once celebrated city named Shahpoor. These ruins are distant about 100 miles from Bushire, and at one part is a cave noted for its sculptured rocks. The sculptures are supposed to commemorate the triumph of the Persian king Shahpoor over the Roman emperor Valerian. The king is on horseback, with a crown surmounted by a globe on his head; a Roman, extended on his back, is under the horse's feet; and the emperor, kneeling on one knee in an attitude of submission, with a helmet on his head, and dressed in the Roman costume, is immediately in front. Many Persian cavalry and infantry are introduced in close order, above and to the right and left of these principal figures; and Victory is displaying the scroll of Fame over the king. The rock on whose face this device is sculptured, is of coarse jasper, but bears a high polish. Numerous other remains of antiquity are found near the same spot, but all are now most desolate and dreary, giving the same indications, as so many other parts of Persia afford, of the fallen state of that once great empire.

At intervals, along the route which we are here following, and which proceeds north-east from Bushire, are several villages, of which about a dozen intervene between that town and Shiraz, a distance of 150 miles. These villages bear a considerable resemblance to each other, and are mostly of a poor and humble character. We shall, therefore, pass them over, and proceed to Shiraz, one of the most important places in the southern part of Persia.

Shiraz, or *Shirass*, though neither very ancient nor very extensive, has long been one of the boasts of Persia, from

the beauty of its environs and the polished gaiety of its inhabitants. It has been the favourite seat of the Persian muses, and near it are buried *Hafez* and *Saadi*, the chief of the national poets. Its wines are celebrated as the most valuable in the East; and it is the seat of a considerable and increasing trade; but since it ceased to be the residence of *Kurroem Khan*, the inhabitants have lost their character for taste and refinement.

Shiraz lies in a valley, and is surrounded by a brick wall having large bastions at the gateways, of which there are six. Few Oriental cities possess such a fine street as the bazaar *Vakeel* of Shiraz. This is a very long vaulted avenue, about sixteen feet wide, with good shops on both sides, holes in the centre of the arch for the emission of smoke, and windows in the sides for the admission of light. In the centre is a sort of rotunda, with bazaars branching off to the right and left. Among the public buildings of the city is the tomb of the poet *Hafiz*, which is a single block of Tabriz marble, inscribed with verses from the works of the poet and from the Koran; the tomb is in a garden, and is surrounded by beautiful cypress trees, but is now environed by common graves, and is no longer adorned as formerly with a copy of *Hafiz's* poems.

One of the governors of Shiraz, some years ago, erected two buildings to the memory of pious and distinguished men, called the *Huft Tun*, and the *Chehel Tun*. These are a kind of pleasure-houses belonging to the governor, and are decorated with paintings of very mediocre character, intended as memorials of distinguished deceased men. The other points of interest in Shiraz are similar to those which are found in most Eastern cities, such as the palaces, gardens, baths; and there is also a similar want of cleanliness and comfort in the streets, for the traveller frequently finds the accumulation of dry mud and just so great, that the level of the court-yards of the houses is several feet below that of the streets.

Quitting Shiraz (which has more than once suffered from earthquakes) we bend our way towards the far-famed ruins of Persepolis, distant about thirty miles. In the course of this journey we cross the *Bend*, or *Bund Emir*, thus alluded to in *Lalla Rookh*.

There's a bower of roses by Bendameer's stream,
And the nightingale sings round it all the day long;
In the time of my childhood 'twas like a sweet dream
To sit in the roses, and hear the bird's song.
That bower and its music I never forget,
But oft when alone in the bloom of the year,
I think, is the nightingale singing there yet?
Are the roses still bright by the calm Bendameer?

Persepolis was a city of considerable importance in ancient times; and although the date of its erection is now unknown, there seems evidence that it was taken and reduced to ruins by Alexander the Great. These ruins consist chiefly of pillars and doorways, as if forming parts of some noble buildings. They are surrounded by a plain, when viewed from which they present a very noble appearance, being situated on a platform fifty feet in height. The length of this platform is about 1500 feet, and it is approached from the north by a double flight of easy steps of blue marble veined with quartz. At the top of the steps are four walls, surmounted by colossal figures of winged bulls, with remnants of four pillars between the walls, the whole seeming to have formed a gateway. Near this is a stone cistern for water; and further southward is another double flight of steps, on the front of which are sculptured an immense number of figures in procession. On ascending these steps, we come to an assemblage of pillars, the vestiges of which number about forty. The pillars which still remain are very elegant and lofty, with fluted shafts, and are formed of a beautiful gray marble. Tradition states these pillars to have once sustained a roof, and to have formed part of a temple. Southward of these pillars are seen the remains of apartments consisting of square enclosures with sculptured doors, and formed of black marble. Through different parts of the platform run narrow subterranean passages, originally perhaps aqueducts; and near the platform is an immense stone enclosure, which seems to have been the principal residence. The whole platform must have been a work of immense labour, for it is built up of large blocks of coarse black marble, extremely well cut and fitted to each other. The steps leading to the platform are more than 100 in number, and are so shallow in proportion to their width, that a man can make the ascent on horseback. The sculptures and inscriptions on various parts of these ruins have engaged the attention of many travellers, but we have not space to enter further into the subject here.

From Persepolis to Ispahan, the former capital of Persia, is a distance of about two hundred miles; but presenting so few points of attraction, that most travellers hasten over the journey as quickly as possible. Sir James Alexander pursued this route in the month of July, when the temperature of the air was so excessively high as to throw many of the party into a fever; and he gives the following description of the mode in which the invalids were conveyed:—"In the evening I was so ill with a slow fever, that I could not sit on horseback, and was obliged to proceed in a *cajava*. These are panniers made of wood, with plank bottoms, and covered with cloth: a mule carries two of them. They are four feet in length; therefore the person carried is forced to remain in an upright sitting posture during the whole journey, with the constant risk of getting his head broken against the sides of the conveyance, than which a more disagreeable one I never travelled in. The *tak-i-rowan* is comparatively a pleasant vehicle; it consists of a frame similar to that of the *cajava*, with a round top, and is covered with cloth; it is carried by two mules on a couple of poles. Spare mules accompany it to change as occasion requires; on one of these the driver rides; and a man walks by the side of the vehicle to steady it where the road is rough."

It was while passing through this district that Lieut. Lumden, a few years before, met a procession which illustrates one of the usages pertaining to the Mohammedan faith. He espied an extensive company or caravan, at the rear of which were several mules laden with coffins, the odour from which indicated the presence of dead bodies. This was a party of pilgrims proceeding from Central Persia to Mecca and Medina. When a wealthy Persian Mohammedan dies, his relations frequently inter him in some neighbouring burying-place, until the usual time for the departure of a pilgrim caravan; at which time the body is removed from the grave and transported to a reputed holy place near Mecca, where it is finally deposited.

The city of Ispahan, the former capital of Persia, has been very fully described in No. 149 of our Magazine. We shall therefore dispense with any account of it here; and shall merely give an outline of the mode in which a Persian noble entertained a party of English officers, since this will illustrate the nature of the diet to which wealthy Persians are accustomed. At six in the evening the party went to the Persian's house, and spent about an hour in smoking, and eating fruit,—the usual preparative for a more substantial meal. The party then seated themselves cross-legged on the ground, by the side of a long coloured table-cloth, washed their hands in water served to them by attendants, and began their meal. This consisted of pillau, rice, kababs, (slices of roasted meat kept warm between two cakes,) fowls over-roasted, in order that they might more easily be pulled to pieces, and other solids; while between every two guests were placed vessels containing iced sherbet, rose-water, milk, and other liquids, laded up by means of large pear-tree spoons. Each guest had two cakes of bread placed before him, one large and soft, to serve as a plate, and the other hard-baked, to eat. When the repast was over, hot water was introduced for washing hands,—a process peculiarly acceptable to Englishmen, accustomed to the use of knives and forks:—smoking was again introduced, and lasted till half-past eight, when the visitors took their leave.

Nothing can seem more strange to a reader accustomed to the regular and systematic mode of government adopted in our own country, than the utter lawlessness which prevails so extensively in Persia. Sir James Alexander, in the expedition to which we have frequently alluded, accompanied Colonel Macdonald, who was sent as envoy from the Governor-General of India to the court of Teheran. The embassy consisted of a considerable number of persons, among whom were the envoy's lady and her servants. During the progress northward from Ispahan, repeated instances occurred of the unsettled state of the country. Some of the khans or lords of the districts through which they passed, visited the travellers on their route, and conversed with them. One of them, Asud Oohlah Khan, in answer to some questions from Colonel Macdonald respecting the revenue and resources of the country, unblushingly answered;—"Of what use is it to tell lies to Europeans? myself and a neighbouring khan contrive every year to cheat his majesty out of a great portion of the revenue, *ullumdu'llillah* (thanks to Heaven!)" But recollecting himself, he begged the colonel not to say anything about it at court.

On another occasion the townspeople of Kurdahoor at-

tacked the servants who had charge of the treasury of the envoy, and a severe encounter ensued, which did not terminate till the townspeople had had one man killed and many wounded, and the embassy twelve men wounded and several horses killed. An incident occurred on this occasion which was a subject of some merriment to the party. Mrs. Macdonald's maid, and a Hindoo tailor, occupied two *cajavas* or panniers on the back of a mule, and were somewhat separated from the rest of the party. Three of the townspeople came up to them, thrust their hands into the *cajava* which contained the young woman, and attempted to pull her out. The valiant tailor slunk back into a corner of his pannier, and though called upon by his companion to fire a pistol which he had for their mutual defence, he endeavoured to conceal himself. The distressed damsel thereupon defended herself with a tin kettle, until the appearance of some of the muleteers caused the insurgents to decamp. The tailor, upon being afterwards reproached with his cowardice, stoutly asserted that he courageously jumped from his *cajava*, and cocked his pistol, upon seeing which the insurgents instantly fled. After he had finished his oration, a muleteer came up and contradicted every word he had uttered.

We shall now pass over a considerable extent of country without entering into any minute description, for two reasons: 1st, that Persian towns and villages, and the sandy tracts which frequently separate them, bear such a similarity one to another, that an idea of the whole may be obtained from a description of a few;—2nd, that in our former Supplement we carried the reader through a considerable extent of Persian territory, in the route from Bassora to Teheran. We shall therefore traverse this route nearly at right angles, and suppose our fellow travellers to have performed the journey from Ispahan to Tabriz, a distance of about five hundred miles. Tabriz is in the midst of a mountainous country, inhabited by Koords, a semi-barbarous nation; and from thence the course is nearly westward to Constantinople, along the northern part of Asia Minor; the distance between the two cities being probably about twelve or thirteen hundred miles. A short description of Tabriz was given in the last Supplement; and we shall now take our departure from thence in the way to Constantinople.

Mr. Fraser, who travelled from Tabriz to Constantinople in the midst of a severe winter, performed the first hundred miles of the journey in two days, through a rocky and mountainous country, which everywhere showed indications of the unsettled state arising from the contiguity of three great empires, Russia, Persia, and Turkey. The termination of this stage is Khoe, a fortified town of considerable size, with an extensive bazaar, and a number of good houses. The town is environed by pleasant gardens, and is situated in a cultivated plain at the foot of a chain of mountains.

Khoe is near the frontiers of Persia and Turkey, having the Persian province of Azerbaijan on the east, and the Turkish province of Armenia on the west. All around this district, however, the inhabitants are such as are little disposed to respect either Persian or Turkish authority: they are Koords, possessing much of the independent spirit so often observable in mountaineers. The Koords, or Kurds, are the same people known under the ancient name of *Carduchi*, through whom Xenophon so hardly fought his way, when conducting the famous retreat of the Ten Thousand. They have still the same name, and are the same people; the boldest and the rudest in all Asia. Those pastoral pursuits which, on the high table plains of Tartary and Persia, vary and soften the habits of war and plunder, are impracticable in a region which presents little else than rugged steeps, frightful ravines, and narrow valleys. The Koords, though much addicted to plunder, have, however, the characteristic virtue of barbarians, a frank hospitality, and also a pride of pedigree founded on a national existence which may be traced to a high antiquity. Through this region the traveller finds his way as well as he can, passing through rocky defiles, over mountain passes, along the banks of streams, and through thinly scattered villages, hiring horses or mules from one station to another, and taking his chance for a cottage or barn to sleep in at night. In part of this district, almost within view of Mount Ararat, is a singular mountain strong-hold or fortress called Makoo, situated on the brink of a ravine through which a stream flows. On the left bank of the stream the rock rises perpendicularly to a height of five hundred feet; and from a point about fifty feet below the summit of the rock is a cavern or recess, formed by an inward sloping of the rock, measuring

six hundred feet by one hundred. Across this recess has been built a wall of stone, enclosing a portion of ground which constitutes a fort. A garrison can thus be placed at a height of three or four hundred feet above the level of the stream below. There is besides this a second recess in the perpendicular face of the rock, leading to apartments and granaries, where a large reserve of soldiers and of provisions can be kept concealed. It is supposed that this strong-hold was the work of the Armenians in past ages, when they had to defend themselves from persecution.

Leaving Mount Ararat on the north-east, we come to the town of Bayazid. This is a singular-looking place; being built among the clefts on either side of a high rugged mountain, while a projecting rock is crowned by the castle. Mr. Fraser remarks concerning its singular position:—"You do not see half of it until you climb up and get into it as into a bird's nest. One wonders what tempted men to choose a spot so unpromising for a city, even in regard to security; for not only is it commanded on all sides, but the inhabitants themselves have a most difficult ascent to surmount every time they leave and return to their homes, with the thousand other inconveniences that must attach to so lofty a dwelling. Except in India, I never saw so sharp and vile an ascent to a fort; and the pathways being covered with ice, it was a miracle how our smooth-shod horses got up, and that we escaped falls."

Bayazid being almost close to the frontiers, had been recently visited by a Russian force, which had greatly devastated it. Mr. Fraser found scarcely one house in a hundred inhabited: of these few were in repair; and the great magazine of fuel for the people of the place was the beams and wood-work of the abandoned dwellings. It is necessary to give a brief explanation of the political condition of this town, to estimate the cause of such disasters. All the regions in the neighbourhood of Mount Ararat are inhabited by Koords, rude mountaineers, who have but few ties of sympathy either with Turkey, Persia, or Russia. But it so happens, that in consequence of the mutations which those empires have undergone, all three now meet at or near Mount Ararat; and the dwellers in the immediate vicinity feel the effects of this most sorely. Bayazid is properly a Koordish city, although nominally within the Turkish dominions; but about twenty-five years ago, the troops of the neighbouring pacha of Erzeroum attacked the city and carried off many of its treasures. When the town had somewhat recovered from the effects of this inroad, it had a similar visit from the Persians who took away most of what the Turks had left. Still the population remained in the city, however much injured and robbed; but a third visit from the third neighbouring empire—the Russians—was incalculably more calamitous than the other two, and occurred about ten or twelve years ago. More than ten thousand Armenians and Koords were driven from the city and carried to the Russian provinces, where many of them perished. Mr. Fraser remarks:—"The finishing blow was reserved for Russia, who, by utterly depopulating both town and country, and pillaging the little that had been collected since past misfortunes, deprived both of the means of renovation, while they wantonly destroyed what they could not carry off. It is scarcely possible that the place can be re-peopled."

As the reader never now hears of an Armenian king and government, it may be well to state what are the events which have rendered this people distinct from Turks, Persians, and Russians. Armenia once formed a considerable kingdom, including, but principally to the south-west of, Mount Ararat; and comprising districts now divided between the three empires. The Armenians trace their origin back to a remote period in history; indeed they have a tradition that the first ruler of that country was the great grandson of Japhet, the son of Noah. Be this as it may, the Armenians appear to have been for some centuries governed by their own kings, who were occasionally conquered by the powerful monarchs in their neighbourhood. It then became a Grecian province, afterwards a Roman one; then became divided between the Romans and the Persians; and the inhabitants suffered bitter persecutions for having embraced Christianity, which was hateful to the Persian worshippers of Zoroaster. At length the decline of the Persian power and the rise of the Saracens transferred the contest to new parties; and Armenia suffered repeatedly from attacks on all sides; its native princes being supported or deposed, as best suited the interests of the contending parties. When the Turks sallied from Central Asia towards Constantinople, Armenia was in

their direct line of route; and the attacks of the Turks became so fearful, that about the year 1400, the persecuted Armenians resolved to abandon their country altogether. Since that time they have never been known as a collected nation; but, something like the Jews, have become wanderers and traders in other countries. They have retained an imperfect form of Christian faith throughout all their troubles, and are generally respected in private life. As merchants they are found in every part of Asia, and in almost every part of Europe; a general spirit of toleration being shown towards them, although they have no longer a distinct country. When the reader therefore hears of Armenians, he must not conclude that they are inhabitants of Armenia; but Asiatic Christians, descended from those who once inhabited the kingdom of Armenia, now a Turkish province.

It may likewise be desirable to state, in explanation of the situation of the district we have now reached, that the *Koords* are in general the inhabitants of the mountainous district near the frontiers in Turkey and Persia. Part of the Koordish territory, or Koordistan, is included in Persia, and the other part in Turkey: but the hardy mountaineers view all the three neighbouring empires very much in the light of hostile states, and follow few laws but the law of the strongest. Bayazid has been more properly a Koordish city than a Turkish one; but the disasters which it has experienced show in how precarious a position the Koords are placed. There are not wanting indications that this part of Armenia will one day belong to Russia, whose giant empire is almost yearly increasing in extent. For our present purpose, however, we may make this summary for the reader's guidance;—that the country at which we have arrived is nominally Turkish; that it is properly a portion of Armenia; and that the principal inhabitants are and have long been the rude hardy Koords.

We now leave Bayazid, and proceed westward on our journey. Mr. Baillie Fraser visited Asia Minor and Persia, during the winter of 1834, on political business connected with the English government; and the necessity for travelling as rapidly as possible, in spite of unfavourable weather, frequently led him into very dreary scenes; for although the latitude of Armenia and the neighbouring districts is as far south as the warmest parts of Italy, yet the elevated position of the country causes the temperature to be very cold, especially in the winter. It is thus that we read, in that gentleman's narrative, of piercing winds, overwhelming falls of snow, icy paths, and inclement temperature. We shall therefore avail ourselves likewise of the assistance of those travellers who have performed the journey in more congenial weather.

A few miles from Bayazid, Mr. Fraser sought shelter in a Koordish cabin, almost buried beneath the ground. After descending through a sort of irregular passage, he says:—"Our peregrinations terminated in a sort of little hole, scantily lighted by a small orifice in the roof, with a chimney, in which was smothering a fire of wet dung-cakes. It seemed to be the domicile of a favourite horse and a pet ewe: the latter we ousted; the former still retained its berth behind a sort of bar, so contrived as to prevent further intrusion on its part, and mark the boundary of our domain, where it chewed its hay,—a very unoffending neighbour. After my eyes had become somewhat accustomed to the dark and smoky atmosphere, I left our den, to peer about a little. In one neighbouring cavern were stabled a number of horses; in another were congregated a collection of most unlovely women, children, and sheep; from a third there was pouring forth a multitude of cows and year-olds that nearly upset me. There was not much pleasure in all this, so I returned to our room, where mumed had been spread; but scarcely was I seated when in rushed a great he-goat, with a bound and a 'baa-a-a!' followed by his two wives, probably the rightful occupants of some corner usurped by us, who stopped short when he saw us, and seemed disposed to do battle for his privileges." Mr. Fraser found, on many such occasions as this, that he could purchase the good services of the inmates by a cup of tea, a beverage to which they were but little accustomed. He carried a stock of tea and sugar with him; and after having refreshed himself with the beverage, he boiled and re-boiled the leaves, adding an extra dose of sugar to compensate for the want of strength.

From Bayazid to Erzeroum the traveller meets with little but Koordish villages, scattered at wide intervals through a mountainous district, the cold of which, in winter, is far greater than is any where experienced in Britain. On



A PERSIAN BREAKFAST.

reaching Erzeroum, the traveller enters the first important Turkish town in this part of Asia Minor. Sir Robert Ker Porter describes this town as containing a population of about sixty thousand, of whom fifty thousand are Mohammedans. It contains forty-five mosques and two churches. Two of the most ancient mosques are fancifully ornamented with bricks and coloured tiles. The lofty domes of these mosques, together with the glittering minarets of others, rising above the fortified walls of the governor's palace, give a delusive splendour to the appearance of the town when seen from a little distance. The whole town is defended by high double walls, well built, and additionally strengthened with lofty towers; the outer wall being supported by a deep ditch.

The dresses of the inhabitants are often exceedingly gay, and indeed the rank of the wearer is scarcely discernible through the showy texture of his dress. Sir Robert Ker Porter observes: "The well-known flowing garment and large turban of the Turk, are common alike to the tradespeople and highest classes; the chief difference lying in the colours and materials: but the gaiety, and even splendour, of them all often exceed imagination, and so completely confuse ranks to the eye, that an inexperienced foreigner, gazing at a procession of these stately personages, moving solemnly along in their motley attire, could not possibly distinguish the degree of one from another. I remember, on entering the town of Kars, (a little eastward of Erzeroum,) meeting a most gorgeously appalled gentleman, who, from his gravity, and majestically-slipped walk, I might have mistaken for the pacha's vizier, had not a string of little tallow candles in one hand, and a plate of sour cream in the other, proclaimed his title to some humbler calling."

But since the last-mentioned traveller visited these countries, Erzeroum has been doomed to suffer the misery attendant on hostile attacks. It was a flourishing place of trade until 1829, when the Russian Count Pascovitch overran the country, and partly by persuasion, partly by force, caused nearly one hundred thousand Turks, Armenians, and Koords, to leave their native country, and pass into the Russian territory. Of this number seven thousand were from Erzeroum; and the misery and cruelty which they experienced from the Russians have given rise to a deadly

hatred on the part of the natives. Indeed it is lamentable to see the state of feeling existing in and around this district: let the reader look at a map of that part of Asia situated near the south-east margin of the Black Sea, and he will find a region where Turks, Koords, Persians, and Russians mutually detest each other, and only join interests occasionally, when two of them are attacked by a third more powerful than themselves.

As we depart westward from Erzeroum, we leave by degrees the region inhabited by the Armenian Koords, whose villages are formed of houses built under ground, the earth that is excavated being heaped about the walls to aid in the exclusion of wintry cold. As darkness closes in, a plentiful supply of wood enables the inmates to keep up a blazing fire; but when they require light for other purposes, they make use of the same sort of candle-fir, or splinters of fat turpentine pine, which are used in the highlands of Scotland. These portions of the wood are produced by a disease in the common fir, which produces a congestion of its resinous juices to the part affected; and the tree is cut down for the sake of this alone, or the part is cut out, leaving the rest to decay of itself. The domestic economy of these wretched hovels may be estimated from the paragraph quoted from Mr. Fraser, respecting his night's sojourn in one of them.

Travellers in this part of the Turkish territory frequently perform their journey by Tatâr, that is, accompanied by a government courier or guide, called a Tatâr, and travelling on horseback with as few stoppages as possible. These Tatârs are to be hired at the chief cities, and are men of wonderful energy and hardiness. On the occasion of the escape of Napoleon Bonaparte from Elba, the British Consul at Constantinople hired a Tatâr to convey the information to the British Consul at Demavund, a place about sixty miles beyond Teheran in Persia. The man mounted his horse, and performed the whole journey, over mountains, and through valleys and plains, in seventeen days, the distance being about 2000 miles. It was with such a guide, and on such a plan as this, that Mr. Fraser made his journey; and it is thus that the term "Tatâr journey" is given to his narrative. There are, besides, other guides, not connected with the military or government departments, but attached to the Turkish post-houses, and hired by travellers.

Trained from childhood among the animals of which they have the care, they are good grooms and admirable riders; and, accustomed to brave the road and its dangers in all weathers, they become bold, intrepid, and skilful guides in this part of the country. These men, who are called *Sorajees*, are as remarkable in appearance as in character. They wear large shulwars, or riding-breeches, often highly embroidered; a short Turkish or Mamluc jacket, frequently of coloured velvet, and decked with faded finery; a striped silk or cotton vest, the skirts of which are stuffed into the trousers; huge pistols, or a yatagan, or both, protruding from their broad leathern girdle and sash. On the head they wear a turban, wound rather loosely; and they wrap their legs and feet in pieces of rag, cotton, or woollen, winding them over and over again, like surgical bandages on a fractured limb. Over these bandages are large boots, or laced sandals made of raw hide.

With such guides, then, we proceed on our journey, and a few miles after leaving Erzeroum, we cross the westernmost branch of the upper Euphrates, that noble river which flows into the Persian Gulf by the same mouth as the Tigris. Here we come to the boundary of what is generally deemed Armenia, and enter on the Turkish province of Pontus, a country of much notoriety in ancient times, having been the seat of a flourishing kingdom, under Mithridates the Great. The kingdom of Pontus was conquered by Julius Cæsar, and made a Roman province, but it was often governed by monarchs who were tributary to the power of Rome.

At about thirty-six miles from Erzeroum is Ashkala, a pretty village inhabited by a small number of families; and further on is a similar village called Kara Koulak, the scene of many conflicts between the semi-barbarous tribes of the neighbourhood. At another village, named Mama Khatoun, are some remarkable buildings, which Mr. Morier was told were built as a love-token by a wealthy Turk to his mistress. These buildings are situated close to the village, and consist of a caravanserai, a mosque, a bath, and a tomb, all constructed of fine white free-stone, and finished in a very excellent manner. The caravanserai is a hollow square, with a gate on the eastern face; round the court are built small rooms arched in a very solid and symmetrical style; and there are also two vaulted chambers, each fifty yards long by forty broad, for the accommodation of the horses and mules of travellers. In the middle of the square is an arched chamber, erected probably as a cool retreat in summer. The mosque is situated on the right of the caravanserai, and is entered by a small court yard, from which a vaulted peristyle leads under the dome into the principal chamber, where is a stone pulpit. The fine materials and admirable masonry of this dome are said to contrast strikingly with the general character of Turkish buildings in this part of the country. Close to the caravanserai is the bath; and on the other side are the remains of another building. Nearly facing the caravanserai is a small round temple, supposed to be a tomb, enclosed by a circular wall, which is entered by a gateway of Saracenic architecture. The interior of the round temple is arched, and carved with a variety of ornaments.

In various parts of Asia Minor are towns bearing the name of Kara Hisar. This implies "black castle," and is generally applied to a fortress built on a hill. One of these is found on the road which we are now traversing. The position of the fortress seems inaccessible, the rock on which it stands resembling that of the Castle of Edinburgh, but nearly twice as high. It spreads entirely over the summit of the hill; but the most formidable of its towers appear on the northern point. Beneath the western brow, and just on the slope of the rock where the declivity is least abrupt, the greatest part of the town is built. The houses are mostly of two stories, and stand in ranges one over the other, as seen from a distance; two mosques and one minaret rise from among them. Sir Robert Ker Porter describes the mountain scenery in the vicinity of this hill fortress as being among the most sublime which he had met with in the East; as a country "of the wildest character; the whole consisting of endless ranges of dark, stupendous mountains, hurled together in the most rugged forms of chaotic contrasts. But this august assemblage of Nature's vastest materials expanded to even a terrible sublimity as we approached a higher region, where some tremendous convulsion of the earth seemed to have rent its mountain piles with more than ordinary rage. Heights and depths, and yawning darkness, affrighted the eye in our advance, though I thought it not improbable that the closing gloom of the evening, added to

the natural blackness of the mountains, might, by confusing the outlines of objects, and mingling shadows with reality, exaggerate the awful appearance before me."

At the various villages which we have named, and at others of a similar kind, are post-houses, which are likewise the only inns in the place; and the following description will convey an idea of the sort of entertainment for travellers at these post-houses. Travellers and servants have to squat down to the same board with the people of the house, from the keeper to the meanest trencher-cleaner; and mingle their fingers in the great general dish. This huge mess stands in the middle of a tray, on a low circular table usually laid out with as many pieces of bread as there are guests. The other ingredients of the meal (breakfast) are commonly thickened milk, with two plates of curdy goat's cheese, a little honey, and some grape syrup. At mid-day, bread and dried or ripe fruit are given. At sunset, a kind of soup, and a stew of mutton, or goat's flesh, mixed with sweetened gravy or onions, and a pillau of wheat. The dishes are served in rotation, and placed in the middle of the tray; round which the eaters sit on their heels, ready with their fingers or spoons to dip into the dish. Such is post-house fare.

The town of Nizar is approached by a road descending the declivity of a mountain. Mr. Morier says that no description is adequate to paint the brilliancy and luxuriance of vegetation, and the picturesque forms of this region. Trees of every denomination grow here in the wildest profusion, whilst their roots are embalmed by the odour of myriads of flowers. Sir R. K. Porter likewise speaks of the valley of Nizar as a picture of rural prosperity and beauty; displaying a gently swelling ground, carpeted with verdure, and diversified with groves and sparkling rivulets. He adds, "The whole scene gave me an idea of some of the finest parts of Switzerland; a remembrance which had never been awakened in me before, by any landscape of the East; and it may not be irrelevant to recollect here, that it was from Cerasunt, on this shore of the Euxine (Black Sea), that Lucullus transplanted cherry-trees into Italy; and thence, in little more than a century after, they first embellished the gardens of Great Britain."

A little beyond this, and at about one-third of the distance from Erzeroum to Constantinople is a large and open town called Tokat, (supposed to be the ancient *Comana Pontica*), situated at the foot of a lofty mountain, or rather pair of mountains, with a cleft between them. Numerous houses appear crowded together at the base of the twin mountains, varied here and there by mosques and minarets. The town was said thirty years ago, to have contained one hundred thousand inhabitants; but this is in all probability a gross exaggeration. The bazars were however very numerous, and everything common to Turkey and its wants seemed to be found there in plenty. Mr. Fraser, many years afterwards, proceeded on this route with such rapidity, frequently performing one hundred and twenty miles in a day, that he had not time to pay much attention to the objects and scenery among which he passed; but he speaks of Tokat as a noble old place, which, with its fine castellated rock and picturesque mountains behind, looked extremely grand in the moonlight, and appeared to be an extensive place, situated on a well-cultivated country. The city is seated on the banks of the Jekil-ermak, the ancient Iris. It is the centre of an extensive inland trade to and from all parts of Asia. Here are manufactories of blue morocco, silk stuffs, and copper vessels of all kinds. At this town the exemplary and lamented missionary, Henry Martyn, died on his way to Constantinople, October 6, 1812, in the thirty-second year of his age.

The next important place at which we arrive is Amasia, the ancient capital of Cappadocia, and the birth-place of Strabo. The city stands in the narrowest part of the valley of Amasia, and in the midst of bold, wild, and romantic scenery. Along the bottom of this valley flows the river Yekil-Irmak; and the town spreads over both banks. On one side of the river rises a magnificent pile of rock, on the nearly pyramidal summit of which lie the mouldering towers of the ancient citadel, surmounting the caverned openings into the royal tombs, which are excavated in the face of the hill. On entering the city, an English traveller is struck with the appearance of the ruins of a Christian church, part of which are mouldering to dust, and the remainder used as a Mohammedan mosque,—a melancholy transformation from good to evil. The streets of the town are narrow and disagreeable, as is frequently the case in Turkey; and the houses were estimated by Sir R. K. Porter

at about six thousand. But the most interesting object to a visiter is the rocky fortress, mentioned by Strabo nearly two thousand years ago. Passing over a bridge at one extremity of the city, we begin to ascend a steep paved road leading up to the fortress, and soon arrive at some mouldering ruins, once a range of battlements and towers. Ascending twenty or thirty paces higher, we pass through a passage hollowed into the solid rock, to the length of six or eight yards; the entrance of which bears the marks of some former grated defence. This dark avenue leads to a ledge of rock, about six feet in width, and hewn out of the side of the cliff, up which it leads like a kind of ladder. After a farther ascent of about twenty yards, we come to the first sepulchral excavation, hewn in the rock to a depth of seventeen feet, forming a passage four feet wide by thirty-five high. Beyond this is a small, vaulted chamber, with sufficient space to contain a large coffin or sarcophagus. Numerous other tombs are found sepulchred in the solid rock; and it is supposed that they were excavated during the period when Cappadocia, of which Amasia was the capital, was a province of Persia under Darius Hydaspes.

We cannot stop longer at these ruins, but must proceed westward to the pass of Drekler-Daugh, in the direct route to Constantinople. A spur of the rock terminates in a bold perpendicular cliff twelve hundred feet high, at the foot of which a rapid stream runs; and midway in air, across the face of this rock, and at a height of about five hundred feet above the torrent, a pathway has been cut. This path is about ten feet broad, with a very low and precarious parapet at the outer edge. This path is about a quarter of a mile long, with a steep declivity at each end. Along such a path did Mr. Fraser travel in the depth of winter, when every spot of rock was covered with slippery ice, and the cold so intense as almost to benumb the faculties. Humboldt passed over much higher and narrower mountain passes; but he had not, except in some few cases, to conduct his mules over a solid icy path. Immediately after passing this rock, Mr. Fraser traversed another still more awful, as may be judged from the following vivid description:—"Our approach to it seemed to be through the very bowels of the mountain, in the bed of a furious torrent, where no man could have imagined a path to have existed; and from which, turning up a narrow fissure, we scrambled on in the darkness, (it was nine o'clock on a winter's night!) leaving all to the instinct of our horses, till we emerged far above, upon the very brink of a black abyss, along which we still continued ascending by a narrow rocky zig-zag path, paved here and there, but without any parapets, for a height of, I suppose, six or seven hundred feet. It was a frightful tug. You must know that the Turks do not frost, or sharpen their horses' shoes, as we do, to keep them from slipping on the ice, and here all was ice and melting snow; and the track was on the very verge of the precipice; there was no getting off to lead the horses, or walk; we did not even dare to stop. It was neck or nothing; a breathless scramble up-up; often holding on by the mane to keep from slipping off behind. Nothing but the conviction of this and of my own helplessness, embarrassed with great boots glued to the stirrups by ice, and our heavy cloaks frozen as rigid as a board in their folds, could have kept me in the saddle. The descent was not so long, but fully as dangerous, and even more horrible; for there you were constantly looking down into the black yawning gulf, from whence the far-off sound of the winter torrent came roaring up in fits as the wind sighed down the glen.

How different are our impressions of scenery according to the season when we view it! That which is all lovely and attractive when clothed in spring garments, becomes cheerless and dull in winter. Westward of the mountain pass which we have just described are the valley and town of Tosia, which Mr. Fraser traversed twice during his Tatar journey, going and returning. On one occasion, all was ice-bound, cold, and dreary, and his thoughts were only directed to his onward progress. On the other occasion he was enraptured with the beauty of the valley, its splendid cultivation, its green picturesque hills and its multitude of waters. The neighbourhood of the town was laid out into little fields and paddocks, interspersed with orchards and gardens, divided by walls and hedges; the first built of mud and thatched, and partly overgrown with herbage; the latter, formed of barbaric bushes and other thorns, with pollard elms, oaks, and willows. In the town too, all looked attractive; the mosques and many of the houses constructed of stone, and rising one above another in irregular groups and terraces, showed to much advantage.

Near about this part of the country the traveller frequently meets with Angora goats, so well known in Europe for their white and silvery coats. The town from which they take their name is situated about fifty miles southward of the direct path which we are following; but many of the valleys and villages all around Angora display large numbers of these goats, the sides of the mountains affording a rich pasture for them, and the villagers being employed in dressing and weaving hair. Around this district, too, are many kinds of manufacture, carried on, it is true, in a very primitive manner, and to a small extent; but still it is pleasant to have a respite from the details of oriental turbulence, and to hear of industry and its effect. At a pretty little town called Chirkiss, the inhabitants are celebrated for the bread and the honey which they produce, and which are regarded as great luxuries by the travellers who pass that way. At another small town called Garidi, are manufactories of copper utensils, and others for tanning and staining a stout and durable kind of leather. Great quantities of this leather are sent to Constantinople to be made up into boots and saddle-bags.

While travelling over the open country in the neighbourhood of the town of Boli, Sir R. K. Porter witnessed a scene which illustrates the wasteful and thoughtless conduct of Asiatics. The wood-cutters are accustomed to kindle a few dried branches to form a fire for their nightly bivouac; and this object once served, they are heedless as to the consequence of leaving the wood unextinguished, particularly if the wind be blowing. Sir Robert found the forest on fire, the flames bursting up with the appearance of volcanic eruptions, and producing a scene of horrid sublimity by throwing a red light over distant objects. The wind was roaring amongst the adjoining woods with a noise like the sea in a storm, and increased the impressive effect on the senses of the spectator.

Boli is the ancient *Hadrianopolis*. The modern town is a poor place, consisting of about a thousand houses, chiefly inhabited by Turks. There are a few Armenians, but no Greeks, although the villages in the vicinity are filled with them. It is the residence of a pasha of two tails. The plain, at the extremity of which it stands, is rich and fertile. About four miles to the south-east of the town, at a village called *Valajah*, are some mineral baths, to which the Turks resort in great numbers. There is nothing else remarkable in the neighbourhood.

We are now approaching rapidly towards Constantinople, and find the towns and villages losing much of their rude character. Ismit, or Is Nickmid, is the ancient town of Nicomedia, and has always been a place of some importance. It was an early residence of the kings of Bithynia; but its highest greatness began under Diocletian, who made it the metropolis of the Roman empire; the wealth of which he lavished in raising it at once to a rivalry with Rome. In this character it was soon supplanted by Constantinople, and many of its ornaments were probably carried off to embellish this new residence. The ruins of the ancient city are still visible; but very few Europeans have visited them for the purposes of study. The present appearance of the town is highly picturesque; with its curious old tenements, rising high as they do from the very shore of the gulf, up to the side of a steep mountain, in terraces, ridges, and ravines, all surrounded by vineyards and orchards, and interspersed here and there by picturesque burial-grounds, planted as usual with cypress trees.

At length we reach Scutari, the sea-port town immediately opposite Constantinople. In any other situation Scutari would rank as an important city, but standing as it does in the vicinity of Constantinople, it is considered merely a suburb to that great city. It stands on the Asiatic side, in a beautiful and cultivated plain, and presents a picturesque appearance from the mixture of trees and minarets. It carries on a very considerable caravan trade with the interior of Asia. A great forest near it contains the most splendid cemetery of the empire, as all the grandees of Constantinople seek to deposit their remains in Asia, which they consider as a Holy Land, in the possession of true believers, while Europe is almost entirely the prey of "the infidel." In this vicinity is situated the castle of the seven towers, used by government as a state-prison. And here we must beg the reader to consider for a moment the remarkable position of Constantinople. It is at the very extremity of Europe; but it is essentially an Asiatic city; and its position, in a commercial point of view, is one of the finest in the world. North-east of Constantinople is the Black Sea, south-west is the Sea of Marmora; and the two are connected only by

a narrow neck of sea called the Straits of Constantinople, or the Bosphorus. The sea of Marmora again, is connected with the Mediterranean, still further to the south-west,—only by the narrow strait called the Dardanelles, anciently the Hellespont. Hence Constantinople commands the whole intercourse between the Mediterranean and the Black Sea, with the noble rivers flowing into the latter, such as the Danube, the Dniester, the Dnieper, and the Don; hence the importance of Constantinople as the capital of the Eastern empire and afterwards of the Ottoman empire; and hence the anxiety of the cabinets of Europe at the present moment respecting the future fate and possessorship of that city. To the east and south of Constantinople is the large and beautiful country of Asia Minor, through which we have just conducted the reader, and the whole of which is possessed by Turkey; north-west is the large country of European Turkey; and south-west, after passing through the sea of Marmora, is the Levant or Archipelago, a large bay stretching northward from the Mediterranean, and separating Greece from Asia Minor, studded, too, with numerous islands. Whenever our readers meet in the public journals with a notice of political or diplomatic occurrences between the various European powers at Constantinople, it may be useful to remember that this Archipelago, or cluster of small islands, as well as the Dardanelles and the Sea of Marmora, must be traversed before communication of a maritime nature can be held with Constantinople. He will also be able to form some idea, especially with a map before him, of the reason why so great importance is attached by these powers to the Dardanelles. This narrow strait is, in fact, the key to Constantinople and the Black Sea.

It will be remembered that in our First Route we conducted the reader to Astrakhan in the Caspian Sea, and there dismissed in a few words the remaining part of the journey through Russia. We shall follow a somewhat similar plan on the present occasion, for the following reasons. We hope shortly to accompany our readers in a steam voyage down the Danube, through the Austrian and Turkish Empires; and have also in hand a course of papers on Turkey and the Turkish provinces. These will collectively afford a tolerably clear insight into Turkish topography, and thus save the necessity of treading that ground on the present occasion. With regard to Constantinople itself; its mosques and bazaars; its seraglio; its oriental customs and peculiarities; here are abundant materials for two or three of our numbers, and must therefore be passed over here. A few general remarks, then, will conclude our present route.

English travellers proceeding from Persia to England, by way of Constantinople, pursue different routes after leaving

that city. Lieut. Lumsden, in 1820, returned by way of Odessa on the Black Sea, Lemberg, Cracow, Vienna, Munich, Switzerland, and France, to England. Sir James Alexander, in 1826, passed through Constantinople, Shumla, Bukharest, Vienna, Frankfort, and so through Belgium to England. Mr. Fraser, in 1835, after leaving Constantinople, came by way of Adrianople, through Bulgaria and Servia into Austria, and thence through Belgium to England.

Let us endeavour to determine the number of miles over which our journey has carried us. When a traveller is proceeding with great rapidity on horseback, through countries where he knows not how soon he may be attacked by depredators, where he has to traverse mountain and valley, forest and plain, where he meets with few inns, and those few badly provisioned, where scientific instruments and books must be dispensed with, and where nothing analogous to an English coach-road exists,—we cannot look for a very accurate measurement of road gone over, and must not be surprised if the estimates of different travellers are somewhat at variance. In such a case we may take a mean between the estimates as the nearest approach we can make to correctness.

Lieutenant Lumsden estimates the journey by sea from Bombay to Muskat, at the entrance of the Persian Gulf, 1280 miles; from Muskat to Bushire 400; from Bushire to Shiraz, 170; Shiraz to Ispahan, 220; Ispahan to Tabriz, 540; Tabriz to Mount Ararat, 160. Sir James Alexander estimates the last four distances, respectively, at about 180, 280, 680, and 160. As Sir James took a somewhat circuitous route in some parts, we may perhaps estimate the distance from Bushire to Mount Ararat at about eleven hundred miles, or from Bombay two thousand eight hundred. From this point to Constantinople, along the northern part of Asia Minor, is estimated by Sir J. Alexander at about thirteen hundred miles, and by Sir R. Porter at about twelve hundred; taking the latter, we have four thousand miles from Constantinople to Bombay. Neither Porter, Alexander, nor Fraser, gives an itinerary from Constantinople to London, but Lieutenant Lumsden estimates the distance from Odessa on the Black Sea, through Russia, Austria, Bavaria, and France, to London, at about seventeen hundred miles. The route here taken is probably two hundred miles longer than the usual route from Constantinople *via* Vienna and the Netherlands, to London.

We may therefore perhaps estimate the distance from Bombay to London, by our present overland route, by way of Bushire, Shiraz, Ispahan, Tabriz, Mount Ararat, Erzeroum, Constantinople, and Vienna, at somewhere about five thousand five hundred miles.



PARTY OF KOORDS EXERCISING.

THE
Saturday Magazine.

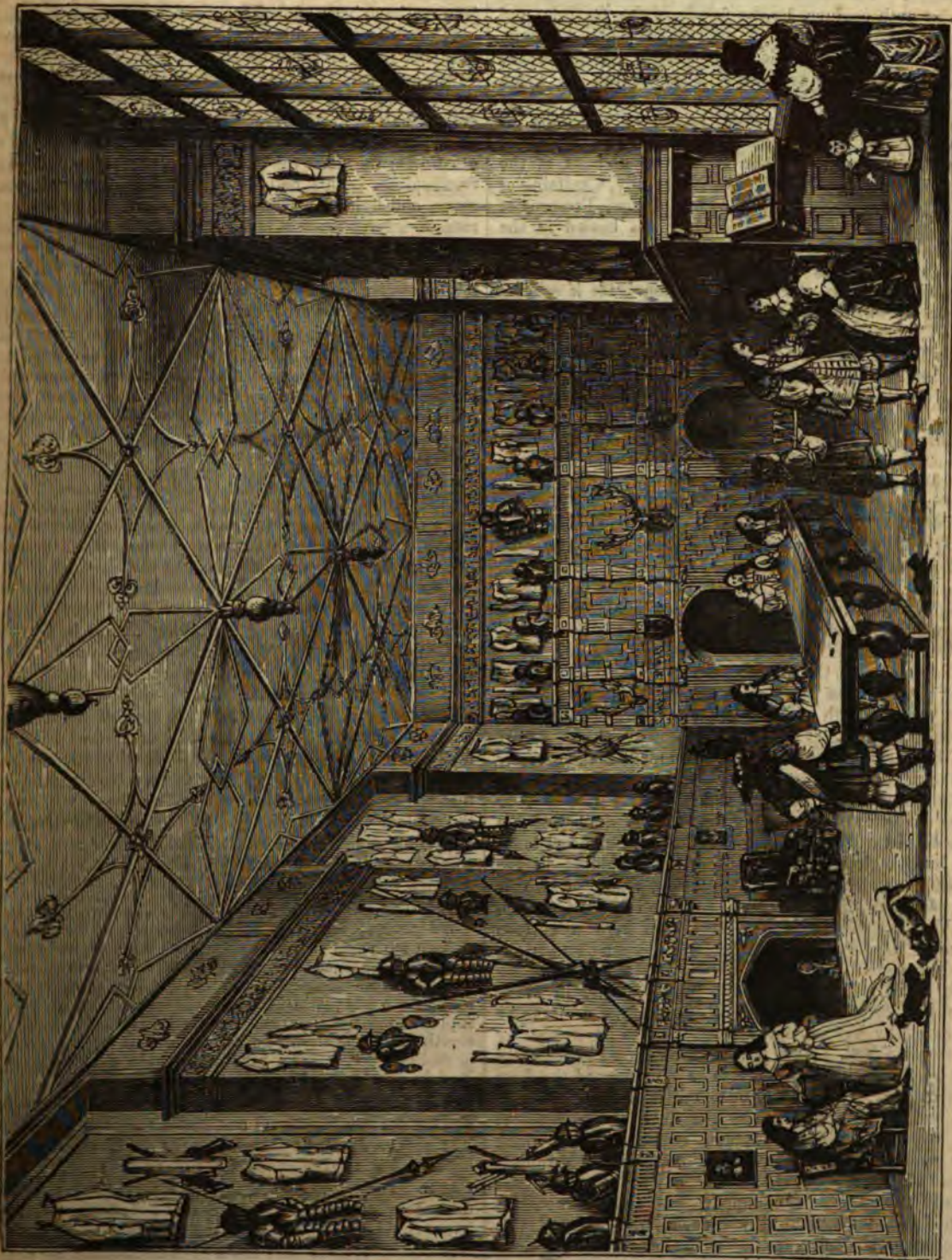
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ONE PENNY.



INTERIOR OF THE GREAT HALL AT LITTLECOATES, WILTS.

LITTLECOATES, WILTS.

We have again the pleasure of presenting to our readers a cut from one of the beautiful prints in Mr. Nash's *Mansions of England in the Olden Time*, representing one of those rich interiors which form such striking features in that work.

The Hall represented in our frontispiece forms part of the mansion of *Littlecot*, or *Littlecoates*, the residence of General Popham; and is situated partly in the parish of Chilton-Foliot, and partly in that of Ramsbury, Wiltshire. The house was erected in the early part of the sixteenth century, by the family of the Darrels; and was some years afterwards, sold to Sir John Popham, Chief Justice of the Court of King's Bench in the reigns of Queen Elizabeth and King James the First. The family of the Pophams was very ancient, and of great note. They were first raised to the rank of nobility by the Empress Matilda and her son Henry the Second. One of them was styled, on account of the offices he filled, "Chancellor of Normandy, Capitaine of Verneille, of Perche, of Susan, and Bayon, Tresoror of the King's Household." His body was buried in the Charter-House Church, London; and his effigy was fixed over the door of St. Sepulchre's Church, he having contributed large sums towards its erection. He is said by Leland to have left "a very great treasure in strange coynes." Sir John Popham, the chief Justice to whose hands Littlecoates passed, was among the most eminent branches of the family, having adorned his high station equally by his ability and his integrity. The descendants of this gentleman, in the male line, inherited the mansion till the beginning of the present century, when it passed by will to General Edward Leybourne, who thereupon assumed the name of Popham. In the family of this gentleman we believe the estate still remains.

The mansion of Littlecoates was built, as has been remarked, "about the time of the termination of feudal warfare, when defence came no longer to be an object in a country mansion." The park in which it is situated comprises an area of about four acres in extent, and is adorned with groups of beautiful trees. On one side of it rises a lofty hill, crowned with wood, and forming a fine contrast with the luxuriant and level meadows spread along the banks of the river Kennet; a branch of which river runs through the garden, and there constitutes a preserve for fish.

Considerable alterations have been made in the exterior of the mansion in modern times; but the interior presents many of the features which it exhibited two or three centuries ago. On the first floor of the building is a noble picture gallery, one hundred and ten feet long, and hung with many curious portraits, painted in the sixteenth and seventeenth centuries; among which is one of Chief Justice Popham, and one of Nell Gwynne, by Verelst. There is also preserved here a curious piece of needlework, representing a large Roman tessellated pavement, which was discovered in the adjoining park by Mr. George, steward to the estate, in 1728. The Society of Antiquaries caused a plate of it to be engraved by Vertue, and a description to be written by Professor Ward. This pavement measured about forty feet by thirty-three, and seems to have formed the floor of a temple. It consisted of two divisions, the templum and sacrarium, answering to the nave and chancel of our churches. The templum, or outer part, which was nearly square, was ornamented with a compartment of figures inlaid, in the centre of which was a large two handled cup, supported by two sea-monsters with fishes tails, and behind each a dolphin and two conchæ, or shell-fish, probably in allusion to Neptune. Opposite was a border, with a similar cup, supported by two tigers. The floor of the sacrarium was a square, enclosing a circle. Within this circle was a smaller one, in which was a figure of Apollo playing on the harp;

and in four surrounding compartments, four female figures representing the Seasons, fiddling at full speed. One was exhibited holding a flower in her hand, and seated on a deer, to represent Spring; the second appeared seated on a panther, and holding a swan, as an emblem of Summer; the third, who rested her arm on a branch of a vine, rode on a bull, and personified Autumn; and the fourth, seated on a goat, without anything in her hand, denoted the barrenness of Winter. Exterior to the circle enclosing these figures were three compartments, each displaying a face of the sun, emitting bright and extended rays in the form of a semicircle; many conjectures have been offered respecting the nature and purport of this remarkable specimen of ancient art; but we need not dwell on them here.

We have said that the piece of tapestry, or needlework, representing this pavement, is preserved in the long gallery on the first story. On the ground floor is an apartment still more attractive as a relic or memorial of old times; we mean the Great Hall, represented in our frontispiece. This hall is very spacious, paved with stone, and lighted by large and very lofty windows. It measures forty-six feet in length, twenty-four in width, and twenty-five in height; and its walls are hung with numerous relics of ancient armour, such as coats of mail, helmets, cross-bows, old-fashioned pistols, carbines, leather jerkins, and other defensive and offensive accoutrements. Here is also a pair of elk's horns, measuring seven feet six inches from tip to tip. The old furniture of the room is preserved nearly in the same state as it was in by-gone days, and Mr. Nash has presented them with his accustomed fidelity. Among these articles of furniture is an old arm-chair, said to have been used by Chief Justice Popham; it is constructed of wood, curiously turned, and has a very lofty back, and a triangular seat. The centre of the hall is occupied by a large oak table, reaching nearly from one extremity to the other. This table probably formed the hospitable board on which in days of yore, the vassals were feasted by their lord. Mr. Nash, however, has represented this table as being the scene of the game of "shovel-board," a favourite pastime among the higher classes in the time of Charles the Second; and it appears not unlikely that the same table might serve both purposes.

As the game here alluded to is now quite obsolete, the reader may not deem a few remarks concerning it superfluous. *Shovel-board* was an inferior kind of billiards, in which a small object was struck or thrown, so as to pass to a particular part of the table. Strutt remarks, that the residences of the nobility, or the mansions of the opulent were not thought to be complete without a shovel-board table; and this fashionable piece of furniture was usually stationed in the great hall. Dr. Plott, in his *History of Staffordshire*, says:—

It is remarkable that in the hall at Chartley, the *shuffle-board table*, [it appears to have been spelt both ways,] though ten yards one foot and an inch long, is made up of about two hundred and sixty pieces, which are generally about eighteen inches long, some few only excepted, that are scarce a foot; which, being laid on longer boards for support underneath, are so accurately joynted and glewed together, that no shuffle-board whatever is freer from rubs or castings. There is a joynt also in the shuffle-board at Madely Manor exquisitely well done.

The general width of these tables is about three feet, and the surface is as level and smooth as it can be made. The player stands at one end of the table, and near the other end is a mark which determines the success of the player. This mark or line is drawn across the table at a distance of three or four inches from the end, which end is unprovided with any ledge or stay, and at about four feet distance from this mark or line another is drawn, parallel to it. The toys with which the game is played are flat metal weights, of which each player has four. Each one in turn impels a weight from the near to the remote end of the table; and his object is to use such a

degree of force as shall lodge the weight in the narrow space between the farthest mark and the remote end of the table. If the force is too weak to carry the weight beyond the nearest line, or if it is so powerful as to drive the weight off the table at the other end, it counts for nothing; if the weight rests on the farthest line, or in any part of the space between the two lines, the player counts one; if it rests in the space between the farthest line and the edge of the table, he reckons two; and finally, if it reaches the edge so exactly as to incline a little over without falling, it is deemed the finest kind of play, and counts as three. Each person plays in turn; and when two only are playing, eleven is "game;" but when four play, the number to form game is higher.

Such was a favourite indoor amusement two or three centuries ago; and though far inferior to billiards, it required some skill to attain success at it. In one of the Harleian Manuscripts is a passage which introduces us to Prince Henry, son of King James the First, playing at this game:—

Once when the prince was playing at shoffle-board, and in his play changed sundry pieces, his tutor being desirous that even in trifles he should not be new-fangled, said to him, that he did ill to change so oft; and therewith took a piece in his hand, and saying that he would play well enough therewith without changing, threw the piece on the board; yet not soe well, but the prince, smiling thereat, said, Well throwne, sir. Whereupon, Master Newton telling him that he would not strive with a prince at shoffleboard, he answered, You gownsmen should be best at such exercises, being not meete for those that are more stirring. Yes, quoth Master Newton, I am meete for whipping of boyes. And hereupon the prince answered, You need not vaunt of that which a ploughman or cart-driver can doe better than you. Yet can I doe more, said Master Newton, for I can governe foolish children. The prince respecting him, even to jesting, came from the further end of the table, and smiling said, while he passed by him, Hee had need be a wise man himself that could doe that.

AFFLICTIONS.

As a traveller, who having just escaped the fury of a lion, encounters immediately afterwards an angry bear, And who, delivered from his new peril, and thankfully reaching his own gate, Should no sooner rest his hand upon the wall, than a serpent should dart forth from it, and bite him, So does one affliction after another lie in wait for me; And the latest that I fall into always seems the most grievous to endure.

St. GREGORY; *Book of the Fathers.*

The most imposing object in the vegetable kingdom is the solemn forest. Single trees on a plain, or a sufficient number to form a grove, are objects of beauty, and consequently of pleasure. The dark, close forest carries the mind back through an indefinite lapse of time, and conveys to it a sentiment of the actual presence of the work of the Creator, as it came from his hand unchanged by any act of man.

With this seeming stamp of originality on it, yet the long-enduring forest which appears ever the same, is silently and hourly submitting to the laws of Nature, ever varying and changing; and though life among its members, like life among the members of the human family, has its limits, and within some definite term not one of all that are seen will remain, yet it is still the same forest to the human eye. From the most deep-rooted and long-enduring of this vast assembly, down to the many perfect vegetables which are invisible to the naked eye, there are general laws of beginning, continuing, and ending the term of life.

Yet, between these extremes there are many genera, or kinds, capable of precise and well-understood classification. Among these classes each has its own order of being; and these are again subdivided, and known by distinctions of form, internal structure, and in foliage, in flowers, in fruits, in juices, and fragrance. Each of them seems to have been given for some purpose, pleasing, convenient, or necessary to the animal kingdom.

HYPOCHONDRIACISM.

Of the miseries the hypochondriac experiences, the following extract of a letter to a physician, will afford a specimen:—"My poor body is a burning furnace, my nerves red-hot coals, my blood is boiling oil; all sleep has fled, and I am suffering martyrdom. I am in agony when I lie on my back; I cannot lie on either side; and I endure excruciating torture when I seek relief by lying on my stomach; and, to add to my misery, I can neither sit, stand, nor walk." The fancies of hypochondriacs are frequently of the most extraordinary nature; one patient imagines that he is in such a state of obesity as to prevent his passing through the door of his chamber or his house; another impressed with the idea that he is made of glass, will not sit down for fear of cracking; a third seems convinced that his head is empty; and an intelligent American, holding a high judicial seat in our West Indian colonies, could not divest himself of the occasional conviction of his being transformed into a turtle.

The most melancholy record of the miseries of hypochondriacism is to be found in the diary of Dr. Walderstein of Gottingen. He was a man much deformed in person, and his mind seemed as distorted as his body. Although of deep learning and research, and convinced of the absurdity of his impressions, yet he was unable to resist their baneful influence.

My misfortune, (says the doctor,) is that I never exist in this world, but rather in possible combinations created by my imagination to my conscience. They occupy a large portion of my time, and my reason has not the power to banish them. The malady, in fact, is the faculty of extracting poison from every circumstance in life, so much so that I often felt the most wretched being, because I had not been able to sneeze three times together. One night when I was in bed I felt a sudden fear of fire, and gradually became as much oppressed by imaginary heat as though my room were in flames. While in this situation, a fire-bell in the neighbourhood sounded, and added to my intense sufferings. I do not blush at what might be called superstition, any more than I should blush in acknowledging that my senses inform me that the earth does not move. My error forms the body of my judgment, and I thank God that he has given it a soul capable of correcting it. When I have been perfectly free from pain, as is not unfrequently the case when I am in bed, my sense of this happiness has brought tears of gratitude in my eyes. I once dreamt, (adds Walderstein,) that I was condemned to be burnt alive. I was very calm, and reasoned coolly during the execution of my sentence. 'Now,' I said to myself, 'I am burning, but not yet burnt; and by-and-by I shall be reduced to a cinder;' this was all I thought, and I did nothing but think. When, upon awaking, I reflected upon my dream, I was by no means pleased with it, for I was afraid I should become all thought, and no feeling.

It is strange that this fear of thought, assuming a corporeal form in deep affliction, had occurred to our poet Rowe, when he exclaims, in the *Fair Penitent*,

Turn not to Thought my brain.

What is very distressing, (continues the unfortunate narrator,) is that when I am ill I can think nothing, feel nothing, without bringing it home to myself. It seems to me that the whole world is a mere machine, expressly formed to make me feel my sufferings in every possible manner.

What a fearful avowal from a reflecting and intelligent man. Does it not illustrate Rousseau's definition of reason—the knowledge of our folly.

(MILLINGEN'S *Curiosities of Medical Experience.*)

In love of home, the love of country, heads rise; and who are truer patriots or the best in time of need, those who venerate the land, owning its woods and stream, and earth, and all that they produce; or those who love their country, boasting not a foot of ground in all its wide domain.—*Diogenes.*

ON CHESS.
VII. CHESS-WRITERS AND PLAYERS.



'CHESS-KING, AS DESIGNED BY FLAXMAN

High in the midst the rev'rend kings appear,
And o'er the rest their pearly sceptres rear:
One solemn step, majestically slow,
They gravely move; and shun the dang'rous foe;
If o'er they call, the watchful subjects spring,—
And die with rapture if they save their king!
On him the glory of the day depends:
He once imprisoned, all the conflict ends.—SIR W. JONES.

THE knowledge of the game of chess has been extensively diffused for many centuries past, as may be seen by the numerous manuscripts and printed treatises which have appeared on the subject. The latter have been written in, or translated into, nearly all the European languages, and several of the Oriental ones; and it may perhaps prove interesting to such of our readers as have not met with any notice of these works, to take a cursory glance at them, and at the players and modes of play they celebrate.

As early as the commencement of the ninth century, the game of chess was in such high repute in the East, that Al Amin, Khalif of Bagdad, is said to have commanded the different provinces of his empire to send to his court all such persons as were the most expert at chess, to whom he allowed pensions, and passed the most considerable part of his time among them. On one occasion, when he was playing at chess with his freed-man Kuthar, without the least apprehension of impending danger, Al Mamûn's forces pushed the siege of Bagdad with so much vigour, that the city was upon the point of being carried by assault. On being warned of his danger, Al Amin cried out "Let me alone! for I see check-mate against Kuthar." This anecdote is quoted by Dr. Hyde from an Arabic history of the Saracens. At this period (about the year 808), chess was not unknown to the monarchs of the West. Charlemagne is represented, in the curious and ancient French romance called *Guerin de Montglave*, as being exceedingly fond of the game. This romance was alluded to in our *History of the Origin of Chess*, and the anecdote there referred to is as follows:—"I bet," said the emperor to the hero of the tale, "that you would not play your excursions against me at chess, unless I were to propose some very high stake." "Done," replied Guerin, "I will play, provided only you bet against me your kingdom of

France." "Very good, let us see," said Charlemagne, who fancied himself to be strong at chess. They play forthwith, Charlemagne loses his kingdom, but laughs the matter off as a joke. Guerin, however, is not disposed to view it in this light, and swears by St. Martin and all the Saints of Aquitaine that he must receive some compensation. The emperor then gives him permission to conquer Montglave (Lyon) from the Saracens, and surrenders to Guerin all his right in that city.

Other romances of that period contain notices of the game of chess, and it is in fabulous histories that we get the first mention among western authors of this celebrated amusement. There is nothing to induce the supposition that at this time, the European players had attained any great degree of skill at chess; but we find mention made of a player at Tripoli, in Syria, who in the year 970 was famed for going through the game blind-fold. This man, Jusuph Tchelebi by name, was accustomed to use very large chess-men, and to play not by naming the moves, but by feeling the men, and placing them in the squares or removing them from the board as occasion required. At the period we are now speaking of, the chess-table seems often to have been the scene of fierce dispute, and violent anger. Two or three fatal affrays are represented by the French romancers to have taken place, in consequence of the termination of a game of chess, and though we are prepared for highly-coloured pictures in works of this description, there is no doubt but that some measure of truth is to be found in such recitals, and that they had their foundation in the customs of the times. In a book published at Stockholm in the Icelandic language, King Canute, so celebrated for his wisdom, is described as resenting very deeply a provocation received at chess. The passage runs thus:—

As King Canute and Earl Ulf were playing at chess, the king made a false move, in consequence of which the earl took one of his knights; but the king would not allow this, and replacing the piece, insisted on his playing differently. The earl waxed angry, overturned the chess-board, and was going away, when the king called after him, saying "Ulf, thou coward, dost thou flee?" The earl returned to the door, and said, "You would have taken a longer flight in the river Helga, had I not run to your assistance when the Swedes beat you like a dog; you did not then call me Ulf the coward." The earl then retired, and the next morning the king ordered him to be killed.

Of the fondness of the Danes for chess and dice we have an instance in the fact that when Bishop Ethernic came to Canute the Great on important business, and entered the royal presence at midnight, he found the king and his courtiers busily engaged at these games, even at an hour which in those early times must have been considered a most unseasonable one for the purposes of amusement.

In an old book, called the *Anatomy of Melancholy*, where chess is recommended as "a good and witty exercise of the minde for some kinde of men; but too troublesome, too full of anxiety," and "all but as bad as study" to others, it is given as an illustration of its tendency to promote a testy choleric feeling in him that loseth the mate, that "William the Conqueror in his younger years while playing at chess with the prince of France, lost a mate, and was so provoked thereat, that he knocked the chess-board about his adversary's pate, which was a cause afterwards of much enmity between them." The chess contest seems to have been afterwards carried on in much the same spirit between their sons, for we find that towards the close of William's reign (1087), he appointed his two sons, Robert and Henry, joint governors of Normandy, and these going together to the French king were entertained with a variety of sports. Henry played with the Dauphin (Louis le Gros) at chess, and won a considerable sum of money of him, which so much irritated Louis that he threw the chess-men at Henry's head, using at the same time

offensive language towards him. Henry retaliated with blows; and the quarrel, it is said, reached such a height, that but for the interference of the Prince Robert it might have terminated fatally. John of Salisbury relates that in a battle between the French and English in 1117, an English knight seizing the bridle of Louis le Gros, and crying out, "The king's taken." Louis struck him to the ground with his sword, saying "Ne scais tu pas qu'aux échecs on ne prend pas le roy?" "Dost thou not know that at chess the king is never taken?"

We now approach the period when the first regular treatise on chess made its appearance. This was the work of Jacobus de Cossolis, or Cesolis, presumed to have been written before the year 1200. Verci says that the original work was written either in Latin or in French, and that the Latin manuscript is still preserved in the University of Padua. Two manuscript copies of this work are preserved in the British Museum. The first is entitled *Liber moralis de Ludor Scaccor*, and it is a quarto of fifty leaves of parchment, twenty-nine lines on a page. The first page has a miniature border, in gold and colours, representing flowers, a peacock, and other birds, with two angels. The first letter, which is a Gothic M of about an inch square, is ornamented with a king playing at chess with a monk. The colours are vivid and the drawing is good; eleven more capitals are embellished with flourishes in gold, and the writing is neat and well-preserved. The other copy is written on paper, and unornamented. The work of Cesolis was translated into English by William Caxton, in 1474, but previous to that time there had appeared a curious manuscript of which we must first take account. It was called *A Morality on Chess*, and was ascribed to Pope Innocent III., but seems to have been written by an English monk named Innocent, about the year 1400. As it is not without its merits, and boldly points out the abuses which creep into the highest offices, we give it at full length; observing, however, that the description of the moves of the king and queen does not agree with that in the modern game, while the bishop's move is restricted to three squares, as in the "courier" game, which we shall have to notice hereafter.

This whole world is nearly like a chess-board, of which the points are alternately white and black, figuring the double state of life and death, grace and sin.

The families of this chess-board are like the men of this world; they all come out of one bag, and are placed in different stations in life. They have different appellations: one is called king, another queen, the third rook, the fourth knight, the fifth alphin (bishop), the sixth, pawn.

The condition of the game is, that one piece takes another; and when the game is finished, they are all deposited together, like man in the same place. Neither is there any difference between the king and the poor pawn: for it often happens that when the pieces are thrown promiscuously into the bag, the king lies at the bottom; as some of the great will find themselves after their transit from this world to the next.

In this game the king goes into all the circumjacent places and takes everything in a direct line, which is a sign that the king must never omit doing justice to all uprightly, for in whatever manner a king acts it is reputed just, and what pleases the sovereign has the force of law.

The queen, whom we call *Fers*, goes and takes in an oblique line; because women being of an avaricious nature, take whatever they can; and often, being without merit or grace, are guilty of rapine and injustice.

The rook is a judge who perambulates the whole land in a straight line, and should not take anything in an oblique manner, by bribery or corruption, nor spare any one; else they verify the saying of Amos, "Ye have turned justice into gall, and the fruit of righteousness into hemlock."

But the knight in taking, goes one point directly, and then takes an oblique circuit, in sign that knights and lords of the land may justly take the rents due to them, and their just fines from those who have forfeited them, according to the exigence of the case. Their third point being oblique applied to knights and lords when they unjustly exact.

The poor pawn goes directly forward in his simplicity;

but whenever he will take he does so obliquely. Thus man, while he is poor and contented, keeps within compass and lives honestly; but in search of temporal honours he fawns, cringes, and forswears himself, and thus goes obliquely till he gains a superior degree on the chess-board of the world. When the pawn attains the utmost in his power, he changes to *Fers*, and in like manner humble poverty becomes rich and insolent.

The alphins are the various prelates of the church, pope, archbishop, and their subordinate bishops, who rise to their sees not so much by divine inspiration as by royal power, interest, entreaties, and ready money. These alphins move and take obliquely three points, for the minds of too many prelates are perverted by love, hatred, or bribery, not to reprehend the guilty or bark against the vicious, but rather to absolve them from their sins: so that those who should have extirpated vice are, in consequence of their own covetousness, become promoters of vice and advocates of the devil.

In this chess game the devil says "check" whenever he insults and strikes one with his dart of sin; and if he that is thus struck cannot immediately deliver himself, the devil resuming the move says to him "mate," carrying his soul along with him to prison, from which neither love nor money can deliver him, for from hell there is no redemption. And as huntsmen have various hounds for taking various beasts, so the devil and the world have different vices, which differently entangle mankind, for all that is in this world is lust of the flesh, lust of the eyes, or proud living."

ON THE CUSTOM OF THE MAUNDY.

THE reader may probably have noticed in Almanacs, that the day immediately preceding Good Friday in every year is called *Maundy Thursday*. The old customs connected with this day, and still partially observed, are very curious, and well worthy of general attention at this season of the year. But, before we proceed to detail them, it will be proper to state the opinions given as to the origin of the term *maundy*.

Our old writers, about the time of the Reformation, apply this word to the *commands*, then written "*commandments*," of Christ, which He delivered to his disciples on the day before his crucifixion. These commands of our Blessed Lord related to the faith and practice of the future apostles while upon earth, and of the Christian church throughout all ages. He ordained the Holy Communion of His body and blood, to be observed by them and all faithful Christians till His second coming. He washed the feet of the disciples, (a common and necessary service in the East, which the climate renders desirable to be done,) in token of that humility which it behoved them to imitate; and He laid His affectionate injunctions upon them, that they should love one another as he had loved them. Christ was put to death on the Friday: the day before is thus termed "*Maundy Thursday*," as being the day of the last *commands* of our Lord, before the fulfilment of those sufferings in His own person, which should cleanse us from all sin.

Following the other authority, we find that *Maundy Thursday* is so named from the *maunds*, wherein were formerly contained gifts, which the king was wont to distribute on that day, to a certain number of poor persons at Whitehall. The Saxon word "*mand*," which afterwards became *maund*, is the name for a *basket*, (French *manne*,) and by consequence for any gift, or offering, contained in the basket. The sort of basket just referred to, is an open one with handles.

The day of which we speak was likewise once called *Sheres Thursday*, (and by corruption *Chares Thursday*,) because as we are told, in ancient times, "people would that day shere theyr hedes and clypp theyr berdes, and so make them honest agenst Easter-day." In the miraculous legend of St. Brandon, it is related that he sailed with his monks to the Island of Sheep, about the year 565 A.D. This island, which abounded in sheep, was set down in the ancient maps, in the middle of the Atlantic Ocean, near the Equator. Here on "*shere-*

thursdays, after souper, he wesse theyr feet, and kyssed them lyké as our lorde dyd to his dyscyples."

We propose now to notice several celebrations of the Maundy, beginning with the practice of it in the reign of her present Majesty, Queen Victoria, and going back into previous reigns, as far as our means will allow; concluding with notices of foreign observances of this day.

In the *Times* newspaper of April 16th, 1838, we observe the following account of her Majesty's Maundy donations:—

The Queen's royal alms were distributed on Saturday by Mr. Hanby, at the almonry office, to the Maundy men and women placed on the supernumerary lists, owing to the difference of the ages between the late king and her present Majesty. Both men and women receive 2*l.* 10*s.*, and nineteen silver pennies, (being the age of the queen.) To the men, woollen and linen clothing, shoes, and stockings were given; and to the women, in lieu of clothing, 1*l.* 15*s.*, each. The Maundy men and women also received 1*l.* 10*s.*,—a commutation, instead of the provisions heretofore distributed.

As the foregoing comprises a substantial account of the present celebration of the Maundy, we need not dwell further upon it, except to make a few remarks on the silver penny, which is now coined expressly for this occasion.

Before the year 1672 there was no legitimate copper coinage in England: on which account the pecuniary donations of the sovereigns of England on Maundy Thursday were usually made in silver;—the silver pennies then in common use;—as many silver pennies being given to each individual as the years of the monarch's age; besides clothes and food, as will be presently related. Mr. Till, an experienced numismatist, passes a high eulogium on the beauty and production of the small pieces termed *Maundy* money. He considers them as finely executed, and well struck up; in some instances being like proofs; judging from the specimen now before us, they certainly merit this eulogium. The Maundy pennies are $\frac{1}{4}$ of an inch in diameter. They are by order of Government declared current coins of the realm; so that they could not be refused, if tendered in payment: still, they are not in reality intended for that purpose. Besides the pennies, four-penny pieces, three-penny pieces, and two-penny pieces are struck as Maundy money, and also used as presents for various officers attached to the crown, as well as to others.

We have seen that the practices of the Maundy are now considerably pared off: but, in order to give the reader some idea of the ancient customs of this day, we will select a few instances of the observances of by-gone years.

On Maundy Thursday, 1814, the royal donations were distributed at the Chapel Royal, Whitehall, according to annual custom. In the morning, Dr. Carey, the sub-almoner, and Mr. Hanby, secretary to the lord high almoner, together with others belonging to the lord chamberlain's office, and a party of the yeomen of the guard, distributed to seventy-five poor men, and the like number of women, (being as many as the king was years old,) a quantity of salt-fish, consisting of salmon, cod, and herrings, pieces of very fine beef, five loaves of bread, and some ale to drink the king's health. At three o'clock they assembled again, the men on one side of the chapel, and the women on the other. A procession entered of those engaged in the ceremony, consisting of a party of yeomen of the guard, one of them carrying a large gold dish on his head, containing one hundred and fifty bags, with seventy-five silver pennies in each, for the poor people, which was placed in the royal closet. They were followed by the sub-almoner in his robes, with a sash of fine linen over his shoulder, and crossing his waist. He was followed by two boys, two girls, the

secretary, and another gentleman, with similar sashes, and all carrying large nosebags. The church evening service was then performed, at the conclusion of which the silver pennies were distributed, together with woollen cloth, linen, shoes, and stockings; and a cup of wine was given to each to drink the king's health.

The provisions were given away in large wooden bowls; the drinking-cup was made of maple. The bags containing the Maundy money were made of *white* kid: when gold was given away, it was put into a small *red* bag.

The ceremonial of the Maundy, as practised in 1731, consisted in distributing at the Banqueting House, Whitehall, to forty-eight poor men, and forty-eight poor women, (the king's age being forty-eight,) boiled beef and shoulders of mutton, with small bowls of ale, which is called *dinner*: after that, large wooden platters of fish and bread; viz., one large old ling, and one large dried cod; twelve red-herrings, and twelve white-herrings, all undressed; and four half-quarters loaves. Each person had one platter of this provision; after which they received shoes, stockings, linen and woollen cloth, and leathern bags, with one penny, two-penny, three-penny, and four-penny pieces of silver, and shillings; to each about four pounds in value. His grace, the Lord Archbishop of York, lord high almoner, performed the annual ceremony of washing the feet of a certain number of poor in the royal chapel, Whitehall, which was formerly done by the kings themselves, in imitation of our Blessed Saviour's pattern of humility. James II. is said to have been the last of our monarchs, who performed this ceremony in person.

In the year 1572, which was the thirty-ninth year of Queen Elizabeth's age, besides bestowing her maundy, her Majesty, as the kings and queens of England had done before her, washed and kissed the feet of as many poor men and women as she herself was years old. This was done at Greenwich, on which occasion the feet of the poor persons were first washed by the yeomen of the laundry with warm water and sweet herbs; afterwards by the almoner and sub-almoner; and lastly, in a silver basin by the queen herself;—the person who washed, making each time a cross on the pauper's foot above the toes, and kissing it. This ceremony was performed by the queen, kneeling, being attended by thirty-nine ladies and gentlewomen: the queen's part of the business took place after singing and prayers, and the reading of the Gospel, which describes the fact thus limited. Her Majesty then distributed clothes, victuals, and money; the rest of the proceedings being similar to those in the cases mentioned before.

It appears that the money given to the maundy people, in addition to the pennies, was meant for the redemption of the sovereign's garments, which, according to the ancient order, it was usual to give away. Queen Elizabeth redeemed her gown by giving twenty shillings in a leathern purse to each person.

The ceremony of the archbishop washing the feet of the apostles, is performed in great style at Moscow, in Russia, on the Thursday before Easter. The priests appear in their most gorgeous apparel. Twelve monks, designed to represent the twelve apostles, are placed in a semicircle before the archbishop. The ceremony takes place in the cathedral, which is crowded with spectators. The prelate, who performs all, and much more than is related of our Saviour in the 13th chapter of St. John's gospel, takes off his robes, girds up his loins with a towel, and proceeds to wash the feet of them all, until he comes to the monk who represents St. Peter, who rises up, and holds the same discourse with the archbishop which is recorded as having taken place between our Blessed Lord and that apostle.

Dr. Bright tells us that, in Austria, this singular ceremony is celebrated at Vienna, by the court; it is known in Germany, among the Romanists by the

epithet of the "washing of the feet." After suitable preparations are made, twelve men and twelve women are selected from the oldest and most deserving paupers. After attending mass, the emperor and empress, with the whole court, enter to the sound of solemn music, and approach the tables where the paupers are sitting, whom they serve with different courses of meats, and with wine. The tables are then removed, and silver bowls are placed beneath the feet of the men and women; the emperor washing the feet of the former, and the empress the feet of the latter, while the grand chamberlain, in a humble posture, pours water upon the feet of each one in succession from a golden urn. This rite concludes amidst the sounds of sacred music.

In Spain, one of the public sights of the town of Seville on Maundy Thursday, is a splendid cold dinner which the archbishop gives to twelve paupers, in commemoration of the apostles. The dinner is to be seen laid out on tables filling up two large rooms in the palace. Having partaken of a more homely dinner in the kitchen, these guests are furnished with large baskets to take away the splendid commons allotted to each in separate dishes, which they sell to the gourmands of the town. Each, besides, is allowed to dispose of his napkin, curiously made up into the figure of some bird or quadruped, which people buy as ornaments to their china cupboards, and as specimens of the perfection to which some of the poorer nuns have carried the art of plaiting.

At two o'clock in the afternoon, the archbishop, attended by his chapter, repairs to the cathedral, where he performs the ceremony of washing the feet of the twelve paupers in a large silver basin: they are seated on a platform erected before the high altar, and the prelate, stripped of his silk robes, and kneeling successively before each, goes through a pompous and ostentatious imitation of our blessed Lord's real humility.

In Rome, the Pope commemorates the washing of the disciples' feet by officiating in person. In this case, there are *thirteen*, instead of twelve, representatives of the apostles, the additional one representing the angel that once came to the table of twelve that St. Gregory was serving. The twelve are old priests, but he who represents the angel is very young. They are all dressed in loose white gowns, and white caps on their heads, and clean woollen stockings, and seat themselves in a row along the wall, under a canopy. When the Pope enters and takes his seat at the top of the room, the whole company kneel in their places and turn towards him; and on his hand being extended in benediction, they all rise and reseal themselves. The splendid garments of the Pope are then taken off; and, clad in a white linen robe which he wears under the others, and wearing the bishop's mitre instead of the tiara, he approaches these pilgrims, as they are called; then, taking from an attendant cardinal a silver bucket of water, he kneels before each of them successively, wets each foot, and touches it with a square fringed cloth; he then kisses the leg, and gives the cloth, together with a sort of white flower or feather, to the pilgrim. This ceremony is done so quickly, that it consumes scarcely two minutes. The Pope then returns to his throne, puts on his robes of white and silver again, and proceeds to the dining-hall; the thirteen priests are then seated in a row at the table, which is spread with a variety of dishes, and adorned with a profusion of flowers. The Pope gives the blessing; and walking along the side of the table opposite to them, hands each of them bread, plates, and cups of wine. They regularly rise up to receive what he presents; the Pope then goes through the forms of service, gives them his parting benediction, and leaves them to finish their dinner. They carry away what they cannot eat, and receive a small present in money besides.

The custom of the Maundy is supposed to have been of great antiquity, as it is first referred to Augustine, who lived about the year 400 A. D. It has been ordi-

narily confined to royalty, but in the Earl of Northumberland's *Household Book*, which belongs to the early part of the sixteenth century, we find mention made of "Al maner of thyngs yerly yeven by my lorde of his maundy, ande my laidis, ande his lordshippe's childeren."

SILK FROM SHELL-FISH.

We have lately noticed an attempt made to procure silk, adapted for the purposes of the manufacturer, from spiders' nests. We have now to speak of a similar, and rather more successful, attempt with respect to shell-fish.

It is well known that the common edible muscle has the power of affixing itself to rocks, or to the shells of other muscles, with great firmness; and it has been ascertained that if the animal is accidentally torn from its hold, it has the power of replacing the threads of viscous matter, by which it thus attaches itself to different objects. The threads issue from the part of the shell where it naturally opens, and though each in itself is too delicate to possess much strength, yet the almost infinite number which are put forth, acting as so many small cables, keep the fish steady in its position, amidst all the power of the waves.

It is not to the muscle, however, that we refer as a silk-producing animal, but to a fish belonging to the same order, and in many respects resembling it. This is the *pinna*, a much larger fish than the muscle, its shell being sometimes found two feet long. The shell is bivalve, fragile, and furnished with a beard; the valves hinge without a tooth. The pinna like the muscle attaches itself to rocks; it is also found with the sharp end of its shell embedded in mud or sand, while the rest of the shell is left free to open in the water. Like the muscle, it has the power of spinning a viscid matter from its body; but the threads of the pinna are of great delicacy and beauty, being scarcely inferior to the single filament of the silkworm. Both the pinna and the muscle are furnished with an organ, which is sometimes called a tongue, sometimes a foot, from its performing the offices of both those members. The latter of these offices is denied to it by some naturalists, who affirm that the pinna always remains in the same place; but though its powers of locomotion are very limited, yet it appears that an occasional change of situation is effected by means of the organ we have alluded to. The extremity of the foot (as we may then call it,) is fixed to some solid body, and being contracted in its length, the whole fish is necessarily drawn towards the spot where it has fixed itself; and by a repetition of these movements the animal arrives at its destination. The principal use of this organ, however, appears to be that of forming the *byssus*, which is the name given to the collection of threads by which the animal attaches itself at various points to some fixed spot. The formation of these threads is exceedingly curious and remarkable. They are not spun, like those of the spider and of the silkworm, by being drawn out of the body, but they are cast in a mould, where they remain until they have acquired a certain degree of hardness and consistency. This mould is contained in the tongue of the animal, and forms a deep longitudinal furrow extending from the root to the circumference, having its sides so constructed as to fold over it, thereby making it into a canal. On the outside, this canal appears like a crack, being almost covered by the flesh on either side, but internally it is wider, and surrounded with circular fibres. The tongue is furnished with glands for the secretion of the peculiar liquor which forms the byssus, and from these it is poured into the canal, where it dries into a solid thread. When it has acquired sufficient tenacity the animal protrudes its foot, and applies and fixes the end of the thread to the surface of some object in its vicinity: the whole length of the canal is then suddenly opened, and the thread,

which is fixed by one end to the tendon at the base of the foot, and by the other to the solid surface in question, is disengaged from its mould. The canal is now ready to receive another portion of the viscid secretion, (which secretion exists in great abundance in this animal as well as in muscles,) and the process is gone through as before. Thread after thread is thus formed, and applied in different directions round the shell, and it has been observed that the animal puts each thread in succession to the test, by swinging itself round and stretching it.

Thus, as Reaumur has observed, the workmanship of the land and sea animals, in forming the same production, is very different. Spiders, caterpillars, &c., form threads of any required length, by making the viscous liquor of which the filament is formed pass through fine perforations in the organ appointed for spinning. But the pinna and muscle form their threads in a mould situated within the organ, and which determines the length of each filament. The work of the land animals therefore may be likened to that of the wire-drawer, while the labours of the sea-animals may be compared to those of the founder who casts metals in a mould.

It was at first supposed that the pinna, as well as the muscle, had the power of transferring the threads thus formed from one spot to another; but subsequent observation has proved that wherever the animal takes up its position, there it must remain, unless by any accident the threads become severed, when it immediately begins to form others, and every fibre employed in fixing itself in a fresh situation is newly formed at the time it is required. The old threads appear quite useless, and have, by way of experiment, been cut away from the body as close as was considered safe to the animal, when they were replaced by others, in as short a space of time as that employed by others not so mutilated. We learn from Poli, that the byssus in silk-producing fish is of the same structure as hair, and that at the extremity it is furnished with little cups, or suckers, by which it adheres firmly. In the pinna, the liquid matter is produced slowly, not more than four or five threads being formed in the course of a day and night. It is so exceedingly glutinous in its nature, that it will take a firm hold on the smoothest bodies. When the animal is disturbed in its operations, the threads are more hastily formed, and in consequence possess less strength than those which are produced at the ordinary rate.

The pinna is found on the coasts of Italy and Provence, and in the Indian Ocean. The largest and most remarkable species inhabits the Mediterranean Sea. It is exposed to the attacks of many enemies, especially of the cuttle-fish, which is its deadly foe. It is said, (and the alleged fact has been celebrated in poetry,) that the pinna is warned of approaching enemies by a faithful ally, which is ever at hand to afford its important services. This ally is a small animal of the crab kind, which takes refuge in the shell of the pinna, and compensates by its quickness of sight for the deficiency which the pinna, in common with the rest of its species, experiences in that respect. There is so much that appears fabulous in this reputed friendship of the pinna and the crab, that we willingly omit the several details, and proceed to notice the method employed to procure the byssus, and the uses to which that substance has been applied.

Although the fineness and beauty of this remarkable production is almost equal to that of the silkworm's thread, and has procured for the animal that forms it the common name of "the silkworm of the sea," yet, when attached in filaments of almost innumerable extent to the rocks below the surface of the sea, it requires considerable force to disengage the tuft of threads. At Toulon, an instrument called a *cramp* is employed by the fisherman for this purpose. This is an iron fork, with prongs eight feet in length, and six inches apart;

the prongs are placed at right angles with the handle, the length of which is regulated by the depth of the water, and varies from fifteen to thirty feet. The pinnae are seized, separated from the rock, and brought to the surface by means of this instrument.

It is uncertain whether the term byssus, as used by the ancients, is always applicable to this particular substance. Aristotle speaks of byssus as being made from the beard of the pinna, and it is certain that this kind of silk was employed in the manufacture of certain fabrics in very ancient times. But it is also said that by the name of byssus, the ancients meant indiscriminately any material that was spun, the quality of which was finer and more valuable than woollen threads. Sometimes the produce of the pinna is distinctly mentioned as being wrought into articles of dress; thus Procopius speaks of a robe composed of byssus of the pinna, as having been presented by the Roman emperor to the satraps of Armenia. This substance is evidently referred to by a writer of the year 1782, who says:—"The ancients had a manufacture of silk, and which about forty years ago was revived at Tarento and Regio in the kingdom of Naples. It consists of a strong brown silk, belonging to some sort of shell, of which they make caps, gloves, stockings, waistcoats, &c., warmer than the woollen stuffs, and brighter than common silk. I have seen such kind of shells myself; I think it was of the pecten kind, but cannot be sure."

On the shores where the larger kind of pinnae abound, the manufacture above alluded to is still carried on. At Palermo the silk is wrought into various articles of dress of a beautiful description. The stockings manufactured from this material are so fine, that a pair of them can be easily enclosed in a snuff-box of the ordinary size, and yet their warmth is such, that they are said to be more useful in gouty and rheumatic cases, than appropriate for common wear. This material will probably remain a rarity, except in the countries where it is produced, for it cannot be obtained in sufficient abundance to render it a commodity for exportation. In England it merely forms a curious addition to some of our cabinets, while its existence as an article of manufacture is unknown.

To the objection that philosophy and the study of nature are proved by experience to lead to disbelief in revelation, the answer is easy. They are not friends to false views of religion; and this is the point of soreness. They are conversant with truths, and generate a discernment for truth: they detect falsehood, and are condemned because falsehood fears them. If ever they have led to so false a conclusion as religious disbelief, the reason is not that they have been pursued, but that they have not been pursued far enough. Partial studies may be injurious: they have led to doubt and error; but the real cause is then no other than that it has been under superficial inquiries into revelation; it is ignorance united to vanity. In each case alike the cure must be sought in more knowledge, as this is ever the remedy for the evils which follow from a little.—MACCULLOCH.

HABIT is the kindest friend or cruellest foe to human welfare. When it assumes the latter character, it comes ever in the most delusive and seductive forms. It soon substitutes its own irresistible will, for that of its victim; and triumphantly points to the gulf to which it bears him. The fly, caught in the spider's web, is a faint illustration of the power of habit. The fly knows, from the first moment, his destiny, and struggles to escape. The gambler, the drunkard, the felon, where and how do they learn that they have been caught in the web of habit?—S.

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very lean, showing an immense head, spotted all over with black and brown spots, and the belly almost black; the other bright and silvery, without spots, and the head small. Their flesh was compared at table, and while that of the one was white, flabby, and bad, without curd, that of the other was of the brightest pink, and full of dense curd.

The process of depositing the spawn occupies eight or twelve days, and the ova is then carefully covered with gravel and stones. The fish then leave their numerous eggs or spawn, (estimated at from 17,000 to 20,000,) and retire to some neighbouring part of the stream, where the water is deeper, and more refreshing to them. In a fortnight or three weeks after this, the male fish sets out on his return to the sea, leaving the female behind to watch the spawning ground, which she continues to do till towards the time of the ova being hatched. The females are the first to leave the sea, and the last to return to it. For some time both before and after the spawning season, salmon are unfit for food; and thus being less sought for, the continuation of the species is insured.

The period during which salmon are out of season is indicated by a difference in their appearance, the males being at that time a reddish-brown on the back, and the females of a dusky gray. The fish descend to the sea by short stages, and with much less vigour and animation than they display at the time of ascending. The coldness of the weather at the time of their return, induces them to keep in the middle of the stream, at a considerable depth, which, owing to the water being warmer than the air, is the situation best suited to their feelings. In their ascent they are frequently seen in the shallows, or near the surface, from the very same sensibility to the weather which makes them, in winter, choose the opposite situation. Thus they reach the estuaries, and there lingering again in the brackish water, and finding an abundant supply of food, they quickly regain their size and strength, and proceed to their unknown abode in the recesses of the ocean. We must now return to the young fry in the spawning-bed, and state their progress from the time of their leaving the egg to that of their joining the rest of their race in the vicinity of the ocean.

At whatever period of the autumn the spawn may have been deposited, the time of its being hatched is always the same in the same river. Thus, supposing one pair of salmon to have arrived long before the rest, and that many weeks occur between the spawning of the female, and that of the others frequenting the same stream, yet on the arrival of the more genial season, the eggs last deposited are hatched at the same time with the first; hence, it is impossible to specify the exact time which intervenes between the spawning season, and the vivification of the eggs, the influence of the season being the sole cause of the latter circumstance. According to the state of the weather, therefore, the young fry come forth at an earlier or later period. The months of March and April are the usual period of their appearance, and they leave the ova in succession, for the manner in which the spawn is deposited prevents the under part of the mass from experiencing the effects of the warmer weather, until those at the upper part have burst the eggs. The young salmon remain for a few days in the sand and gravel, the egg still adhering to them, and affording them nourishment, but they soon begin to force their way upwards, and appear through the sand, shooting up like young plants. They are now about half an inch in length, and remain for some time in the shallow parts of the stream. Their earliest food is not very well known, but the abundance of small living creatures with which the waters begin to be filled at that season of the year, must prevent any chance of want in this respect. They grow very rapidly, and in the course of a week or ten days, they have more than doubled their former size.

As their strength increases, they resort to the deeper parts of the stream, and move towards the sea. Spring floods frequently carry them rapidly onwards, and by the month of June, the rivers are pretty well cleared of *smelt*, as the young fish are called. On their arrival at the sea, or rather at the brackish water, (for during the first season they seldom leave the estuaries and offings,) their growth is exceedingly rapid. Isaac Walton says, "the age of a salmon exceeds not ten years; and let me next tell you that his growth is very sudden; it is said that after he is got into the sea, he becomes from a samlet, not so big as a gudgeon, to be a salmon, in so short a time as a gosling becomes a goose." This, our author informs us, has been ascertained by tying a riband, or tape, in the tail of some young salmon which had been taken in weirs as they were swimming towards the salt water; and then by taking part of them again, having this known mark, at their return from the sea some months after.

The young salmon are the first to ascend the rivers; and towards autumn they are frequently found of the weight of six pounds. These are termed *grilse*, while those under two pounds weight are called "*salmon-peal*." They breed during the first season, and are said generally to ascend the same rivers in which they were spawned.

Salmon are supposed to go farther out to sea as they get older, but they cannot seek their food, as many sea-fishes do, in the depths of the ocean. They are formed for straightforward motion, and not for ascent or descent. The situation of the fins, and the upward direction of the eyes, in what are called "*bottom fishes*," are peculiarly fitted for the purpose of plunging to, and ascending from, the bottom of the ocean, but in the salmon the lateral direction of the eyes, and the arrangement of the fins, is equally fitted for uniform progression.

In a future article we shall mention the most celebrated salmon rivers, the different methods employed in taking the fish, and various other particulars relative to this interesting subject.

HOPE.

WHAT is hope? The beauteous sun,
Which colours all it shines upon
The beacon of life's dreary sea,
The star of immortality!
Fountain of feeling, young and warm;
A day-beam bursting through the storm;
A tone of melody, whose birth
Is, oh! too sweet, too pure, for earth:
A blossom of that radiant tree,
Whose fruit the angels only see!
A beauty and a charm, whose power
Is seen—enjoyed—confessed each hour!
A portion of that world to come,

When earth and ocean meet the last & overwhelming doom.

To those who perform the duty of the day agreeably to its institution, Sunday is a day of cheerfulness, a festival; it is rest to the poor, relaxation to the rich, comfort to the afflicted, and admonition to the prosperous. If successful in our calling, our duty is thanksgiving; if distressed, prayer; if wealthy, gratitude; if poor, resignation. An opportunity for all these duties is afforded in public worship, and public worship is best suited to the weakness of our nature: for all stand in need either of example to aid their fervency, or exhortation to advance their progress, or mutual conformity to promote their devotion. After attendance upon the public service, I know of no rigid or gloomy observances which do not partake more of ceremony than of true religion. Calmness and tranquillity are the happiest produce of devotion; rest without indolence, recreation without dissoluteness, and conversation without cant, make the day a day of blessing to all who feel that a quiet mind, and serious conduct, afford more pleasure than the vicious ever experience in the indulgence of licentiousness or tumultuous joys.—Dr. VINCENT.



BEJAPoor, IN HINDOSTAN.

BEJAPoor is the name of a large province in India, of one of the divisions of that province, and also of its principal city. The province of Bejapoor is situated in the south-western part of Hindostan, and is about 320 miles long and 200 broad: it is, however, to the city of Bejapoor that we propose to direct our attention in this paper.

The city of Bejapoor was formerly of great note. When the Emperor Aurungzebe captured it, in 1689, the fortifications, according to the description transmitted to us, appear to have been of immense extent; for between the wall of the fort and the outer wall of the old city there was said to have been room for 15,000 cavalry to encamp. Within the citadel or inner fort were the king's palace, the houses of the nobility, and large magazines, besides extensive gardens, and round the whole a deep ditch, always filled with water. "It is still asserted by the natives," says Mr. Hamilton, "with their usual proneness to exaggeration, that Bejapoor, while flourishing, contained 984,000 inhabited houses, and 1600 mosques."

Bejapoor now has the appearance of a record of other days, for by intestine commotions and revolutions, it is now little else than a heap of ruins, studded with splendid but unoccupied buildings. From a distance even of fourteen miles, numerous domes, spires, cupolas, and minarets present themselves to the eye; but a nearer approach dispels the illusion which they are calculated to raise, for it is very little better than a vast expanse of ruins.

About five miles from the city is a village called Toorvee, where are to be seen the remains of a royal palace, a mosque, and other buildings. To the east of this stands a Mohammedan mosque, still the resort of devotees; and near it are the remains of an elegant mausoleum and mosque, belonging to the minister of one of the bygone sovereigns of Bejapoor. Numerous other mausolea and mosques are met with from hence to the present city, among which the most celebrated are the mausoleum and mosque of Ibrahim Adil Shah: these were built about the year 1620, and are said to have cost

700,000*l.*, and to have occupied 6533 workmen for thirty-six years. They are built upon a basement one hundred and thirty yards in length, and fifty-two in breadth, and raised fifteen feet. The mausoleum is a room fifty-seven feet square, enclosed by two verandahs, thirteen feet broad, and twenty-two feet high. The central chamber of the latter is quite plain, as is also the interior of the mosque, but in other respects these buildings excel in elaborate architectural elegance. The fretwork of the ceilings of the verandahs, their panels covered with passages of the Koran, in bas-relief, and stone trellices, pierced with a meshwork of Arabic characters, are all in the highest style of Oriental sculpture.

Bejapoor itself may be considered as two cities adjoining each other, that which is called the *fort* lying to the east, and the *old city* to the west. The old city contained the buildings which we have just described. The fort was surrounded by a wall, eight miles in circumference, and though decayed in many parts, there is not yet a complete breach through any part of it. Guns were mounted on it, and sentinels placed at the gates, so late as 1819. There are seven gates, one of which is now shut up, and the others are open, viz., the Mecca, Shahpoor, Bhaminy, Padshapoor, Allahpoor, and Futteh gates. There were formerly a ditch, a covered way, and a glacis, on the eastern face, but scarcely any vestiges of them are now to be seen.

On coming within the fort, (or present existing city,) of Bejapoor, a scene of mingled splendour and ruin presents itself. There is still one entire and very regular street, three miles in length, and fifty feet wide, paved throughout, and containing many stone buildings, both private dwellings and mosques. Another street, nearly equal in length to this, also exists, but its buildings are rather in a ruinous state. The most remarkable edifices still remaining are the tombs of Abdul Reza and Shah Newauz, the Jumma Musjeed, or great mosque, the mausoleum of Sultan Mahmood Shah, the bowlee of the Nao Bagh, besides innumerable mosques and mausolea. There is also a low Hindoo temple, supported by numerous pillars of

single stones, in the earliest and rudest style of Brahminical architecture, supposed to have been the work of the Pandoos; and this is almost the only Hindoo structure extant in or about Bejapoor; for the country, though in the heart of Hindostan, long belonged to the Mahrattas, who were Mohammedans.

The inhabited part of the fort is chiefly in the vicinity of the great mosque. There are also groups of houses scattered over its immense area, while mud hovels are interspersed among its splendid ruins. There are some enclosed and cultivated fields; but generally speaking, the neighbouring district is a ruinous wilderness, interspersed with trees and shrubs. There is a well frequented bazaar, neatly built of stone, without the western gate: this forms nearly the only part of what is called the old city that is still inhabited. On the southern side of the fort there are no traces of any ancient buildings, or of the city walls, the walls of the fort being the ultimate boundary of Bejapoor in that direction. Most of the large edifices, (the palaces in the citadel excepted,) appear to have little or no wood used in their construction, the prevailing character of their architecture being massive solidity, rather than elaborate workmanship or elegant design.

The cause of the ruinous state in which this once magnificent city now exists is to be found in the repeated contests for sovereignty which have taken place in that part of Hindostan. The district or country which contains Bejapoor was under the dominion of Hindoo sovereigns until 1579, when the Mohammedan princes of Southern India captured it. They retained it until 1689, when the Emperor Aurungzebe conquered it. After this the powerful tribe or nation of the Mahrattas got possession of the country, and retained it almost without intermission until modern times. But by about the year 1804, the province of Bejapoor exhibited an extraordinary scene of anarchy. Although the country was nominally under the chief of the Mahrattas, his authority scarcely extended beyond the city of Poonah, and was resisted by every petty head of a village: the different chiefs and leaders of banditti by whom the country was occupied were almost innumerable. At length, in 1818, Bejapoor was finally conquered by the British, and it is now probable that it will, under British protection, gradually improve in many respects.

Mr. Hamilton (to whose work we have been chiefly indebted for these details) says:—

There are some enormous guns still remaining here, corresponding with the Cyclopean magnitude of the fort. Formerly there were twelve, but in 1820 only the great brass gun, (cast in 1549,) and the long iron one remained. For the calibre of the first, an iron bullet, weighing 2646 pounds, would be required. In 1823 the Bombay government was extremely desirous of sending it to England, as a present to the king, but until the roads are improved, it would be almost impossible to transport such a ponderous mass to the sea-coast.



GREAT GUN AT BEJAPPOOR.

TRUTH is the most powerful thing in the world, since even fiction itself must be governed by it, and can only please by its resemblance.—MILLINGEN.

SHOE-BUCKLES.

If we were to inquire into the influence of fashion and taste in manufactures, it would be found that the link which connects them is very close, and that the well-being of the working classes is singularly dependent thereon. Persons who view these matters only on the surface, are apt to imagine that changes of fashion are no further important than as means of gratifying the eye; but, so far from this being the case, every change of fashion brings some kind of mechanical labour or skill into exertion, and throws out others.

A singular example of this is shown in the rise, progress, and decline of that apparently very simple article of dress, the *shoe-buckle*, a decoration which, however much out of use at the present day, was indispensable to the appearance of a gentleman two or three generations ago.

The buckle was preceded, and has been superseded, by other forms of shoe-fastening. "Perhaps the shoe, in one form or other," says Mr. Hutton, of Birmingham, "is nearly as ancient as the foot. It originally appeared under the name of 'sandal'; this was no other than a sole without an upper leather. That fashion has since been inverted, and we now, sometimes, see an upper leather nearly without a sole. But, whatever was the cut of the shoe, it always demanded a fastening." Under the house of Plantagenet, the shoe shot forward horizontally from the foot to an enormous length, so as to require the extremity to be fastened to the knee, sometimes with a silver chain, at other times with a silk lace, and even with a piece of common packthread. This enormous beak to the shoe became the subject of legislative enactment; for we find that, in 1465, an order of council was issued, prohibiting the wearing of shoes whose beaks projected more than two inches in front of the foot, on pain of a fine to the king, and even of excommunication.

When this fashion changed, the rose shoe-toe sprang up, in compliment to the houses of Lancaster and Tudor. This rose in its turn gave way to shoe laces and strings, which were often made of silk, tagged and fringed with silver. At length, in the reign of William and Mary, the shoe-buckle made its appearance; or as Mr. Hutton quaintly expresses it, "the Revolution was remarkable for the introduction of William, of liberty, and the minute buckle." This mode of fastening the shoe became very generally adopted, in foreign countries as well as our own; and the town of Birmingham became celebrated for the large number as well as the excellence of the buckles made there.

Seventy years ago, the kind of buckle most in demand was made of Pinchbeck—an alloy of copper and brass, so called from the name of the person who so employed it. Another variety was the plated buckle: this was cast in pinchbeck, with the pattern on its surface, and a silver coating was laid on by means of a flux of turpentine and resin; and the surface was finally chased or stamped. A third and more valuable quality was the "close-plated" buckle. A form of buckle extensively made for foreign sale, was produced from a compound metal known among the workmen as Tutannia, and cast in moulds. It is said that in Germany, this article was manufactured in the open streets, so that a passenger might choose his pattern, see the process of making, and march off equipped with shoe-buckles, in the course of five or ten minutes. Each form of buckle had at that time some fanciful name, by which it was known in the trade; such as "Bull's eye," the "Marquis of Granby," the "Whim-wham," "Job's fancy," the "Crow's foot," and others.

About the year 1778, an impulse was given to the buckle trade at Birmingham, Walsall, and Wolverhampton, by the invention of plating upon tin or composition foundations. The buckles were cast singly by hand, in tin or copper moulds, the silver being first pressed into the mould, and the composition then poured over it.

The intimate union of the metals was aided by the use of corrosive sublimate. Different metals were employed, such as copper, steel, spelter, and others, to give hardness to the tin. This plan gave birth to many elegant devices in the shoe-buckle, as the union of the silver with the metal beneath was so complete as to admit of a varied range of patterns and arrangement of ornaments; particularly that of inlaying yellow chased ornaments on the surface of the silver.

A peculiar arrangement of the *chape*, a part of the buckle which fastened the shoe, enabled the manufacturer to give almost any size to the buckle, and to adopt a variety of shapes, such as round, octagonal, oval, oblong, &c. The competition among the makers now became very active; and a consequence resulted which too frequently deteriorates the credit of those employed: the materials and mode of workmanship became worse in quality, in order that the selling price might be low. It is said, that for many years the consumption of buckles in the metropolis was so enormous, that half the luggage of the coaches going from Birmingham to London was supposed to consist of buckles.

Soon after this period, a further change took place in the mode of manufacture, by making the shell or foundation of one metal, placing a layer of tin on that, and plating the exterior surface with silver. Another kind was the silvered buckle, in which the exterior layer of silver was excessively thin. The buckle being cast in some cheap metal, fine silver was dissolved in aqua-fortis, and precipitated in a powder; a few chemical ingredients were added, and the whole brought into a liquid state, and spread over the buckle with a brush. The buckle was then placed on a gentle fire till the ingredients were fused, and after a few other processes, the buckle acquired a silvery whiteness. This silvery surface would bear burnishing, and had a good appearance; but it was soon rubbed off by wear. So large was the demand for buckles coated with silver, that one Birmingham maker produced for one foreign house four thousand pounds worth in the space of six months.

Mr. Luckcock of Birmingham, who wrote on this subject, says that many a princely fortune was acquired during the efforts and fluctuations in the buckle-trade, and not a few as profusely squandered. No anticipation was contemplated, of any falling off in the demand. But the time was approaching when the buckle was to be superseded by another form of shoe-tie. "About the year 1790, the foe commenced an insidious attack; and however insignificant the agent might at first appear, the *shoe-string* was destined to accomplish the mighty revolution. For a long time the advances were inconsiderable, and hope was sanguine that the whim would be but of short continuance. Every manufacturer gradually felt the ground falling from beneath his feet, but still supposed that his competitors were doing better than himself; till confidence itself at length gave way to the general panic, and, if one may so express it, those were beat off at last who got out first." The manufacturers, as generally happens in such cases, thought themselves aggrieved; but by whom was not an easy question to answer. They first tried ridicule, in a way which, it must be confessed, was sufficiently weak and foolish; viz., to parade an ass through the streets of Birmingham, with shoe-bows attached to his fetlocks. A more rational course adopted, was to send a deputation of master manufacturers up to London, to wait on the Prince of Wales (afterwards George the Fourth; at Carlton House, and solicit the aid of his countenance and support. The Prince received the deputation courteously, and promised to do all which his personal influence could effect, to discourage the use of the shoe-tie. But all to no effect; taste, fashion, opinion, call it what we will, had taken such a decided turn, that from that time (1791) the use of the shoe-buckle declined every year more and more.

Mr. Luckcock, who had himself been in the buckle

trade, estimated the number of persons engaged therein in and about Birmingham, at upwards of four thousand, when the manufacture was in the zenith of its prosperity; and he made the following calculations to show the importance of this trade. Suppose the weekly earnings of these persons, young and old, to have averaged ten shillings each:—

This would produce	£2000
Materials, say	2000
Profit of manufacturer, retailer, &c.	2000
	6000
Weeks in the year	52
	£312,000

And supposing the buckles to sell, on the average, at 2s. 6d. per pair, (this may now-a-days seem a high average; but a guinea or upwards was not an unusual price for gentlemen's buckles at the period of which we are speaking,) this would show 2,496,000 pairs as the quantity annually made. Taking the population of Great Britain at that time to be twelve millions, and suppose half of them to wear buckles, this would allow each wearer a new pair every three years, and about half a million of pairs for exportation, which is deemed no improbable supposition. On this calculation, every workman would make 625 pairs during the year, about two pairs per day, excluding Sundays. These calculations are of course only approximative; but they furnish curious evidence of the fluctuations to which manufactures are liable, and they are valuable as showing how necessary provident habits are to the workman, since he can never tell how soon a change may occur which will compel him to turn his talents into some new department of labour.

We will conclude by quoting a remark from Mr. Luckcock, who wrote in 1824:—"Of all the mutations and revolutions which this town has experienced within the last fifty years, none appear to be so remarkable or extraordinary as those connected with its ancient and apparently invaluable shoe-buckle trade. To those of the inhabitants who remember its vast extent and importance, it seems almost to mock at recollection; and as to the present generation, if the fact was not authenticated while some few of the surviving witnesses remain, it must soon have appeared incredible, that at one period there were not fewer than four thousand persons employed in the town and neighbourhood in this article, at that time so much admired, though now neglected and almost unknown. The universality of the demand seemed to bid defiance to the future caprice of fashion; and our daily bread appeared quite as likely to fail in its supply, as that orders should totally cease for this elegant and imagined necessary ornament."

WIRE-DRAWING.

I. HISTORICAL NOTICE.

AMONG the various modes by which metallic substances are brought into a form fitted for manufacturing purposes, few are more remarkable than the process of *wire-drawing*, whereby the metal is made to assume an equable, smooth, and cylindrical form, and a diameter varying through extensive limits. It seems highly probable, that in early periods metals were beaten with a hammer into thin plates or leaves, which were afterwards divided into narrow slips by means of some instrument resembling scissors; and that these slips were by a hammer and file rounded so as to form threads or wire.

All the ancient writings, so far as they relate to this subject, seem to support this opinion. In describing the holy garments of Aaron (Exodus xxxix. 3.) the inspired historian uses these words:—"And they did beat the gold into thin plates, and cut it into wires to work it in

the blue, and in the purple, and in the scarlet, and in the fine linen, with cunning work."

The profane writers speak similarly of slips, cut and beaten, as forming wires. Homer makes Vulcan repair to his forge, and form on his anvil, by means of hammers and files, a net as delicate as a spider's web. Beckmann supposes that the first employment of metals, in a form at all analogous to this, was by sewing slips of gold upon the clothes, and particularly on the seams; but that people afterwards began to weave or knit dresses entirely of gold threads, without the addition of any other material. Of such a kind are supposed to have been the mantle taken from the statue of Jupiter by Dionysius, as mentioned by Cicero and Valerius Maximus; and also the tunic of Heliogabalus, described by Lampridius. This appears to have been *drap d'or* in the proper sense of the term, for the more modern tissue known by that name was a species of cloth, the threads of which were of silk, wound round with gilt silver wire.

Pliny ascribes the weaving of such gold threads into cloth, as the invention of King Attalus; but later writers trace it to an earlier date, and it is supposed that Attalus merely applied gold threads to the surface of cloth in the manner of embroidery. The employment of silver for a similar purpose seems to be of much later date. Vopiscus states that the Emperor Aurelian was desirous of abolishing the use of gold for gilding and weaving, because, though there was more gold than silver, the former had become scarce by its frequent use for these purposes. Saumaise has proved that silver threads were interwoven in cloth in the time of the last Greek emperors; but it is not known how long this custom had then existed.

At what time the mode of making threads or wires of metal assumed a form analogous to that at present adopted, has been matter of dispute. It is extremely probable that the first experiments in wire-drawing were made upon the most ductile metals; and that the drawing of brass and iron to the form of wire is of later date. As long as the work was performed by the hammer, the artists at Nürnberg were called "wire-smiths;" but after the invention of the modern process, they were called "wire-drawers" and "wire-millers." As both these appellations occur in the histories of Augsburg and Nürnberg about the middle of the fourteenth century, it is deemed probable that the invention of wire-drawing may be placed in the early part of that century.

When gold lace,—that is, silk thread enveloped in a golden covering,—was first brought into use, it appears that the gold wire, used as the envelop, was round, or cylindrical, and that the flattening was introduced from motives of economy, since flat wire will go three times as far as cylindrical wire, when used merely as a covering. Of the wire-work of the ancients, few remains are known. In the museum at Portici, which contains a variety of articles discovered at Herculaneum, are three metallic heads, with locks in imitation of hair: one of them has fifty locks made of wire as thick as a quill, bent into the form of a curl; and on the other the locks are flat, like small slips of paper which have been rolled together with the fingers, and afterwards entangled. A figure of Venus has on the arms and legs golden bracelets, formed of wire. Among the insignia of the German empire is the sword of Saint Maurice, the handle of which is wood, bound round with strong silver wire. Such are a few instances of ancient workmanship at present remaining.

The present mode of making wire, as we shall hereafter explain, is by drawing small slips of wire through circular holes in a hardened steel plate; and it is supposed that this method was first constructed, if not invented, by Rudolph, a native of Nürnberg, in the fourteenth century. Conrad Celtes states that the son of the inventor, cajoled by avaricious people, discovered to them the whole secret of the machinery; which

so incensed the father that he would have put the incautious son to death, had he not precipitately escaped. Whether or not this was really the mode of promulgation, it appears certain that the art of wire-drawing soon attained a high degree of excellence at Nürnberg. Several improvements were from time to time made by different persons, who received exclusive patents for using them, sometimes from the emperor, and sometimes from the council, and which gave rise to many tedious lawsuits.

Dr. Hirsching has collected many curious details respecting the early progress of this art. In the year 1570, a Frenchman, named Anthony Fournier, first brought to Nürnberg the art of drawing wire exceedingly fine, and made considerable improvements in the apparatus employed for that purpose. In 1592, Frederick Hagelsheimer, a citizen of Nürnberg, began to prepare fine gold and silver wire, such as could be used for spinning round silk and for weaving, and which before that period had been manufactured only in Italy and France. He received from the Nürnberg magistrates an exclusive patent, by the terms of which no other person was allowed to make or imitate the fine works which he manufactured, for the term of fifteen years; and this term was afterwards further extended for a similar period, on the ground of the large capital expended in the manufactory. He afterwards obtained a patent for the production of copper wire coated with gold or silver; and he seems to have received high marks of favour from the Emperor Rodolphus the Second, and the Emperor Matthias. When the patents finally expired, in 1621, the family of Hagelsheimer entered into an agreement, in regard to wages and other regulations, with the master wire-drawers and piece-workers of Nürnberg.

Augsburg was also celebrated for the production of wire, the finer sorts of which were made by men imported from Italy, particularly Gabriel and Vincent Marteningi. In France, iron wire is called *fil d'Archal*, and the artists there have an idea that this appellation took its rise from one Richard Archal, who either invented or first established the art of drawing iron wire in that country. The expression *fil de Richard* is also used among the French wire-drawers. Menage, however, thinks that *fil d'Archal* is compounded of the Latin words *filum* and *aurichalcum*.

But little is known respecting the introduction of wire-drawing into England. It has however been stated that all the English wire was manufactured with the hammer, until certain foreigners introduced the improved method, in the reign of Queen Elizabeth. Christopher Schultz, a native of Annaberg, in Saxony, came to this country under the permission given by that sovereign to strangers, to dig for metallic ores; and it is to him that the introduction of iron wire-drawing is attributed in the year 1565. In a book published by John Houghton, however, in 1727, it is intimated that the art was brought to England at a later period; and that the first wire-drawing establishment was opened at Esher, in Surrey, by two foreigners, named Jacob Momma and Daniel Demetrius. Before the period here indicated, the English iron wire is said to have had so little reputation, that the greater part of what was used in the kingdom, as well as the instruments employed by the wool-combers, were brought from other countries. By the time of Charles the First, however, the manufacture had risen to some importance; and we meet with a proclamation by that monarch, in 1630, to the following effect:—

That iron-wire is a manufacture long practised in the realm, whereby many thousands of our subjects have long been employed; and that English wire is made of the toughest and best Orsmund Iron, a native commodity of this kingdom, and is much better than what comes from foreign parts, especially for making wool-cards, without which no good cloths can be made. And whereas complaints have been made by the wire-drawers of this kingdom, that by reason of the great quantities of foreign iron wire lately imported,

our said subjects cannot be set at work; therefore we prohibit the importation of foreign iron wire, and wool-cards made thereof, as also hooks and eyes, and other manufactures made of foreign wire. Neither shall any translate and trim up any old wool-cards, nor sell the same at home or abroad.

It may appear to a modern reader, that the mention of "hooks and eyes" in the above proclamation was a very trivial affair; but such was not the case, for these small articles were used in such quantities at the time in question, as to render the consumption of wire in their manufacture very large.

In the seventeenth century the occupation of wire-drawing became firmly established in the neighbourhood of Barnsley in Yorkshire; partly on account of the proximity of the woollen manufacture (the cards for which are made of wire), and partly on account of the presence of coal and iron-stone in the neighbourhood. Since that period, great improvements have taken place, and the manufacture is now established in different parts of the North of England.

Having thus briefly traced the history of the art of wire-drawing, we shall in a second paper describe the processes by which various kinds of wire are produced.

HOT CROSS-BUNS.

THE popular cry of Hot Cross-Buns on Good Friday, is so familiar to all who have lived in a town, whether large or small, that the reader might incline to wonder, upon the first view of the case, why so apparently trifling a subject should be brought before his notice; but it is our duty to suggest two considerations on this head; first, that ages upon ages have rolled away, and cross-buns have been regularly made at the Paschal season of the year; and that which is ancient in its origin, will naturally, if only on account of its antiquity, attract our curiosity as it passes down the long extended river of time.

In the second place, though cross-buns will be found to be heathenish in their origin, popish in their progress, and common in their continuance; they nevertheless bear reference to the Cross of Christ,—the fountain of salvation to all who look to it, in reliance on the merits of their Redeemer.

Cecrops, one of the kings of Greece, about sixteen centuries before the Christian era, is said to have first offered up to the Divinity the sacred cross-bread, called a *bun*, (Greek *βουν*), which was made of fine flour and honey. The prophet Jeremiah, who flourished about 600 years B.C., notices this kind of offering, when he speaks of the Jewish women at Pathros in Egypt, and of their base idolatry,—the *cakes*, which they offered up to the moon, the queen of heaven.

This cake or bun, which the Greeks called *βουν*, from the representation upon it of the two horns of an *ox*, is therefore a species of bread, which originally used to be offered to the gods, and it was usually purchased by the worshippers at the entrance of the temple, and taken in by them, and eaten at the feast of the remaining parts of the sacrifice; to which St. Paul alludes in 1 Cor. x. 28.

It is a remarkable fact, that at Herculaneum were found two small loaves of about five inches in diameter, marked with a cross, within which were four other lines; and so, we are told, the bread of the Greeks was marked from the earliest periods. Sometimes it had only four lines altogether, and then it was called *quadra*. This bread had rarely any other mark than a cross, which was on purpose to divide and break it more easily. Similar loaves were discovered in a bake-house at Pompeii. These towns were overwhelmed and destroyed by the volcanic eruption of Mount Vesuvius, A.D. 79.

In the course of time we find the Christian Church using cakes or buns, such as we have already referred to, and consecrating them: these were bestowed in the church as alms, and likewise to those who, from any im-

pediment, could not receive the *host*, or consecrated wafer, at the usual time of the celebration of the Lord's supper. These buns were made from the dough, from which the host itself was taken, and they were given by the priest to the people after mass, just before the congregation was dismissed; and they were kissed before they were eaten. They were also marked with the cross, just as our present Good Friday buns are. This bun is the most popular symbol of the Roman Catholic religion in England that the Reformation has left to us.

Hot cross-buns have the usual form of buns; but they are inwardly distinguished from other buns by having a sweeter taste, and the flavour of allspice; and outwardly they are known by the mark of the cross, which, as our readers know, has been greatly insisted on in Papal worship and devotion, from the days of Constantine the Great, in the early part of the fourth century, to the present hour.

We see, therefore, that the bun of the ancient Greeks, crossed, to represent the horns of the ox which was sacrificed, and also for the purpose of more readily breaking it, was adopted by the Christians and used as the only food on the day of the Crucifixion, because it possessed, ready at hand, a symbol of that solemn event.

Many superstitions are connected with this species of bun. In some counties of England, great care is taken to preserve some of these cakes or buns, which being grated after they are dry, are esteemed by the credulous as infallible cures for many diseases. They have, however, been often found beneficial in bowel complaints.

In the houses of some ignorant people, a Good Friday bun is still kept "for luck;" and sometimes there hangs from the ceiling a hard biscuit, like cake of open *cross-work*, baked on a Good Friday, to remain there till displaced on the next Good Friday by one of similar make:—this is also supposed to preserve the house from fire.

Thus then the cakes or buns of Good Friday are marked with the sign of the Cross, in remembrance of the Crucifixion of our Saviour, who, having taken upon him the nature of man, suffered on this day for our redemption. The appellation of "Good," which has been conferred upon this day, is peculiar to the Church of England, and is accounted for, by referring to the blessed effects purchased for us by our Lord's sufferings. The ancient title of the day was "*Holy Friday*;" and the week in which it happens, is still denominated "*Holy*" or "*Passion week*."

THERE is a beautiful analogy between vegetable, and human life in early stages. No enduring and valuable fruit tree springs at once from the earth to maturity. It must go through a period of time, when it yields no fruit, and when it is an object of continual care and attention. Its nature must be considered, the earth around it must be kept in a fit state to promote its growth; its useless shoots must be cut off; its diseases, whether generated in itself, or caused by some invading foe, must be met and overcome. It may be let alone, and live, an incumbrance to the land, producing nothing worth gathering; or it may be an object on which the eye rests with pleasure, which its owner may be thankful for, and rationally proud to show. There is as much difference in the cares, anxieties, and duties, of raising a fruit tree, and bringing a human being to manhood, as the life of man is more precious than that of a tree.—S.

NOTHING strengthens a child in goodness, or enables him to overcome a fault, so much as seeing his efforts excite a sudden and earnest expression of love and joy.—MRS. CHILD.

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MEETING OF HECTOR AND ANDROMACHE, BY FLAXMAN.

JOHN FLAXMAN AND HIS WORKS.

II.

Scripture, in her turn,
Gives bond in stone and ever-during brass
To guard them, and to immortalize her trust.—Cowper.

WHEN Flaxman was twenty-seven years old he ventured to enter upon business for himself, and apart from his father. Among other preliminaries to the new regulation of his career, he united himself in marriage with Anne Denman, a woman whom he had long loved, and who well deserved his affection. This step was taken by our artist from a belief that, in the society of her whom he loved, he should be able to work with an intenser spirit. But Sir Joshua Reynolds looked upon this matter in a very different light. "So, Flaxman," said the president, one day, as he chanced to meet him, "I am told you are married: if so, sir, I tell you you are ruined for an artist!" It is said that Flaxman went home, sat down beside his wife, took her hand, and said with a smile, "I am ruined for an artist." "John," said she, "how has this happened? and who has done it?" "It happened," he answered, "in the church, and Ann Denman has done it: I met Sir Joshua Reynolds just now, and he said that marriage had ruined me in my profession."

So unfavourable an opinion, coming from an authority so high and reputed, seemed, like a cloud, to dull the prospect before them,—but it was a cloud that passed away, and left "the sunshine of the breast" clear as it was before; for they very wisely considered the opinion of the president to be no more than the unguarded and peevish remark of a wealthy old bachelor. The course of experience soon showed, and confirmed him in the belief, that "wedlock is for a man's good, rather than for his harm." How could it be otherwise in his case? His wife was amiable and accomplished, had a taste for art and literature, and considerable knowledge of French, Italian, and Greek. But, what was more grateful than all in a wife, she was an enthusiastic admirer of his genius,—she cheered and encouraged him in his moments of despondency, and regulated modestly and prudently his domestic economy. "That tranquillity of mind, so essential to those who live by thought, was of his household; and the sculptor, happy in the company of one who had taste and enthusiasm, soon renewed with double zeal the studies which courtship and matrimony had for a time interrupted."

Flaxman's household, soon after his marriage, is thus described by one who respected and admired his genius and worth.

I remember him well; so do I his wife, and also his humble little house in Wardour-street. All was neat—nay, elegant—the figures from which he studied were the finest antiques—the nature which he copied was the fairest that could be had—and all in his studio was propriety and order. But what struck me most was that air of devout quiet which reigned everywhere: the models which he made, and the designs which he drew, were not more serene than he was himself, and his wife had that meek composure of manner which he so much loved in art. Yet, better than all, was the devout feeling of this singular man: there was no ostentatious display of piety—nay, he was in some sort a lover of mirth and sociality,—but he was a reader of the Scriptures, and a worshipper of sincerity; and, if ever Purity visited the earth, she resided with John Flaxman.

By incessant study and labour, for five years from the time of his marriage, Flaxman accumulated the means of visiting Italy, in order to study, in the Roman school, the productions of ancient and modern artists. During those five years he exhibited only seven works, nor were these his best. One of his first monuments was in memory of Collins, the poet, for Chichester cathedral*. It represents the poet sitting and reading the Bible, while

* See *Saturday Magazine*, Vol. V., p. 27.

his lyre and poetical compositions lie neglected on the ground. "I have but one book, sir," said Collins to Johnson, "but that is the best."

His monument to Mrs. Morley, in Gloucester cathedral, is considered to be a work of high order, though belonging to Flaxman's early years. This lady perished with her child at sea, and is poetically represented as called up by angels, with her babe, from the waves, and ascending into heaven. The effect is spoken of by Cunningham as inexpressibly touching—elevating the mind, and not without tears. It is a work of more than mortal loveliness, expressing the sentiment of immortality, and possessing a serene simplicity which accords with holy thoughts. Of the grouping of angels in another work of this date, the same biographer remarks that, "if ever figures were capable of rising from earth, these are, for they are buoyant without any effort."

In the year 1787 he set out for Rome, in company with his wife. His departure was thus alluded to in the newspapers:—"We understand that Flaxman, the sculptor, is about to leave his modest mansion in Wardour-street for Rome."

In Rome he sojourned for about seven years, admiring, studying, labouring, and thus supporting himself and his wife. He seems to have imbibed the idea of illustrating divine Revelation by his works, when he should return to the land of his birth. In the mean while it was necessary for him, as for many others of the children of genius, to seek his bread, by practising his art in accordance with the inclinations of those who employed him. The space to which we are here necessarily limited prevents us from entering into a detail of the illustrations of Homer, of Æschylus, and of Dante, which he executed by commission: they were all discharged from his mind on the purest principles of nature and the antique, and finished off with the nicest adjustments of manual skill.

Flaxman spent about seven years at Rome, which he turned to the best account. Before his return home he was elected a member of the academies of Florence and Carrara. Napoleon Buonaparte had just begun to attract the attention of mankind, and the events in the north of Italy probably quickened our sculptor's return. "I remember, a night or two before my departure from Rome," he once observed to a friend, "that the ambassador of the French proudly showed us, at an evening party, a medal of Buonaparte. 'There,' said he, 'is the hero who is to shake the monarchies of the earth, and raise the glory of the Republic.' I looked at the head, and said at once, 'This citizen Buonaparte of yours is the very image of Augustus Cæsar.' 'Image of a tyrant!' exclaimed the Frenchman, 'no, indeed: I tell you he is another sort of a man—he is a young enthusiastic hero, and dreams of nothing but liberty and equality!'" Reflecting men on this side the Channel, as well as on the Continent, more incredulous than the Frenchman, soon began to suspect Buonaparte to be the enemy of all who opposed him, and the tyrant of all who obeyed him.

On his return to England Flaxman established himself in Buckingham-street, Fitzroy-square, where he at once became known by his monument in memory of the Earl of Mansfield. This work had been commissioned during his residence at Rome.

The judge is seated, and in his robes; Wisdom is on one side, Justice on the other; and behind is a recumbent youth, whom the common accounts of the monument describe as Death, but who is, nevertheless, more like an unhappy mortal on whom sentence has been passed, and by Wisdom delivered up to Justice. For this magnificent work he had 2500*l*.

The statue of Mansfield is calm, simple, severe, and solitary: he sits alone, 'above all pomp, all passion, and all pride;' and there is that in his look which would embolden the innocent, and strike terror to the guilty.

The figure of the condemned youth is certainly a fine conception. Hope has forsaken him, and already in his ears is the thickening hum of the multitude, eager to see him make his final account with time. This work raised high expectations. Banks said, when he saw it, "This little man cuts us all out!"

While he was engaged on the statue of Mansfield, he designed with pen and pencil a series of allegorical representations, in which the chief adventurer is the Knight of the Burning Cross, a Christian hero, whose fortitude, faith, and courage, make him, though at first sorely assailed and almost vanquished, the conqueror in the end. These designs were executed as a tribute of affection to his wife, in whose society he had now lived fourteen years, and enjoyed the purest domestic happiness that could fall to the lot of man.

In 1797 he was elected an associate of the Royal Academy, and in the same year he sent to the exhibition three sketches in bas-relief from the New Testament, along with the monument of Sir William Jones. This monument now stands in the chapel of University College, Oxford; it is a bas-relief, and represents the accomplished judge engaged with some venerable Brahmins in a digest of the Hindoo code of laws. It is not considered that Flaxman excelled in works of this sort; he cannot be said to have had the art of giving grace or beauty to modern dresses, or to modern looks. The sketches before alluded to were from scriptural designs, and were distinguished for their elegance of grouping, and the clear language which they spoke. One was Christ raising the daughter of Jairus: the figures are one fourth the size of life, and but slightly raised; but for perfect innocence and serene loveliness, nothing can compete with them. He afterwards carved this in marble, on an enlarged scale, for a monument. The second was scarcely inferior, and might be said to have for its text,—“Comfort the feeble-minded, support the weak.” (1 Thess. v. 14.) Ministering angels attend, in order to alleviate human sorrow. The third sketch is “Feeding the Hungry.” In the year 1800 he was made a member of the Royal Academy, and on this occasion presented to the collection of the institution a marble group of Apollo and Marpessa.

Flaxman longed to be employed on some national work; and accordingly he proposed, when the subject of the grand naval pillar was agitated, to make a statue of Britannia, 200 feet high, and place it on Greenwich Hill. This proposal, however, was coldly received, and allowed to drop;—one critic accused him of wishing “to hew Greenwich Hill into a woman large enough to graze a couple of goats in her lap,” while another gave notice,—“There is to be a show at Greenwich of little Flaxman and big Britannia.”

The many noble works which now came from the hand of Flaxman made many people feel that a sculptor had at length appeared to vindicate the dignity of our national genius. One of these was a monument in memory of the family of Sir Francis Baring, for Micheldean Church, in Hampshire:—an excellent work, and said to be one of the finest pieces of motionless poetry in the land. It embodies the words,—“Thy will be done—thy kingdom come—deliver us from evil.” To the first motto belongs a devotional figure, as large as life, a perfect image of piety and resignation: this figure forms the frontispiece of our former article, p. 105. On one side—“Thy kingdom come”—a mother and daughter ascend to the skies, welcomed, rather than supported by angels; and on the other—“Deliver us from evil”—a male figure in subdued agony appears in the air, while spirits of good and evil contend for the mastery. It was well said by Flaxman that “the Christian religion presents personages and subjects no less favourable to painting and sculpture than the ancient classics.”

We cannot stay even to catalogue the other works of nearly equal beauty, though not of such extent, which followed this splendid monument. Of historical works he executed several; but they are not thought to be his

ablest performances. Much of his poetic invention seems to have forsaken him, when he approached subjects of modern days. Hence it was, that, in such works, there was an occasional absence of true proportion, which no emendation could completely remedy. This is said to have resulted from his habit, in the former part of his life, of working his marbles from half-sized models, —a system which is injurious to true proportion; as the defects of the small model are much more than proportionally aggravated in the full-sized marble. When Flaxman latterly became sensible of the advantage of using large models, the change for the better was conspicuous in several of his historical works, both ancient and modern; but still his spirit followed after the grace and beauty of classic antiquity, and seemed to slumber in the representations of ordinary modern life.

The subject of our frontispiece is the meeting of Hector and Andromache, in one of the scenes of the Trojan war, as described by Homer in the sixth book of the *Iliad*. This production of Flaxman's is spoken of as exhibiting a severer kind of beauty—a mixture of manliness and matronly love. The quiet dignity of the hero is truly wonderful.

With haste to meet him sprung the joyful fair,
His blameless wife Aëtion's wealthy heir.
The nurse stood near, in whose embraces pressed
His only hope hung smiling at her breast,
Whom each soft charm and early grace adorn,
Fair as the new-born star that gilds the morn.

Silent the warrior smiled, and pleased, resigned
To tender passions all his mighty mind:
His beauteous princess casts a mournful look,
Hung on his hand, and then dejected spoke;
Her bosom laboured with a boding sigh,
And the big tear stood trembling in her eye.

When the peace of Amiens, in the year 1802, opened the way to France, Flaxman visited Paris, to see the splendid collections of paintings in the Louvre. These had been taken, by the right of conquest, from the states of Italy, but were restored by the decision of the allies at the downfall of Buonaparte. Whatever pleasure our artist might have felt in his professional visit to France, he seems to have been anything but delighted with the ruling spirits of the coming empire. He held it to be unsafe, or at least unwise, to keep company with persons, however clever and brilliant, whose moral and religious opinions were inimical to the natural law of mercy and loving-kindness, and to the religion revealed by heaven. He returned the civilities of the First Consul with stately courtesy, refused to be introduced to him, and left France with a confirmed opinion, that the physiognomy of Buonaparte corresponded with that of Augustus, and that ere long he would openly play the part of a tyrant.

At this time, Flaxman, though a professing member of the Established Church, had long listened to the doctrines of Swedenborg, and was become all but a proselyte. He did not, however, openly associate with this sect; though it was evident that he coloured his conversation and way of life, to a certain extent, with the mysticism of this visionary. Flaxman was, in religion, certainly of a devout and quiet imagination: but still his domestic character was gay, cheerful, and companionable. In the next paper we will describe the latter scenes of the sculptor's life.

It may be said that there is a connexion between cleanliness and moral feeling. Perhaps it may be going too far to say, that those who habitually disregard cleanliness, and prefer to be dirty, have no moral perception; but it may be truly said, that those who are morally sensitive, are the more so from respecting this virtue. There is a close affinity between moral depravity and physical degradation.—S.

ON CHESS.
VIII. CHESS WRITERS AND PLAYERS, (continued.)



THE CHESS QUEEN, AS DESIGNED BY FLAXMAN.

The Queens, exulting, near their consorts stand:
Each bears a deadly falchion in her hand:
Now here, now there, they bound with furious pride,
And thin the trembling ranks from side to side;
Swift as Camilla flying o'er the main,
Or lightly skimming o'er the dewy plain:
Fierce as they seem, some bold plebeian spear
May pierce their shield, or stop their full career.

SIR W. JONES.

WE have already spoken of the appearance of a regular treatise on chess, by *Jacobus de Cesolis*, about the year 1200. This Cesolis, (whose name, we may observe, is spelt in upwards of twenty different ways,) is said to have been a native of the village of Cessoles, near the frontiers of Picardy and Champagne. His manuscript was translated into German verse by *Conrad Ammenhusen*, a monk of Stettin, in 1337. After the invention of printing, the work of Cesolis went through many editions and translations. Editions in Latin, German, Dutch, French, Italian, and English, appeared within a short period of each other. The English translation, by William Caxton, printed in 1474, is a small folio of 144 pages, dedicated "to the right noble, right excellent, and vertuous Prince George, Duc of Clarence, Erle of Warwyk and of Salysburye, grete Chamberlayn of Englonde, and lieutenant of Ireland, oldest broder of Kynge Edward (IV.)" It begins thus:—"I have put me indeavour to translate a lityll book, late comen in to myn handes, out of frensh in to englishe, in which I find thauctorites, dictees, and stories of auncient doctours, philosophes, poetes, and of other wyse men which been recounted, and applied unto chesse."

This translation of Caxton's is the more interesting on account of its being the second book ever printed in England, and the first in which metal types were employed. The forms and names of the chess-pieces, as given by Cesolis, are as follows:—The king sits on his throne, with a crown on his head, a sceptre in his right hand, and a globe in his left. The queen on a chair, with a mantle of ermine. The alfin, or bishop, is represented as a lawyer, seated, with a book outspread on his knees; and the distinction is drawn that he on the white square is for civil, and he on the black square for

criminal cases. The knights are on horseback, in full armour. The rooks, legates, or vicars, are men on horseback, quite unarmed. The description of the pawns is, however, the most remarkable, on account of the variety in their form, and in the offices assigned to them. The king's pawn has a pair of scales in his right hand, in his left a measuring wand, and a purse hanging at his waist-band. The queen's pawn is a man seated in an arm-chair, with a book in one hand, a vial in the other, and various surgical instruments stuck in his girdle. This personage represents a physician, who, to be perfect, ought, according to our author, to be a grammarian, logician, rhetorician, astrologer, arithmetician, geometrician, and musician. The king's bishop's pawn is a man with a pair of shears in one hand, a knife in the other, an inkhorn at his button-hole, and a pen behind his ear. The queen's bishop's pawn is a man standing at his own door, with a glass of wine in one hand, a loaf in the other, and a bunch of keys at his girdle. The king's knight's pawn is a smith, with hammer and trowel. The queen's knight's pawn carries keys, and compasses, and an open purse. The king's rook's pawn is a husbandman, with bill-hook in hand, and a pruning knife at his girdle. The queen's rook's pawn, with dishevelled hair, and in rags, displays four dice in one hand, and a crust of bread in the other, a bag being suspended from his shoulder. All these pawns are defined by Caxton to represent the following description of persons:—

Labourers, and tilinge of the erthe.
Smythes, and other werkes in yron and metals.
Drapers, and makers of cloth and notaries.
Marchaunts and chaungers.
Phisicyens and cirurgiens, and apotecaries.
Taverners and hostelers.
Gardes of the cities and tollers and customers.
Ribaulds, players at dyse, and the messengers.

The second edition of *The Game and Playe of the Chesse*, (such was the title of Caxton's book,) appeared in 1490. It is decorated with seventeen prints, and has a curious preface, which, with the concluding paragraph of the work, also written by Caxton, we now lay before our readers.

The holy appostle and doctour of the peple, Saynt Poule, sayth in his epystle, Alle that is wryten is wryten unto our doctryne, and for our seruyng. Wherfore many noble clerkes have endevoeyed them to wryte and compyle many notable werkys and histories to the ende that it myght come to the knowledge and understondyng of suche as ben ygnoraunt of which the nombre is infenyte, and according to the same saith Salamon that the nombre of foles is infenyte, and among alle other good werkys it is a werke of ryght special recomendacion to enforme, and to late understonde wysedom and vertue unto them that be not lernyd, ne can not dyscerne wysedom fro folye. Thene emonge whom there was an excellent doctour of dyvnyte in the royaume of fraunce of the ordre of thospital of saynt iohans of iherusalem whiche entended the same and hath made a booke of chesse moralysed, which at such time as i was resident in Brudgys in the counte of flaunders cam into my handes, which whan i had redde and overseen, me semed ful necessarye for to be had in englishe, and in eschewing of ydlenes. And to thende that some which have not seen it ne understonde frensh ne latyn, i delybered in myself to translate it into our maternal tonge, and when i had acheyved the said translacion i did doo sett in emprynte a certyn nombre of them, which anone were despesshed and solde. Wherfore by cause this said boke is ful of holsom wysedom and requysyte unto every estate and degree, i have purposed to emprynte it shewing therfore the figures of such persones as longen to the playe, in whom al astates and degres ben comprysed, besochen al them that this lital werke shall see, here, or rede, to have me for excused for the rude and symple makyng and reducyng into our englishe, and whereas is defaute to correcte and amende and in so doying they shall deserve meryte and thanke, and i shall pray for them, that god of his grete mercy shal rewarde them in his everlastyng blisse in heven, to the whiche he bryngge us, that wyth his precious blood redemed us Amen.

The closing paragraph is as follows:—

And a man that lyveth in this worlde without vertues liveth not as a man, but as a beste. Thenne let every man of what condycion he be that redyth, or herith this litle book redde, take thereby ensample to amende hym.

The work of Cesolis, though it went through so many editions and translations, gave no rules for the playing of the game. This deficiency was soon after supplied in the treatises of Vicent and of Lucena, (both ascribed to the year 1495,) but more completely by that of Damiano, a Portuguese, in 1512. The latter work was originally written in Spanish and Italian, and consists chiefly of the openings of the game known as the *Giucoco Piano*. The "Ends of Games" and "Problems" difficult of solution, which conclude his volume, are many of them taken from the work of Lucena. His small book is, however, deficient in the principal openings, and expatiates chiefly on games where advantage is given. The work of Damiano was reprinted under the direction of D. Antonio Porto, who unjustly prefixed his own name as the author, although he had not made the slightest addition to the volume, or alteration of it. In 1527 Mark Jerome Vida, of Cremona, bishop of Alba, published a Latin poem on chess, called *Scacchia Ludus*; which has gone through many editions in Latin, Italian, French, and English. Pope notices this author in his *Essay on Criticism*:—

Immortal Vida, on whose honoured brow,
The poet's bays, and critic's ivy grow.

And Warton, in his *Essay on Pope*, speaks of Vida's poem in the following terms:—"It was a happy choice to write a poem on chess; nor is the execution less happy. The various stratagems and manifold intricacies of this ingenious game, so difficult to be described in Latin, are here expressed with the greatest perspicuity and elegance, so that, perhaps, the game might be learned from this description." That this poem was valued and admired by contemporary authors is plain from the language of Pasquier, who wrote in 1560, and thus speaks:—"Jerom Vida represented this fine game of chess in the form of a battle, and his Latin verses are in the true spirit of Virgil." Specimens of the various English versification of this work are given by Twiss, but they do not appear to us sufficiently interesting for insertion here.

In 1561 appeared, in Spanish, the "Book of the liberal Invention and Art of the Game of Chess, by Ruy Lopez de Sigura, clerk, inhabitant of the town of Cafra. Directed to the illustrious lord, Don Garcia de Toledo." This work is said to have added little to the knowledge of chess; and the author, while censuring Damiano, and speaking contemptuously likewise of all the Italian players, was himself guilty of many errors, which were still further increased by his translator and printer. A few years after the publication of this book, the vanity of the author met with a severe check in the defeat he suffered in the presence of Philip II., king of Spain, as the following anecdote will show:—A young man of Cutri, in Calabria, named Leonardo, went to Rome, during the pontificate of Gregory XIII., to study the law; but gave his attention much more to the study of chess, in which game he became so skilful, that though very young, and therefore called *Il Puttino*, the boy, he soon conquered all the best players. Ruy Lopez, who was an ecclesiastic, and at that time considered the first chess-player in Europe, came to Rome at this time, to solicit the pope for a benefice which had then become vacant at the court of Philip II. of Spain. Having heard of the young Leonard's fame, he sought his acquaintance, and conquered him two following days; which vexed Leonardo so much that he immediately went to Naples, and devoted himself to the study and practice of chess for the space of two years. Returning from thence to his native place, he learned that his brother had been taken by corsairs, and chained to the oar. Leonardo set

out to ransom him, and agreed with the reis or captain of the galley on the price of his dismissal, which was to be two hundred crowns. Finding that the captain understood chess, Leonardo engaged him in play, and succeeded in winning from him the price agreed on for his brother's ransom, and two hundred crowns besides. With this he returned to Naples; from thence he sailed to Genoa, Marseilles, and Barcelona, playing with and conquering all he met; and then travelled to Madrid, where he soon revenged himself on his old antagonist, Ruy Lopez, by beating him at chess in the presence of the king. On this occasion Philip presented Leonardo with a thousand crowns, besides jewels, furs, &c. The victor then went to Lisbon, where success and honours likewise attended him, and where he received the title of knight-errant. On revisiting Calabria, at a subsequent period, he was poisoned by some envious person in the palace of Prince Bisignano, and died in the forty-sixth year of his age. Such are some of the particulars of the life of Leonardo of Cutri, as given in the work *Il Puttino*, published by Salvio, of Naples, of whose reputation as a master of chess we shall speak in due order.

CHURCHES IN LONDON.—Place yourself on the summit of that magnificent church which crowns our imperial city; from thence, survey the prospect unfolded to your ken. Immediately below you are thickly spread the monuments of former munificence and piety,—those numerous churches reared by kings, and nobles, and merchants, and religious bodies. Direct your view a little further, and, gradually, *these*, the most interesting features of the landscape, are found to disappear, until, at length, it is only here and there that some solitary tower or steeple breaks the monotonous expanse of house-tops, showing us that God is not utterly forgotten,—that some few among his creatures still possess the privilege of worshipping their great Creator.

So situated, while *above* all seems fair and bright, and *below* all is gilded by the sunshine, I behold, on the verge of the horizon, a dark belt of angry clouds, slowly but surely "gathering blackness," from whence, ere long, there will burst forth the tempest and the storm,—"hail-stones and coals of fire."—BISHOP BLOMFIELD.

VACCINATION.—Most people now have their children vaccinated; but all are not aware that *care and attention* are required in order that it should really be a preventive from that dreadful disorder, the small-pox. If a gentleman's child is vaccinated, great care is taken to preserve the arms from being *rubbed*, or in any way *disturbed* afterwards. It is seen again by the doctor on the *very day* he desires to see it: if only *one place*, of the several places where it is vaccinated, *takes*, that place is not touched or opened, but left to dry away; and if, after all, the doctor is not *satisfied* that it *has taken*, after a time the child is vaccinated again. Great attention is also paid in *all cases* by the doctors, that the matter should be in a fit state, and taken at the proper time. It is a general complaint, however, that the lower classes *will not pay attention* to the most important part of the business,—letting the doctor see the child *again* on the *very day* he fixes, and taking care to prevent the arm being touched or rubbed in any way. "It has been vaccinated," and they think it safe; do not keep away from small-pox (which even *after* inoculation should be avoided, if possible, as many have had it again); and are astonished that it is taken, and that vaccination has "*FAILED*," which, with *care*, it *very seldom* does; and even if people do take the small-pox, they have it, after vaccination, very slightly. At first, thirty or forty years ago, it was not so well understood, and perhaps some mistakes were made which are now corrected. One place only was vaccinated, and that place opened. Perhaps, in such cases, it would be safer to vaccinate again. Doctors can tell by the marks, if vaccination took or not. If parents who did not take their children to the doctor as desired, a second time, *would now* have the marks examined very carefully, it might save their children from risk, as, if necessary, they could be vaccinated again.

[From *Useful Hints, Second Series*; published by the Labourer's Friend Society.]

THE LANDSCAPES—ENGLISH AND INDIAN.

I stood upon an English hill,
And saw the far meandering rill,
A vein of liquid silver, run
Sparkling in the summer sun ;
While adown that green hill's side,
And along the valley wide,
Sheep, like small clouds touched with light,
Or like little breakers bright
Sprinkled o'er a smiling sea,
Seemed to float at liberty.

Scattered all around were seen
White cots on the meadows green,
Open to the sky and breeze,
Or peering through the sheltering trees,
On rustic gateways, loosely swung,
Laughing children idly hung :
Of their glad shouts, shrill and clear,
Came upon the startled ear,
Blended with the tremulous bleat
Of truant lambs, or voices sweet,
Of birds that take us by surprise,
And mock the quickly-searching eyes.

Nearer sat a bright-haired boy,
Whistling with a thoughtless joy ;
A shepherd's crook was in his hand,
Emblem of a mild command ;
And upon his rounded cheek
Were hues that ripened apples streak.
Disease, nor pain, nor sorrowing,
Touched that small Arcadian king.
His sinless subjects wandered free—
Confusion without anarchy.
Happier he upon his throne,
The breezy hill—though all alone—
Than the grandest monarchs proud,
Who mistrust the kneeling crowd ;
For he ne'er trembles for his fate,
Nor groans beneath the cares of state.

On a gently rising ground,
The lovely valley's farthest bound,
Bordered by an ancient wood,
The cots in thicker clusters stood ;
And a church uprose between,
Hallowing the peaceful scene.
Distance o'er its old walls threw
A soft and dim cerulean hue,
While the sunlit gilded spire
Gleamed as with celestial fire !

I have crossed the ocean-wave
Haply for a foreign grave—
Haply never more to look
On a British hill or brook—
Haply never more to hear
Sounds unto my childhood dear ;—
Yet if sometimes on my soul,
Bitter thoughts beyond control
Throw a shade more dark than night,
Soon upon the mental sight
Flashes forth a pleasant ray,
Brighter, holier, than the day ;
And unto that happy mood
All seems beautiful and good.

Though from home and friends we part,
Nature and the human heart
Still may soothe the wanderer's care,
And his God is everywhere !

Seated on a bank of green,
Gazing on an Indian scene,
I have dreams the mind to cheer,
And a feast for eye and ear.
At my feet a river flows,
And its broad face richly glows
With the glory of the sun,
Whose proud race is nearly run.
Ne'er before did sea or stream
Kindle thus beneath his beam,
Ne'er did miser's eye behold
Such a glittering mass of gold !
'Gainst the gorgeous radiance float
Darkly, many a sloop and boat,

While in each the figures seem
Like the shadows of a dream ;
Swift, yet passively, they glide
As sliders on a frozen tide.

Sinks the sun—the sudden night
Falls, yet still the scene is bright.
Now the fire-fly's living spark
Glances through the foliage dark,
And along the dusky stream
Myriad lamps with ruddy gleam
On the small waves float and quiver,
As if upon the favoured river,
And to mark the sacred hour,
Stars had fallen in a shower.
For many a mile is either shore
Illumined with a countless store
Of lustres ranged in glittering rows ;
Each a golden column throws,
To light the dim depths of the tide ;
And the moon in all her pride,
Though beauteously her regions glow,
Views a scene as fair below *.

Never yet hath waking vision
Wrought a picture more Elysian ;
Never gifted poet seen
Aught more radiant and serene !
Though upon my native shore
Mid the hallowed haunts of yore
There are scenes that could impart
Dearer pleasure to my heart,
Scenes that in the soft light gleam
Of each unforgotten dream,
Yet the soul were dull and cold,
That its tribute could withhold
When enchantment's magic wand
Waves o'er this romantic land !

* This description has reference to the night of some religious festival.
[RICHARDSON'S *Literary Leaves*.]

We cannot comprehend the wonders of *creation*, much less those of the *resurrection*. For our *belief* in the possibility of this stupendous mystery, we trust to *reason* ; for the *certainty* of it, to *revelation* ; for the *performance* of it to *Omnipotence* !—DAUBENEY.

UNJUSTIFIABLENESS OF REVENGE.—Let every one beware how he indulges the idea of returning evil for evil. In such deplorable contests, it is always he who comes off, as he may think, the conqueror, that is the most really to be pitied.—ST. GREGORY.

If the very great, the enormous power of the Deity is sometimes urged, from a comparison with the feebleness and littleness of man ; if his insignificance in the inappreciable extent of creation is pointed out ; it is still, for the purpose of comparison, not with a design to debase him. Man himself is a great effort of power ; the more extraordinary that Power which could perform so much more. The nations of the world are as dust in the balance ; but the poet intended to magnify God, to whom even nations could be as that dust which is unfelt. Yet, nevertheless, He is "mindful" of man. This is to understand our just relations to Him. The lesson which natural history conveys, from the extent and the population of the unbounded universe, is not a lesson of despair. The same argument which had depressed us, serves to elevate us again when it is justly contemplated. When man looks above at the boundless heaven of orbs and their incomputable inhabitants, he shrinks before the thought ; when he inspects the myriads, of incalculable smallness, and utter apparent insignificance, beneath, he rises again, secure that He, who thinks for them, as He erected them, thinks also for him, thinks and cares for all. But I have fallen, unawares, into the argument used by the highest authority which we have known on earth. That He appealed to natural history is a warranty for the choice here made ; that His arguments were those of natural religion ought to prove that He thought this study worthy of man, when He thought it not beneath Himself.—MACCULLOCH.

ARISTIPPUS very properly replied to a man who boasted of his reading.—"It is not those who eat the most who are hale and healthy, but those who can best digest."—MILLINGEN'S *Experience*.

A BRIEF HISTORY OF GLOVES,

ANCIENT AND MODERN.

WHEN we draw upon our hands the comfortable and useful articles termed GLOVES, we are apt to think them an invention of *modern* luxury or convenience, and need to be reminded that they were much in use in very early times. We intend, therefore, to consider this subject with reference both to the ancient and to the modern condition of the world.

As the Old Testament is one of the most ancient books now existing, we naturally look first to it, for some allusions to the subject under consideration. In the book of Ruth (ch. iv., v. 7,) the custom is noticed of a man taking off his *shoe*, and giving it to his neighbour, as a pledge for redeeming or exchanging any thing. The events of the book of Ruth belong to the year 1245 B.C., and the word in this text usually translated *shoe* by the Chaldee paraphrast is in this place rendered *glove*. A like supposition is offered with regard to the passage at Psalm cviii. 9, where the royal prophet declares he will cast his *shoe* over Edom. The expression occurs likewise at Psalm lx. 8, and both these religious hymns were composed about the year 1040 B.C. Casaubon is of opinion that *gloves* were worn by the Chaldeans, from the word used in the book of Ruth being explained in the Talmud Lexicon by *the clothing of the hand*.

Xenophon tells us that the ancient Persians used gloves: when describing their manners, he cites this as a proof of their effeminacy. Homer describes Laertes, the father of Ulysses, as working in his garden with gloves on his hands, to secure them from the thorns. Now Homer lived about 900, and Xenophon about 400 years B.C.

Varro, who lived in the time of Cicero, tells us of their long-standing use among the Romans. He wrote a book on "Rural Business," wherein he tells us that olives gathered with the naked hand are preferable to those gathered with gloves. Athenæus speaks of a celebrated glutton, who always came to table with gloves on his hands, that he might be able to handle and eat the meat while hot, and devour more than the rest of the company.

Thus far it would seem that gloves were not so much an ordinary covering, as a protection used for specific purposes: the use of them among the ancients was therefore not so common as among the moderns. In a hot climate the wearing of gloves implies a considerable degree of effeminacy, so that the early use of gloves can be more clearly traced among northern nations. When the primitive simplicity of Rome had passed away, the philosophers were found to rail at the prevailing use of gloves. Pliny the younger informs us, in his account of his uncle's journey to Veauvius, that his secretary sat by him, ready to write down anything remarkable that occurred; and that he had gloves on his hands, that the coldness of the weather might not impede his business.

It is curious to find that Musonius, a philosopher who lived at the close of the first century of Christianity, among other invectives against the corruption of the age, says:—"It is shameful that persons in perfect health should clothe their hands and feet with soft and hairy coverings."

The use of these articles kept on progressing, until, at the beginning of the ninth century after Christ, the church began to lay down regulations for this part of dress. At the Council of Aix it was ordained that the monks should wear gloves made of sheep-skin. Surius tells us a Romish legend respecting St. Gudula, the patroness of Brussels, that, as she was praying in a church, without her shoes, the priest compassionately put his gloves under her feet; but she threw them away, and they miraculously hung in the air for the space of an hour,—whether in compliment to the saint or the priest does not appear.

Gloves have been used on several great and solemn occasions, as in the ceremony of investitures, in bestowing lands, or in conferring dignities. Giving possession by delivering a glove has prevailed in several parts of Christendom in later ages. Bishops have been instituted to their sees by means of the glove; and it was thought so necessary a part of the episcopal habit, that when some abbots in France presumed to wear gloves, the Council of Poitiers interposed, and forbade them, as peculiar to the bishop alone.

The custom of blessing gloves at the coronation of the kings of France is a remnant of the Eastern practice of investiture by a glove. The influence of this notion is exhibited in the case of the unfortunate Conradin, who was deprived of his crown and life by the usurper Mainfroy. When he had mounted the scaffold the injured prince lamented his hard fate, asserted his right to the crown, and, as a token of investiture, threw his glove among the crowd, intreating it might be conveyed to some of his relations, who would avenge his death. It was taken up by a knight, and carried to Peter, king of Arragon, who, in virtue of this glove, was afterwards crowned at Palermo, in Sicily.

To deprive a person of his gloves was a mark of divesting or depriving him of his office. When the Earl of Carlisle, in the reign of Edward the Second, was impeached of holding a correspondence with the Scots, and was condemned to die as a traitor, his spurs were cut off with a hatchet, and his *gloves* and shoes were taken off.

In former ages the throwing down of a glove constituted a challenge, which he accepted who took it up. Such sort of single combat was meant as a trial of innocence, and was likewise often practised for deciding rights and property. This custom was continued down to the reign of Elizabeth. A dispute concerning some lands in the county of Kent was appointed to be settled by duel in Tothill-fields, in the year 1571. The plaintiffs had appeared in court, and demanded single combat. One of them threw down his glove, which the other party immediately taking up, carried off on the point of his sword, and the day of fighting was appointed: but this affair was adjusted by the judicious interference of the queen.

In Germany, on receiving an affront, to send a glove to the offending party is a challenge to a duel; and this method of daring a person to fight, has been in use even in this country, where local circumstances made feuds and animosities common; as the following narration will show.

Bernard Gilpin was a faithful ecclesiastic of the sixteenth century, whose spiritual work was carried on among the northern borderers. On a certain Sunday going to preach in those parts wherein deadly feuds prevailed, he observed a glove, hanging up on high in the church. He demanded of the sexton what it meant, and why it hung there. The sexton answered that it was a glove which one of the parishioners had hung up there as a challenge to his enemy; signifying thereby, that he was ready to enter into combat hand to hand, with him, or any one else, who should dare to take the glove down. Mr. Gilpin requested the sexton to take it down. "Not I, sir," replied he, "I dare do no such thing." Then Mr. Gilpin, calling for a long staff, took down the glove himself, and put it in his bosom. By and by, when the people came to church, and Mr. Gilpin in due time went up into the pulpit, he in his sermon reproved the barbarous custom of challenges, and especially the custom which they had of making challenges by the hanging up of a glove. "I hear," said he, "that there is one amongst you, who even in this sacred place, hath hanged up a glove to this purpose, and threateneth to enter into combat with whosoever shall take it down. Behold, I have taken it down myself." Then, plucking out the glove, he showed it openly, and, inveighing against such practices in any

man that professed himself a Christian, endeavoured to persuade them to the practice of mutual love and charity.

At the coronation of George IV., in 1821, the ceremony was performed, probably for the last time, of challenging by a glove any one to dispute the right of the sovereign to the crown. His majesty's champion entered Westminster-hall completely armed and mounted, and threw down his glove.

Gloves were also particularly used for carrying the hawk, which princes, and other great men, formerly took much pleasure in doing; so that some of them have chosen to be represented in this attitude.

Judges were formerly forbidden to wear gloves on the bench; but both they and the rest of the court receive gloves from the sheriffs, whenever the session or assize concludes without any one receiving sentence of death: this is a custom of great antiquity.

It appears likewise to have been a custom not to enter the stables of princes, or other great men, without pulling off the gloves, under the penalty of forfeiting them, or of redeeming them by a fee to the servants. This custom is likewise observed in some places at the death of the stag; in which case, if the gloves are not taken off, they are redeemed by money given to the keepers and huntsmen. The King of France always pulled off one of his gloves on this occasion; but the reason for this custom seems to be lost.

Gloves are usually presented at weddings and funerals. By the term *glove-money* is meant money given to servants to buy gloves: this was done because they were more expensive formerly than they are now. Gloves were also a customary new-year's gift. When Sir Thomas More, as lord chancellor, decreed in favour of Mrs. Croaker against Lord Arundel, she, on the following New Year's day, in token of her gratitude, presented him with a pair of gloves containing forty angels. "It would be against good manners," said the chancellor, "to forsake a gentlewoman's New Year's gift, and I accept the gloves; their *lining* you will be pleased otherwise to bestow."

A person in company, who first sees the new moon, and thereupon salutes his fair companion, has a claim upon her for a pair of new gloves. This custom is peculiar to some of the northern parts of England.

It appears that gloves did not form part of the female dress, until after the Reformation. In the time of Queen Anne they were richly worked and embroidered.

Some of the oldest gloves extant exist in the Denny family. At the sale of the Earl of Arran's goods, April 6, 1759, the gloves given by Henry VIII. to Sir Anthony Denny were sold for 38*l.* 17*s.*; those given by James I. to his son Edward Denny, for 22*l.* 4*s.*; the mittens given by Queen Elizabeth to Sir Edward Denny's lady, 25*l.* 4*s.*; all which were bought for Sir Thomas Denny of Ireland, who was descended in a direct line from the great Sir Anthony Denny, one of the executors of the will of Henry VIII.

The principal leather glove manufactures in England are at Worcester, Woodstock, Yeovil, Leominster, Ludlow, and London. The number made in the town and neighbourhood of Worcester annually, has been estimated at more than six millions of pairs. At Yeovil about two thirds of that quantity are supposed to be produced, and the number of persons, including men, women, and children, engaged in the manufactures at these places, is said to be regularly increasing. Of late years, cotton or Berlin gloves have been much in use; and foreign leather gloves, principally of French manufacture, have been imported, the duty on the latter of which has amounted to 30,000*l.* per annum. Owing, however, to the increased use of gloves, the English trade at home is said to have experienced some increase. Silk gloves are chiefly made in the town of Derby: this department of the manufacture is connected with that of silk stock-

ings. A simple and ingenious apparatus is used for performing the process of glove-sewing, with accuracy and dispatch, when the respective pieces have been cut out.

POISONOUS FLIES.

NEAR this place (Castle of Golubae) we found a range of caverns, famous for producing the poisonous fly, too well known in Servia and Hungary, under the name of the Golubaeer fly. These singular and venomous insects, somewhat resembling mosquitoes, generally make their appearance, during the first great heat of summer, in such numbers as to seem like vast volumes of smoke; their attacks are always directed against every description of quadruped, and so potent is the poison they communicate, that even an ox is unable to withstand its influence, for he always expires in less than two hours. This results, not so much from the virulence of the poison, as that every vulnerable part is simultaneously covered with these most destructive insects; when the wretched animals, frenzied with pain, rush wild through the fields, till death puts a period to their sufferings, or they accelerate dissolution by plunging headlong into the rivers.

The shepherds of these countries, taught by experience the time of their approach, anoint every part of their flocks and herds, unprotected by nature, with a strong decoction of wormwood, to which, it appears, these flies have a great antipathy. In addition to this, the shepherds keep immense fires constantly blazing, around which the poor animals, aware of their danger, tremblingly and patiently congregate. Kind Nature has, however, mercifully ordained that their existence shall be most ephemeral, for the slightest variation in the weather is sufficient to destroy the whole swarm; hence they seldom live beyond a few days: indeed their very production seems to depend upon the state of the weather: for, in those summers when the thermometer continues low, they never make their appearance except in diminished numbers; whereas, when great heat and drought prevail during the whole of that season, they have been known to swarm two, or even three times, although even then their existence is always extremely brief.

Their ravages are principally confined to the surrounding countries of Servia and the Hungarian Banate; but on some occasions they have been known to extend their flight as far as the neighbourhood of Presburg, when their attacks were fatal to numbers of cattle. The peasants for this, as for every other phenomenon, have resorted to a miracle for explanation, and tell us, that in these caverns the renowned champion, St. George, killed the dragon, whose decomposed remains have continued to generate these insects down to the present day. The probable supposition, however, is, that when the Danube rises, which it always does in the early part of summer, the caverns are flooded, and the water remaining in them becomes putrid, and produces, during the heat of summer, this noxious fly. The inhabitants of the country, many years since, closed up the mouths of the caverns with stone walls, for the purpose of preventing their egress; but the expedient availed nothing, and the rushing of the waters against the sides of the rocks, in process of time, destroyed the useless defence; so that it must be evident, either that the insects are not generated here, or that the caverns have subterraneous communications with some other outlets at present unknown.—SPENCER'S *Travels in Circassia*.

If there be any one who faithfully examines the book of Nature, and the book of Revelation, to ascertain the truth, just as he would inquire into the reasons and probabilities on which he must found the expectation of any temporal benefit; if, after having done this, he find no assurance, and still doubt, let him ask himself the question: Although these things are not proved to my mind, is it proved to me that these things cannot be so? If they may be so, how earnestly does it concern me to live as though they were most clearly demonstrated.—S.

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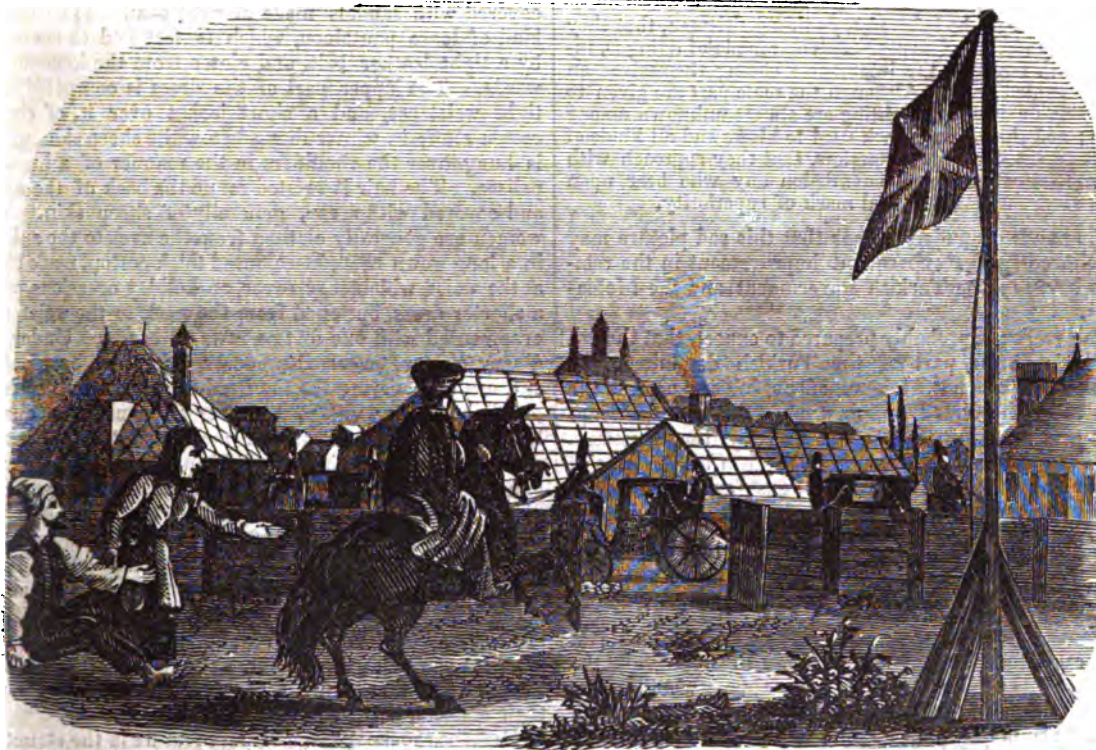
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ONE PENNY.

TURKEY AND THE TURKISH PROVINCES.



PUBLIC PROMENADE AT JASSY.

MOLDAVIA AND THE MOLDAVIANS.

MOLDAVIA is the most northern province in Turkey. It is bounded on the east by Bessarabia, a province which formed part of Turkey until 1812, when it was ceded to Russia; on the south by Wallachia; and on the west and north by provinces of the Austrian empire;—the province forming a compact territory about 200 miles in length, and 120 in breadth.

Moldavia formed part of the Byzantine or Eastern Empire, and suffered greatly from the incursions of the rude hordes which infested Europe in the middle ages. About the middle of the thirteenth century, the province was governed by Bogdan, a Slavonic chief; and for some time afterwards, the military leader, or *Voyvode*, of Moldavia, was generally independent of superior authority. At length, the Turks conquered Constantinople from the Greek emperors; and Moldavia, by a timely submission, was enabled to obtain favourable treatment from the conquerors. The sultan was to protect the province; the inhabitants were to pay an annual tribute for this protection; Turks were prohibited from interfering with the native inhabitants; the *Voyvodes* were to be elected by the principal clergy and nobles, uncontrolled by the sultan; the *Voyvode* had power of life and death, peace and war, without consulting the sultan; and no Moldavian was compelled to leave his province, to enter into the sultan's service.

The *Voyvodes* governed with the assistance of a council, or *divan*, composed of twelve members appointed annually by him. The laws were framed after the Jus-

VOL. XVIII.

tinian code; and the *Voyvode* kept up an army of 6000 men. The annual tribute paid to the sultan was not large; but the inhabitants suffered from certain oppressive commercial regulations. Wheat, timber, cattle, and other articles, were exported to Constantinople, and sold at a fixed price, which was not above one fourth of the current market price.

In this situation did Moldavia remain for two centuries, disturbed occasionally by the wars between Turkey and Poland. At length, the ambitious Czar of Russia directed his attention to this province; and after several attempts, Russia succeeded, in 1774, in gaining the position of a kind of intercessor between the sultan and the Moldavians, by which certain advantages were given to the latter. In 1792, fresh advantages were granted to the Moldavians by the sultan, at the instance of Russia. In 1812, the latter power succeeded in getting possession of that part of Moldavia called Bessarabia, situated eastward of the river Pruth; and at subsequent periods she has frequently interfered between the sultan and the Moldavians, to gain advantages for the latter, but whether with any ulterior object time will show. Certain it is, that by the Treaty of Adrianople, in 1829, Moldavia has been placed in a more independent position, with regard to the sultan, than it has yet occupied. The *Voyvode*, called also *Hospodar*, is elected by the inhabitants for life; the corn, provisions, cattle, and timber, are exempted from the vexatious regulations formerly existing; and various other regulations have secured to the Moldavians a degree of liberty scarcely found in any other part of the Turkish empire.

The inhabitants of Moldavia amount to about half a million, and consist of native Moldavians, Jews, Armenians, and gypsies. Mr. Wilkinson, who was British consul at Bukharest before the improvements had taken place in the government and condition of the province, represented the humbler classes as ground down by oppressive power, and as having acquired, through the effect of this oppression, a dispirited and dejected tone of mind: being accustomed to a state of oppression, they had become unable to form hopes of a better condition, and had acquired a sort of stupor or apathy which rendered them, to a great degree, indifferent to the future.

Hence, it may be inferred, says that gentleman, that they are a quiet and harmless people. Their mode of living is, indeed, with regard to the intercourse among themselves, an uninterrupted calm. Although the male part are given to drinking, quarrels and fighting are almost unknown among them; and they are so much used to blows and all kinds of ill-treatment from their superiors, that they approach with the greatest respect and submission any who bear upon themselves the least external mark of superiority.

There are grounds for hope that this sad picture may be relieved by the subsequent improvement in the relations between the Turkish government and the Moldavians.

The reader is probably prepared to expect, that though Moldavia forms part of the Turkish dominions, the Moldavians are not Mohammedans. They profess the religion of the Greek church, a superstitious and corrupt form of Christianity, professed also by the Russians. Persons who have not received baptism by the rites of the church are not deemed Christians; and frequency of confession and communion, together with the punctual observance of a vast number of fast days during the year, are prescribed with severity: the misguided people believe that an exact adherence to these rites is sufficient to expiate the heaviest crimes, particularly after the confessor's absolution, which is said to be obtainable in most cases by means of a good fee. Preaching, and the perusal of the Holy Scriptures, are almost wholly unattended to; and though we, as Christians, may feel a momentary pleasure on hearing that the Moldavians are not Mohammedans, yet there is but little cause for satisfaction, when we reflect on the gross and mutilated form in which the doctrines of Christianity are presented to the people.

It is a natural result of those forms of religious teaching which do not appeal to the heart, that superstition should prevail widely. The Moldavians firmly believe in all sorts of witchcraft, in apparitions of the dead, in ghosts, and in miracles performed by the images of saints. In illness, they place an image near them; and when they recover, though it were through the aid of the ablest physician, they attribute the recovery to the efficacy of the image alone. No prayers or thanksgiving are offered up either to the Deity or to the Saviour; but the Virgin, and a large number of saints, are those whose names are invoked whenever spiritual assistance is required.

The towns and sea-ports of Moldavia partake of that mixed and European character resulting from the intercourse between merchants, dealers, &c.; but the villages represent the real character of Moldavian life. The peasants' huts are all built nearly of the same size and style.—The walls are of clay, and the roofs thatched with straw, neither of which is calculated to protect the inmates from the inclemency of bad weather. The ground floors are, however, occupied as long as the weather will permit; and in winter the inmates retire to cells under ground, easily kept warm by means of a little fire made of dried dung and some branches of trees, which, at the same time, serves for cooking their scanty food. Each family, however numerous, sleeps in one of these subterraneous habitations, the beds being formed of coarse woollen druggeta.

The principal food of the peasantry consists of a kind of dough called *mamaşka*, made of the flour of Indian wheat, sometimes mixed with milk. The season of Lent is kept by them with rigorous severity; and for the first two or three days after its termination, they sparingly indulge themselves with a little meat; but many of them are too poor to obtain this indulgence, and content themselves, in addition to their ordinary food, with eggs fried in butter.

Their dress bears some resemblance to that of the Dacians in the time of the Romans, and has probably suffered but little change for centuries. Their feet are covered with sandals made of goat skin. They wear a kind of loose pantaloons, which is fastened to the waist by a tight leather belt, and closes from the knee downwards. The upper part of the dress is composed of a tight waistcoat, and a short jacket over it, of coarse cotton stuff; in winter they add a white sheep skin, which is hung over the shoulders in the manner of a busar's pelisse. The hair is twisted round the back of the head, and covered with a cap, generally of sheep skin. The women are generally clothed from the neck to the ankles, in a long gown of light-coloured thick cotton, made tight at the waist, which they cover, on holiday occasions, with a shorter dress, buttoned from the neck to the waist, and ornamented with one or two rows of beads. Under ordinary circumstances, the poorer classes go barefooted, and use no covering for the head except a handkerchief.

Almost every village has a small church, or chapel belonging to it, and one or more priests who act as curates. The ecclesiastics of this order are chosen from amongst the ordinary peasants, from whom they are only distinguished in appearance by a long beard. They lead the same sort of life, and follow the same avocations when not engaged in the exercise of their clerical functions; but they are exempted from the public imposts, and pay nothing more than an annual tribute of fifteen piastres to the metropolitan archbishop. The generality of them can neither read nor write; they learn the formulae of the service by rote; and if a book is seen in their chapels, it is more for ornament than use.

Perhaps the most extraordinary feature in the structure of society in Moldavia is the vast number of gypsies residing there. Their bodily constitution is strong, and they are so hardened from constant exposure to all the rigours of the weather, that they appear fit for any labour or fatigue; but their natural aversion to a life of industry is in general so great, that they prefer all the miseries of indigence to the enjoyment of comforts that are to be reaped by persevering exertion.

Both men and women are rather finely formed, but are exceedingly dirty in their habits and appearance. They acknowledge no particular religion, nor do they think of following the precepts of any, unless compelled, nor is there any form of matrimonial tie between the sexes.

The relation in which they stand to the remainder of the inhabitants is a sort of mitigated slavery, the government and the nobles claiming property in them. This slavery, however, so far as the government is concerned, is nothing more than a pledge not to leave the province, and the payment of a small annual tribute. Their time they dispose of as they please, strolling about the country, and pitching their tents near the towns and high roads. Their chief occupation, in this vagrant life, consists in making common iron tools, baskets, and other cheap articles. But their industry and gain are confined to what is absolutely necessary for procuring them the means of subsistence. They possess a natural facility and quickness in acquiring the knowledge of arts; the number of persons, however, who devote themselves to any is small. Musical performance seems to be that to which they give the preference: they frequently attend the wine-houses and taverns, and are sometimes called to the houses of the nobles, when a concert is to

be given. When any public works are to be constructed, the government gypsies who are acquainted with masonry are called in to assist as labourers, receiving food, but no wages, except that a small deduction is made from their annual tribute.

Those gypsies who are deemed the property of the nobles are chiefly employed either as household servants, or as vineyard labourers. As they are not considered as free servants, no wages are given to them; but the filthy and disorderly habits in which they indulge, greatly diminish the supposed advantage of having servants at so economical a rate. Instruments of punishment are kept in the houses, by means of which the gypsies are corrected when in fault, which is very frequently;—in fact, slavery, in all its forms, brings retribution with it, in some way or other.

We have in the present paper confined our attention principally to the humbler classes of Moldavians. In another article, on Wallachia and the Wallachians, we shall give a brief account of the upper classes of society in the two provinces, which are contiguous, and very much resemble each other.

HAVE HOPE.

The vernal wind that whispers o'er the seas
From sunny climes, and plays among the trees,
Saith, with the gentle music of its breeze,
Have hope.

The rose, that wept its withered flowers' fall,
When rain and storm had forced its funeral,
Bids its young bud say unto me and all,
Have hope.

The desert sands, so wildly, sternly bare,
Where eye and heart sink 'neath the torrid glare,
Hath yet a fountain cool to murmur there,
Have hope.

The tide that ebbing leaves the native shore,
And backward rolls as if for evermore,
Saith, as it flows where it had flowed before,
Have hope.

The night, when darkness is around the earth,
And Nature seems to feel the cheerless dearth,
Saith, with its starlight and the fair moon's birth,
Have hope.

The dream, when guardian angels watch our sleep,
And o'er the tranquil soul fresh visions creep,
Whispers, in tender accents, soft and deep,
Have hope.

The merry morn, when in its purple car,
It leaps the brightening heaven's eastern bar,
Waves on its beaming banner floating far,
Have hope!

[R.H.P., in the *Dublin University Magazine*.]

THE CHILD.—A child is a man in a small letter, yet the best copy of Adam before he tasted of the apple; and he is happy, whose small practice in the world can only write his character. He is Nature's fresh picture newly drawn in oil, which time and much handling dims and defaces. His soul is yet a white paper unscribbled with observations of the world, wherewith at length it becomes a blurred note-book. He is purely happy, because he knows no evil, nor hath made means by sin to be acquainted with misery. He arrives not at the mischief of being wise, nor endures evils to come by foreseeing them. He kisses and loves all, and, when the smart of the rod is past, smiles on his beater. Nature and his parents alike dandle him, and entice him on with a bait of sugar to a draught of wormwood. He plays yet, like a young apprentice the first day, and is not come to his task of melancholy. All the language he speaks yet is tears, and they serve him well enough to express his necessity. His hardest labour is his tongue, as if he were loth to use so deceitful an organ; and he is best company with it when he can prattle. We laugh at his foolish sports, but his game is our earnest, and his drums, rattles, and hobby-horses, but the emblems and mocking of men's business.

RURAL SPORTS FOR THE MONTHS. APRIL.

The stag, too, singled from the herd, where long
He ranged the branching monarch of the shades,
Before the tempest drives. At first, in speed
He, sprightly, puts his faith; and, roused by fear,
Gives all his swift aerial soul to flight.
Against the breeze he darts, that way the more
To leave the lessening murderous crew behind.
Deception short! though swifter than the winds
He bursts the thickets, glances through the glades,
And plunges deep into the wildest wood.
If slow, yet sure, adhesive to the track,
Hot-steaming, up behind him come again
The inhuman rout, and from the shady depth
Expel him, circling through his every shift.
He sweeps the forest oft; and sobbing sees
The glades, mild opening to the golden day,
Where in kind contest with his butting friends
He went to struggle, or his loves enjoy.
Oft in the full descending flood he tries
To lose the scent, and lave his burning sides;
Oft seeks the herd; the watchful herd, alarmed,
With selfish care avoid a brother's woe.
What shall he do? His once so vivid nerves,
So full of buoyant spirit, now no more
Inspire the course; but hindering breathless toil,
Nigh, across on his heart: he stands at bay,
And puts his last weak refuge in despair.
The big round tears run down his dappled face;
He groans in anguish, while the growling pack,
Blood-happy, hang at his fair jutting chest.
And mark his beautiful chequered sides with gore.

THOMSON.

In ancient times, when this country was clothed with extensive forests, the shooting of deer formed the occupation of kings, feudal lords, and their vassals, and seems to have constituted their chief amusement. The number of these animals was at that period immense, for we have it on the authority of Leslie, that from five hundred to a thousand were sometimes slain at one general hunting-match, at the termination of which a grand venison feast was prepared for the assembled hunters. The chase of the stag was also popular among the ladies of Britain, who held their hunting-parties independently of the gentlemen. An illuminated manuscript of the early part of the fourteenth century represents one of these female hunts, where one of the ladies is cheering on her dog with the sound of the horn, while another, with a bow in her hand, has just taken sure aim at the stag, and has planted an arrow between his antlers. We may here mention an opinion, entertained by some writers, that it was in the pursuit of the deer man first was led to the invention of the bow.

The hunting of deer was a much more exciting sport in former times than it is at the present day: it even assumed somewhat of a martial character, and was attended with a degree of perilous hazard that rendered it especially attractive to the bold sportsmen of that age. "When the stag turned to bay," says Sir Walter Scott, "the ancient hunter had the perilous task of going in upon, and killing or disabling, the desperate animal. The task was dangerous, and to be adventured upon wisely and warily, either by getting behind the stag while he was gazing on the hounds, or by watching an opportunity to gallop roundly in upon him, and kill him with the sword."

Few persons are unacquainted with the famous old ballad of Chevy Chase, and still fewer perhaps are ignorant of the story of Robin Hood and his band in Sherwood Forest. In these, and many more of the ancient ballads and romances, whether true or fictitious, the pursuit of deer is a favourite theme, and the personal prowess of those who excelled in it a fruitful source of admiration. In the days of chivalry it often happened that the hero most renowned for deeds of arms was also celebrated for his skill and courage in the chase. Thus Gaston de Foix was the mightiest hunter of his day, and wrote a book on hunting, worthy of note for the accuracy of its details. This celebrated duke is said to have kept sixteen hundred hounds.



RED DEER.

Scotland and the border countries seem to have been early celebrated for their great huntings; and in the early history of that country, as well as of our own, the chase was a matter of serious importance, as supplying the wants of the inhabitants in food and clothing. Even as late as the time of Henry the Eighth, the Highland huntsman found most of his wants supplied by the deer which he killed. A Highlander, in explaining the term "Rough-footed Scots," addressed the king as follows:—"We go a-hunting, and after we have slain red deer, we flay off the skin by-and-by, and setting of our bare foot on the inside thereof, for want of cunning shoemakers, by your grace's pardon, we play the cobblers, compassing and measuring so much thereof as shall reach up to our ankles, pricking the upper part thereof with holes, that the water may repass where it enters, and stretching it up with a thong of the same above our said ankles. So, and please your noble grace, we make our shoes. Therefore, we using such manner of shoes, the rough hairy side outwards, in your grace's dominions of England, we be called 'Rough-footed Scots.'"

The Anglo-Saxons and the Normans hunted the deer with bows and arrows, spears, and nets, as well as with dogs. To the king and his favourites, among the latter people, was reserved the exclusive right of hunting wild animals, but especially the deer, for the propagation of which large tracts of land were unjustly appropriated, and flourishing villages laid waste; while, to protect the deer within these inclosures, heavy fines were exacted, and severe punishments inflicted. These laws led to much crime and misery, and were found, notwithstanding their severity, wholly inadequate to prevent the practice of deer-stealing.

Owing to the progress of agricultural improvement in Great Britain, the quantity of deer is exceedingly diminished. During the last century numerous forests were inclosed, which were formerly well-stocked with red-deer, fallow-deer, and roe-bucks. Windsor Forest, which extended over seventeen parishes, and in many districts was full of deer, was disafforested in 1814, part of it being allotted to the crown for a park, and other parts

given in compensation for rights of pasture, &c., to the several parishes

The modern practice of stag-hunting may be considered under two heads, *i. e.*, the hunting of the *wild stag*, as it existed until late years in England, and still exists in Scotland and Ireland, and the hunting of the *carted stag*, so called because he is taken to the appointed spot in a cart. The latter is the method of hunting the stag practised in England at the present day; and, notwithstanding the grandeur and splendid accompaniments which occasionally invest it with attractions, it is regarded by many sportsmen with supreme contempt, as offering little variety or excitement, and being unworthy the manly character of an Englishman. Such, indeed, it appears to be; for the stag, previously nourished up, and fostered in parks with the best food, is, when considered in proper condition for the chase, conveyed, as we have said, to the place appointed, turned out to the sound of the huntsman's horn, allowed an interval of time, called *law*, and then vigorously pursued by huntsmen and hounds. The distance passed over in the pursuit of the deer is often greater than that traversed by the fox-hunter; but the carted stag, having been often hunted before, (for in this kind of hunting the death of the animal is not sought, he being preserved for future miseries,) generally follows the same track, traverses the same lanes and fields, and laves in the same stream. In the regular stag-hunts a change of deer is often made, to avoid this sameness of procedure. The chief recommendation of this sport appears to be that it can be enjoyed when no other chase of consequence can be pursued. We have not space to notice the hunting of fallow-deer, which, whether the animal be male or female, is in common language called *back-hunting*. We therefore proceed to the natural history of the stag, as we gain it from Cuvier and the best authorities.

The genus to which the stag belongs (*cervus*) consists of ruminant mammalia, the males of which have solid horns, or, more properly speaking, antlers, composed entirely of bone, without any sheathing of horny matter, which are likewise deciduous, and annually reproduced.

The animals of this genus are in general remarkable for the elegance of their forms, the lightness of their proportions, and the velocity of their movements. The legs are slender and firm, the body round and compact, the neck long, and head well-shaped. Their look is meek, yet confident, wild, yet curious; the colours of their coat, clean, brilliant, and agreeable. They belong rather to wild than to cultivated nature; for although some of the species are comparatively tame, and one of them, the rein-deer, of Northern Europe, in a state of entire domestication, yet generally speaking they fade away before the progress of cultivation, and become diminished in numbers, as the seclusion they love is broken in upon.

The stag (*cervus elaphus*), also known as the hart and red-deer is the deer *par excellence* of all our writers on the chase, and of all the histories of bold foresters of former days. This animal is by much the largest of European deer, and bears horns with a round beam slightly bent inwards at the summits; three branches pointing to the front, and the snags of the crown issuing from a common centre. The adults, male and female, in the summer, have the back, flanks, and outside of the thighs of a reddish-brown colour, with a blackish line running along the spine, marked on each side with fulvous spots. The colour deepens with age, and changes with the seasons. There are breeds common in the German woods which are of a very deep colour, nearly approaching to black. The hair of the stag is remarkably brittle, and holds to the skin only by a small pellicle; his eyes have an elongated pupil, and his muzzle is very broad, the tongue is soft, and ears middle-sized and pointed. In addition to the possession of horns, the stag differs from the hind in the long bristly hair of his throat, and in the canine teeth in the upper jaw. The young fawns are extremely beautiful, and of a colour that is very pleasing to the eye. They are of a rich yellowish brown, dappled with white spots, and from them a peculiar shade of colour, intermediate between brown and yellow, receives its name. At first, the young of the stag, whether male or female, are called *calves*: after six months the bossets or protuberances of the horns become visible in the young males, which gradually develop two simple cylindrical knobs. During the second year the horns assume the figure of dags, or spikes, and the animal is then named a *brocket*. The third year his new horns throw out two or three tynes, or snags, when he is termed a *spayad*. The crown, or surroyal, appears on the summit in the fourth year, and then he is a *staggard*. The fifth year he becomes a stag, in the sixth a *hart*, and so remains the rest of his life. The female likewise passes through a succession of changes but they are less important, and, moreover, regular sportsmen never hunt the female deer. In the first year the female is called a *calf*, in the second a *brocket's sister*, in the third, and ever after, a *hind*.

The hind produces but one fawn or calf in the year; and this takes place in May, or the beginning of June. She seeks retirement and concealment during the summer months, and attends to her calf with truly maternal solicitude, exposing herself to the pursuit of dogs, when necessary, in order to draw them away from her young. At the same time the stags are in seclusion in other pastures, being comparatively defenceless while shedding their horns during the growth of the new ones. Stags *new* or shed their horns in the early part of the spring, and this is technically called "losing their attire." It is not until the month of August that the new antlers are completed, when the animal rubs off the skin or velvet which covers them against the stems of trees.

Furious battles between harts of the same age are not uncommon during autumn; they run at each other with the heads low, and with such violence that sometimes the horns get entangled so as to become inextricable, and the two are held together till they die. Even after death, the skulls have remained locked together,

without the possibility of being severed; a circumstance of not unfrequent occurrence among rein-deer.

It was the ancient belief that the stag was remarkable for longevity, but later observers have reckoned its age as seldom exceeding twenty years. This animal is found more or less throughout Europe, where there is cover adapted for it, except in the extreme north, or in very hot places near the sea. It is also met with in Western Asia, in some of the mountainous islands in the Mediterranean, and on the slopes of the mountains of Atlas, in Northern Africa, where it is supposed it was imported by the Romans. In that part of the world, however, it is considerably degenerated. The size is smaller, the colour lighter, and the antlers terminate in forks, instead of the numerous snags they display in colder climates.

The vast number of stags' horns found in the fossil state must not lead us to the error of supposing that there has been an equal number of stags; for supposing a stag to complete his twentieth year, he furnishes fifteen sets of horns; and, making allowance for casualties, perhaps we may conclude there are ten times as many sets of horns as there have been stags. Nevertheless, the numbers of deer in this kingdom, and throughout Europe, must have been very great in former days. These noble animals are now, as we have already intimated, few in number in England; but the case is different in the mountainous parts of Scotland, especially in the central Grampians, between Athol on the south, and Badenoch and Strathspey. The forest of Athol is one of the largest set apart for red-deer, and forms a noble and extensive demesne, as will be seen from the following modern description:—

The eastern part of the Forest of Athol, or, more strictly speaking, the Forest of Minigag, contains some of the loftiest mountains in Scotland, and it gives rise to various branches of the rivers Dee and Don, towards the eastern side, of the Spey towards the north, and of the Tay, more especially the Bruar and the Tilt, towards the south. There are extensive natural forests of pine, in the upper glens and valleys of the eastern rivers, but the deer are not quite so abundant there as they are in the south, where the exposure is warmer, and the pasture better. Glen Tilt and Glen Bruar, especially the former, are the principal winterings; but the deer, altogether, have not less than a hundred thousand English acres of hill to range over. The Duke of Athol has greatly benefited this vast tract by the extent of his tree-planting. The number of deer, old and young, is not fewer than seven or eight thousand; and the great hunts, or rather slaughters, most frequently take place in Glen Tilt, though the more laborious occupation of deer-stalking is pursued in other places. On the great hunts, they are driven by a circuit of people, who bring them to a pass or narrow where the marksmen are posted, so that they can select and make sure of their victims. This is not a very manly sport, but it is very efficient "pot" hunting; and the nature of the ground renders it impossible to adopt any more sportsman-like mode. It is understood that, from the care bestowed upon them by the proprietors, red deer are becoming more numerous on those mountains; and though the hill is quite open, and the keepers are but few, there is comparatively little poaching; and, indeed, it is rendered unnecessary, because the deer are always straying so far out upon the spurs of the hills, that any one who is so inclined may occasionally have a shot; and to attempt shooting deer on the open Grampians, as a matter of profit, is nearly out of the question.

WHOEVER shall review his life, will generally find that the whole tenor of his conduct has been terminated by some accident of no apparent moment, or by a combination of inconsiderable circumstances, acting when his imagination was unoccupied, and his judgment unsettled; and that his principles and actions have taken their colour from some secret infusion, mingled without design in the current of his ideas. The desires that predominate in our hearts are instilled by imperceptible communications, at the time we look upon the various scenes of the world, and the different employments of men, with the neutrality of inexperience, and we come forth from the nursery of the school, invariably destined to the pursuit of great acquisitions or petty accomplishments.—DR. JOHNSON.

AMICABLE CEREMONIES.

FRIENDLY SALUTATIONS—CEREMONIES OF RESPECT
—KISSING HANDS.

ALL the ceremonies which are used in different countries between individuals, and which are of an amicable character, may be reduced to two sorts,—salutations, and reverences,—both of which are usually accompanied by touching some part of the body; but whether this be done, or any other sort of ceremony be practised, matters not: every nation thinks that it alone uses the most reasonable customs of this nature; but all are, perhaps, equally simple; and are certainly not ridiculous, merely because they are strange.

We shall first speak of the modes of *salutation*, which are evidently so much influenced by climate, situation, and the habits of a people; though they rise originally from respect, humility, fear, and esteem, which are expressed much in a similar manner, being the natural consequences of the organization of the body.

As nations fall off from their ancient simplicity, the meaning of salutations becomes less ostensible; so that the external acts often become empty civilities, and imply nothing; which, however, must not be omitted, lest intentional affront may seem to be conveyed by the neglect.

With primitive nations, or in the primitive stages of society, the affectionate touching of the person who is saluted, is an expression of tenderness and regard; as we shall see illustrated by the following examples; and, indeed, the general justness of the remarks which we have already made, will be vindicated as we proceed.

The Greenlanders laugh when they see an European uncover his head, and bend his body before his superior:—the climate would naturally deter the natives from adopting such a form.

Some of the islanders in the Eastern seas take the hand or foot of him they salute, and gently rub their face with it.

The Laplanders rub their noses up against the persons whom they salute.

At New Guinea, in the Eastern seas, they place on the heads of those whom they salute, the leaves of such trees as are symbols of friendship and peace.

Houtman, a Dutch navigator at the end of the sixteenth century, tells us that they saluted him in a very grotesque manner, on one of the islands of the Eastern Archipelago. They raised his left foot, which they passed gently over the right leg, and thence over his face.

The inhabitants of the Philippine Islands bend the body very low, place their hands on their cheeks, and raise at the same time one foot in the air with their knee bent.

An Ethiopian takes the robe of another, and ties it about his own waist so that he leaves his friend half naked.

Sometimes persons more or less undress themselves before friends, in token of humility. The Japanese, when they salute, only take off a slipper: the people of Aracan, near the mouths of the Ganges, take off their sandals in the street, and their stockings in the house.

When they wish to salute each other in a respectful way, in the Japan islands, the person so saluting bends himself down to the earth, then rises and turns his back upon his friend; which latter proceeding is designed to intimate that the person so turning away is unworthy to look upon the other.

Negroes of distinction in the interior of Africa salute each other by snapping the middle finger three times.

Athenæus, who died at the end of the second century after Christ, tells us that the inhabitants of Carinena, to show a peculiar mark of esteem, would let blood and present it as a beverage to their friends.

The Franks would tear the hair from their heads, and present it to those whom they saluted: the slave would cut his hair and offer it to his master.

In Otaheite, an island of the Pacific Ocean they rub their noses together by way of salutation.

The Dutch, who are considered as great eaters, have a morning salutation common amongst all ranks,—“*Smaakelyk eten.*” May you eat a hearty dinner. Another is, “*Hoe vaart awe?*” How do you sail?—adopted, no doubt, in the early periods of the state, when they were all navigators and fishermen.

The usual salutation at Cairo is,—“How do you sweat?”—a dry hot skin being a sure indication of a destructive ephemeral fever.

The Spaniard says,—“*Come esta?*” How do you stand: while the Frenchman addresses his friend with “*Comment vous portez-vous?*” How do you carry yourself? It has been observed that the former phrase seems to imply a proud, steady and solemn gait, such as is peculiar to the Spaniard; while the latter is expressive of the gay motion and incessant action of the Frenchman.

The common salutation in the southern provinces of China, amongst the lower orders, is,—“Have you eaten your rice?”

The Chinese are very affected in their personal civilities. They even calculate the number of their reverences. The men move their hands in an affectionate manner, while they are joined together on the breast, and bow their heads a little. If they respect a person, they raise their hands joined, and then lower them to the earth, in bending the body. If two persons meet after a long separation, they both fall on their knees, and bend their faces to the earth, repeating the ceremony two or three times.

If a Chinese be asked how he finds himself in health, he answers, “Very well; thanks to your abundant felicity.” If one would tell another that he looks well, he says, “Prosperity is painted on your face;” or “Your air announces your happiness.”

If one receive a service from another, he says, “My thanks shall be immortal.” One who is praised says to the other, “How shall I dare to persuade myself of what you say of me?” When a guest departs they say, “We have not treated you with sufficient distinction.”

All such answers are prescribed by the Chinese ritual, or the Academy of compliments. By this are determined, the number of bows; the expressions to be employed; the genuflexions, and the inclinations which are to be made, to the right or left hand; the salutations of the master before the chair where the stranger is to be seated, for he salutes it most profoundly, and wipes the dust away with the skirts of his robe: all these and other things are noticed, even to the silent gestures by which a person is entreated to enter the house. The lower classes of people are equally nice in these punctilios; and ambassadors pass forty days in practising them, before they are enabled to appear at court. This people have a *tribunal* of ceremonies, which often issues very odd decrees, to which the Chinese implicitly submit.

Marks of honour are frequently arbitrary:—to be seated is with us a mark of repose and familiarity; and to stand up shows respect. There are countries, however, in which princes will only be addressed by persons who are seated; and it is considered as a favour to be permitted to stand in their presence.

The use of “Your humble servant,” came first from France into England on the marriage of Queen Henrietta Maria, daughter of Henry IV. of France, to Charles the First, when Prince of Wales. The usual salutation before that time was “God keep you!” and, among the vulgar, “How dost do?” with a thump on the shoulder.

To bite the ear was, anciently, an expression of endearment; and it is still so far retained by the French, that to pull a man gently by the ear is the most sure token of good will. The French, likewise salute each other thus:—The gentlemen, and others of the male sex, lay hands on the shoulders, and touch the sides of each other's cheek; but, on being introduced to a lady, they say to

her father, brother, or friend, "*Parmettes-moi*," and salute each of her cheeks.

As one of the most remarkable methods of doing reverence consists in the custom of kissing hands, we propose to furnish a general account of it from the earliest times, remarking, by the way, that this custom is not only very ancient, and nearly universal, but it has been practised both in religion and by society.

From the remotest times men saluted the sun, moon, and stars, by kissing the hand. To this sort of idolatry Job assures us that he was not addicted: see xxxi. 27. This patriarch is considered to have lived about 2130 years B. C.

Lucian, who lived about 150 years after Christ, says that the poor, who could not afford to offer up sacrifices to the gods, adored them by the simpler compliment of kissing their hands. He tells us that Demosthenes, when taken off as a prisoner by the soldiers of Antipater, asked leave to enter a temple. When he had entered he touched his mouth with his hands, which the guards took for an act of religion,—kissing hands to the god. He did it, however, more securely to swallow the poison which he had prepared for such an occasion.

Among the Romans persons were treated as atheists who would not kiss their hands when they entered a temple.

We are told that the earliest Christian bishops gave their hands to be kissed by the ministers who served at the altar; but that the custom declined with paganism.

The flatterers and suppliants of ancient times were in the habit of kissing the hands of their patrons, till they obtained the favour which they solicited. In Homer, Priam is represented kissing the hands and embracing the knees of Achilles, while he supplicates for the body of Hector.

This custom prevailed in ancient Rome, but it varied at different times. In the first ages of the Republic it seems to have been only practised by inferiors towards their superiors: equals gave their hands and embraced. In the progress of time even the soldiers refused to show this mark of respect to their generals, and their kissing the hand of Cato, when he was obliged to quit them, was regarded as an extraordinary circumstance, at a period of such refinement. The great respect paid to the tribunes, consuls, and dictators, obliged individuals to behave towards them in a more distant and respectful manner; and, instead of embracing them as heretofore, they considered themselves fortunate if allowed to kiss their hands. Under the emperors, kissing hands became a duty, even for the great themselves: inferior courtiers were obliged to be content to adore the purple, by kneeling, touching the robe of the emperor with the right hand, and carrying it to the mouth. Even this was thought too free, and at length they saluted the emperor at a distance, by kissing their hands, in the same manner as when they adored the gods.

The custom of which we are now speaking is practised in every known country, in respect to sovereigns and superiors, even amongst the negroes and the inhabitants of the New World. Cortez found this custom prevailing at Mexico, where more than a thousand lords saluted him, by touching the earth with their hands, which they afterwards kissed.

Thus, whether the custom of salutation is practised by kissing the hands of others from respect, or by bringing one's own hand to the mouth, it has been of all customs the most universal in point of time or place. In ordinary practice, however, it is now considered to be too gross a familiarity and a meanness to kiss the hands of those with whom we are in habits of intercourse. But in affairs of state and solemnity at court, this practice is still retained, and at an appointment to office, or on a personal introduction to the sovereign, the favoured individual is allowed to have the honour of kissing the royal hand.

GINGERBREAD.

THE manufacture of gingerbread is carried on to a considerable extent in London, both to supply the home demand, and to furnish the requisite quantity for exportation. It forms a distinct, and a lucrative, branch of trade, and the art is attended with less trouble than even the making of ordinary bread.

This article is held in high estimation among our Anglo-Indian brethren, and is exported in large quantities for their use. In hot climates, the natives of Europe suffer from a relaxed state of the lining membrane of the stomach, and therefore stimulating food is highly acceptable and even beneficial to them: thus we find most men that have been long in India, to have acquired the habit of smoking, and of taking highly seasoned food, spices, and other stimulants. The best sort of gingerbread forms to such an agreeable and wholesome article of diet; and it is this finest description of the article, which is so largely exported to India. It is made in London, and formed into cakes about a foot long, six inches wide, and an inch and a half thick: these are packed in boxes, and so transmitted to their place of destination.

The price of the best description of gingerbread is too high to allow of its being very generally consumed in England; and the quality of the inferior sorts is often so bad as to make them not only distasteful, but positively injurious. The *pain d'épice*, or spiced bread of France is generally esteemed in that country; but the taste for gingerbread seems to be at its height in Holland. There it is the business of every family to produce this article in perfection; and it is affirmed that the family recipe for making gingerbread descends as an heirloom from father to son, and is kept a secret beyond the family circle. So far is this taste carried, that, according even to Dutchmen themselves, the success of a person who wishes to ingratiate himself with a family, often depends in no small degree on the quantity and quality of the presents he makes them in gingerbread. Shops are devoted exclusively to the sale of this commodity; and, indeed, throughout the country, we find the article of which our paltry figure and gilt gingerbread is a very distant imitation, in common use and general estimation.

It is a peculiarity in the manufacture of gingerbread that the dough cannot be fermented by means of yeast. Every attempt at this sort has proved unsuccessful, and though there has been occasionally a slight appearance of fermentation in the dough, yet when the gingerbread is baked it is as solid, hard, and compact, as a piece of wood.

The ingredients commonly used in making gingerbread are flour, treacle or molasses, butter, common potashes, and alum. When the butter is melted, and the potashes and alum are dissolved in a little warm water, these three ingredients, together with the treacle, are poured among the flour which is to form the body of the bread. The whole is then incorporated by mixture and kneading into a stiff dough. Of these five constituents, the alum could be best dispensed with, as its properties are hurtful, although it is found useful in making the bread lighter and crisper than it would otherwise be, and hastening the whole process, for gingerbread dough has a further peculiarity, in almost invariably requiring to stand over for the space of from three or four to eight or ten days. Experience has shown, likewise, that it may be allowed to stand over for as much as three weeks, rather with advantage than loss. On some occasions, however, and from causes not well understood by the baker, it is fit for the oven at a much earlier period than at others.

Dr. Colquhoun in endeavouring to trace the causes of the peculiarities which attend the process of gingerbread making, tried several experiments, which led to the conclusion that the mutual action of the treacle and potashes on each other, is the source of the gasefying principle in gingerbread. His experiments may be thus

briefly noticed:—First, a mass of dough was made ready with all the usual ingredients of gingerbread except *butter*. This was allowed to stand the usual time, then baked; and when taken from the oven it proved to be a well-raised gingerbread loaf. It was plain, therefore, that butter had no influence in making it light and porous. Next, several pieces of dough were prepared, having all the usual ingredients except the *carbonate of potash*. One of these pieces was baked immediately, others stood over for intervals of different duration; but in whatever way it was managed, it always came from the oven in a heavy solid mass. The next experiment was made by leaving the *treacle* itself out, and substituting dissolved loaf sugar while the carbonate of potash and all the other ingredients were present. Here again the bread returned from the oven in a heavy mass, without being in the least degree porous or vesicular. From these experiments it seemed clear that the simultaneous presence of the treacle and the carbonate of potash, and their mutual action, must be quite essential to the formation of good elastic gingerbread.

The nature of the action of the treacle and alkaline carbonate, is not very easy to discover; but it is probably due to a certain portion of uncombined acid in treacle, which unites with the alkali of the carbonate, and releases a quantity of carbonic acid gas, thereby rendering the gingerbread light and elastic. Dr. Colquhoun found that carbonate of magnesia and tartaric acid might replace the potashes and alum with great advantage. The quantity of potash which it is necessary to use in the ordinary process, gives a distinct disagreeable alkaline flavour to the bread unless it be well disguised with some aromatic ingredient, and is likely also to prove injurious to persons of delicate constitution. The inconveniences attending the lengthened nature of the process have likewise to be considered, and it will be seen that the saving of time, and other advantages gained by employing the magnesia and tartaric acid, more than counterbalance the trifling additional cost. The recipe as given by Dr. Colquhoun is as follows:—Take a pound of flour, a quarter of an ounce of carbonate of magnesia, and one eighth of an ounce of tartaric acid; mix the flour and magnesia thoroughly first, then dissolve and add the acid: let the butter, treacle, and spices, be added in the usual manner, melting the butter and pouring it with the treacle and acid among the flour and magnesia. The whole must be then incorporated into a mass of dough by kneading, and then set aside for a period varying from half an hour to an hour. It will be then ready for the oven, and should not be delayed on any occasion longer than two or three hours before it is baked. When taken from the oven it will prove a light, pleasant, spongy bread, with no ingredient in it that can prove injurious to the most delicate constitution.

The recipe for an extremely agreeable gingerbread, to be made in the form of thin "parliament cakes," is as follows:—Of flour take one pound, of treacle half a pound, of raw sugar a quarter of a pound, of butter two ounces, of nutmeg one ounce, of carbonate of magnesia a quarter of an ounce, of tartaric acid, of cinnamon, and of ginger, *each* one eighth of an ounce.

To produce very light gingerbread is a desirable thing, and this result is now easily obtained by the gingerbread-bakers, by secretly using *sesqui-carbonate of ammonia*, or common smelling salts, instead of the magnesia and tartaric acid, or the potashes abovementioned. This salt is entirely dissipated by the heat in baking, and leaves no taste. The carbonic acid gas, and the ammoniacal gas of which the salt is composed, in forcing their way out, expand and perforate the most tenacious dough, and give lightness to the richest and heaviest materials. The proportion of *sesqui-carbonate of ammonia* to be used in making gingerbread, is half an ounce to every three pounds of materials, including flour, treacle, spices, butter, &c.

The plainest kind of thin gingerbread for children may be thus made. Fine flour, two pounds and a quarter; treacle, ten ounces; finely sifted ginger, an ounce and a half; caraway seeds, half an ounce; *sesqui-carbonate of ammonia*, half an ounce. The whole to be well-mixed and kneaded, then placed in a pan near the fire and covered over during an hour. It is then rolled out into thin cakes with straight lines drawn across them in the direction they are afterwards to be separated. Before they are baked a little white of egg is brushed over the surface, which glazes it and improves the appearance of the gingerbread.

Various recipes might be given, but as these differ little from the above except in the addition of butter, spices, candied orange-peel, eggs, &c., which any one may add, according to taste. We conclude our notice with directions for making French spice-cakes. A pint of treacle is set over the fire and to it are added the following ingredients:—half a pound of good fresh butter; an ounce of powdered ginger; the same of powdered cinnamon; powdered allspice, coriander seeds, and small cardamum seeds, each a quarter of an ounce; candied lemon-peel finely chopped, two ounces; tincture of Vanilla, six drops; when well mixed, let these ingredients boil up once, stirring all the while, then set them aside to cool. When cold, mix in as much flour as will convert them into a stiff paste. Butter a tin baking dish, and lay on it with a spoon portions of the paste of the size required for the nuts or cakes. For these small forms of gingerbread, the *sesqui-carbonate of ammonia* is seldom used; but if it be preferred, a small proportion may be added to the above ingredients.

EVENING.

'Twas eve: the sultry heat of noon was gone,
And a soft breeze stole through the murmuring woods;
The moon was rising in her lofty throne,
Undimmed by vapour, unobscured by clouds;
And many a fountain in its grot of stone,
Poured on the thirsty ground its cooling floods,
Or brightly sparkling in the rocky cell,
With ceaseless splash in crystal basin fell.
Sweet was the gale, and sweet the scene around,
Amid each misty dell and palmy grove
There was a general calm—and not a sound
Was heard—as if the peace that reigned above
Had shed its influence there: upon the ground
The nightly dews were rising—in th' alcove
Formed by the spreading branches, no alarm
Of distant footsteps broke the magic charm.
The Pilgrim.

WHAT is that principle of reproduction which belongs to all the vegetable kingdom? How is it that the acorn, buried in the cold ground, comes forth in a form which bears no resemblance to what was buried, and rises with recurring seasons, by the joint ministry of its mother earth, the refreshing rains, the nursing air, and the far-coming light and heat, till its roots, searching out their own fastenings, and its limbs gradually rising and expanding, can resist for ages the ordinary violence of the storm? And has not every vegetable product in some form the germ of reproduction? And by whose care is it that all are preserved, and continued, and fitted for duration each one in its own line of succession, through thousands of years?

Can he, who sees no divinity in the flower which he crushes beneath his foot, make, by his own power, the simplest product of the vegetable race? Can he, unaided by the operation of the natural world, furnish himself with supplies for his craving wants for a single day? If the commands of the Deity, given in the very creation itself, could be disobeyed by the teeming earth, how long would the mortal frame of ungrateful and thoughtless man be saved from mingling with its kindred dust?—S.

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APRIL, 1841.

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ONE PENNY.

SOME ACCOUNT OF COINS, ANCIENT AND MODERN, (*Concluded.*)



A. MAGNIFIED COPY OF THE CROWN, OR TRIAL-PIECE, OF THOMAS SIMON, PRESENTED TO CHARLES II.

SECTION III.

MODERN COINS—FOREIGN COINS—ANGLO-GALLIC COINS.

MODERN coins and medals are, as we before remarked, those which reckon from about the ninth century. In these later ages of the world the distinction between coins and medals becomes more clear and definite. We must, therefore, consider the subject, first, under the head of *modern coins*, and then under that of *modern medals*.

Until the beginning of the 16th century, when literature began to revive from the mental lethargy of the middle ages, modern coins are so very rude, that curiosity suggests the chief inducement to examine them. Without dates or epochs they scarcely serve one purpose of utility. The portraits on them are likewise very uncouth. But yet, when they furnish monuments, relating to persons or actions, in the glory of which the national vanity is engaged, they become very interesting. Thus, the noble of Edward III., who began to reign A.D. 1327, on which he is represented in a ship asserting the British dominion of the Ocean, would naturally engage our regard and attention, beyond the finest productions of Greece or Rome.

Whatever we may hereafter say respecting the coins of our own or of other countries, will relate to them as disposed in a cabinet: for their commercial value we must refer our readers to other sources. Before entering upon the subject of modern British coins, we shall take a brief survey of the coinage of the other chief countries of the world.

Beginning with the most eastern part of Asia, the coins of Japan first attract notice, as thin plates of gold and silver, large and oval, and stamped with little ornaments and characters. In this country, as in any other where the art of coining is in a rude state, the practice is, to stamp first the obverse, then a reverse; whereas, with us, both obverse and reverse are achieved at once, and with a single blow. The only coins of China are in copper, about the size of a farthing, with a square hole through the middle, in order to their being strung for the convenience of counting or carrying. They are called "cash," and bear an inscription in Chinese characters, expressing the year of the prince's reign, without his name, distinguished as the "*Happy year*," the "*Illustrious year*," and the like. It is said that the emperor Canghi, who died in 1722, had formed a complete cabinet

of Chinese coins. The coins of Tartary are rude and generally present only inscriptions; the like may be said of the coins of Thibet, Pegu, and Siam, and of other smaller states in Eastern Asia. It is doubtful whether any Indian coins exist before the time of the Moguls, or the thirteenth century. Old coins have been found near Calcutta, of gold, silver, copper, and tin, all mingled in one base metal. On one side they bear a warrior with a sword, and on the other an Indian female idol. The later coins of India are thick, like the old Egyptian, and in obedience to the Mohammedan precept, bear no representation of a living creature. The English, French, Portuguese, and Dutch, sometimes struck coins in their eastern settlements, with Persian inscriptions on one side and Latin on the other. The portcullis coins of Elizabeth were issued in rivalry of the Spanish king, for the service of the East India Company in their settlements abroad. They are of different sizes from the crown downwards, and are readily distinguished by the portcullis on the reverse. The modern coins of Persia continue on the model which the Arabian caliphs once imposed on them, and bear on both sides inscriptions from the Koran. The Persian copper has, however, the sun and lion, the arms of Persia, on one side. Of the Arabian coins, the older sort are on the obverse mere copies of some Roman coins, while the reverse contains some Arabic inscription: the later coins bear the name and titles of the prince on one side, and a sentence from the Koran on the other. The coins of Turkey are similar, having merely inscriptions on both sides; and the coins of the northern kingdoms of Africa are likewise upon the Mohammedan plan of mere inscriptions.

Passing over the other kingdoms of Africa as little known, and the original empires of America, Mexico, and Peru, where coinage was not practised, we will proceed to the coins of Europe, after having called the reader's attention to the curious fact, that, in many places in Asia, Africa, and America, where *metal* money has been wanting, the natives use *shells*, and different sorts of permanent fruits, as a circulating medium. The shell thus used as money, and esteemed to be valuable, may be reckoned at about the 130th part of an English penny.

After the downfall of the Western Roman Empire in the fifth and sixth centuries, the viceroys of the Byzantine emperors coined copper at Ravenna in Italy, where they held

the vice-regal court; but for gold and silver money, that of the Greek emperors sufficed for Italy. The *Bezant* was a gold coin struck at Constantinople, by the emperors of that city, which was anciently called *Byzantium*. From the ninth to the fourteenth century, it was the chief gold coin in currency throughout Europe. It seems to have passed in England till the time of Edward III., in the first half of the fourteenth century, when the coinage of the English noble drove it out of use. The Constantinopolitan bezant is the coin which we still see in our cabinets in gold, in the form of a dish, and frequently bearing the portrait of our Saviour. Its value was about nine shillings. Camden tells us that, at the court of England, the piece of gold valued at 15*l.*, which the king was anciently accustomed to offer on high festival days, was called a *Bizantino*. After Charlemagne, about the year 780, had made a great revolution in Italy, there were coins of him struck in Rome and Milan. In the next century the modern coins of Italy begin with the silver pennies of various states. The papal coins begin A. D. 772. In the middle ages the chief bishops of England, France, and Italy struck coins as well as the Pope. The coins of Milan begin with Charlemagne; those of Naples in the ninth century. The coinage of Venice begins in the tenth century with silver pennies. Florence surpasses all the cities of Italy in coinage: some silver pieces occur before the twelfth century; but in 1252 the famous gold coins appeared, called *Florins*, from the flower of the lily upon them: they were imitated by the popes, and by France and England; for during the five centuries preceding no gold had been struck in Europe. The florins coined by other states have the same types as the original florins, but different legends. They were said to weigh a dram, to be 24 carats fine, and to be worth 12*s.*, though now their intrinsic value would be much greater, on account of the difference in the value of gold.

The coins of Genoa and Savoy begin in the twelfth century. France had a gold coinage from Clovis in 490 to the year 751 A. D. which belongs properly to the class of ancient coins. The coins of the second race, beginning with King Pepin in 750, and extending to Hugh Capet in 987, commence the modern class: the latter are barbarous; the former are elegant. The third race begins A. D. 987, and extends to the Revolution. Spain vies with France in the elegance of her early series of coins; but the influence of the Mohammedan faith in Spain for several centuries of Moorish domination, presents us with insipid Arabic inscriptions on both sides of the coins. The coinage of Germany begins with Charlemagne; and that of Denmark with Canute the Great, A. D. 1014. The Swedish coinage is said to have begun early in the ninth century, and that of Norway in the middle of the tenth. Of Denmark, Sweden, and Norway, there are also ecclesiastical coins struck by the chief bishops. The coinage of Bohemia and Poland begins with the tenth century, and follows the model of the German. The coins of Russia are none of them more ancient than the thirteenth century. The first Russian coins have rude figures of animals on one side, and a man standing with a bow or spear on the other. Some have St. George and the dragon, and various other types: such are the *Kopeks*, or silver pennies. The *Rouble*, or dollar, and its half, began under Ivan, or John, in 1547. In 1230, the knights of the Teutonic order having conquered the pagan inhabitants of Prussia, coined silver pennies on the German plan at Culm. The coins of Brandenburg and Poland are the later coins of Prussia.

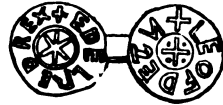
There was also money struck in France by English princes, while that country was wholly, or partially, under English domination. Of Anglo-Gallic silver coins we have deniers of Eleanor, wife of Henry II., as duchess of Aquitaine, with deniers and half-deniers of Henry II., and pennies and half-pennies of Aquitaine, and pence of Poitou and Rouen of Richard I. Of John and Henry III. there is no Anglo-French money; but there is a lion of billon of Edward I., coined during the lifetime of his father, after he had received Gascony; and abundant series of silver and billon coins of Edward III., of Edward the Black Prince, of Richard II., Henry IV., V., and VI. The denominations of the silver were the hardi, the double hardi, groat, half-groat, penny, and half-penny. To this class also belong the Calais groats and half-groats of the sovereigns of England from Edward III. to Henry VI., and the Tournay groats of Henry VIII. Edward III. was the first of the English princes who struck gold money in France: the denominations were guineois, leopard, chaise, and mouton; to these Edward the Black Prince added the hardi of gold and the pavilion, and Henry V. salutes and half-salutes. Henry VI. coined salutes, angelots, and francs in gold. The doubtful

specimen of silver coin supposed to have been struck by Margaret of Burgundy for Perkin Warbeck, is commonly referred to the Anglo-Gallic series.

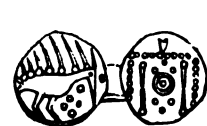
SECTION IV.

ANGLO-SAXON COINS—ECCLESIASTICAL COINS—NORMAN COINS—PETER'S PENCE—COINS USED IN ENGLAND TILL THE REIGN OF CHARLES II.—COINS ONCE USED FOR LEGAL FEES—COINAGE OF CHARLES II.—BAD STATE OF THE COINAGE AT THE REVOLUTION—THOMAS SIMON—INTRODUCTION OF THE MILL AND SCREW—COPPER MONEY—ALLOY OF METALS—SCOTCH AND IRISH MONEY.

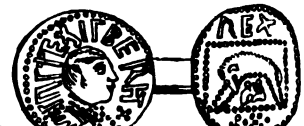
We shall now give a brief notice of the coins of Britain. The Heptarchic coins are of two sorts; the silver *stycas*, or penny, and the copper or *billon stycas*, the latter being known only in Northumbria, and being a very small piece worth about a mite: the word "billon" implies copper washed with silver. The silver penny may be regarded as the general Heptarchic coin. The *stycas* were struck in Kent and the other states of the Heptarchy, from A. D. 500 to 700. No Heptarchic pennies of universal current occur, however, till after the year 700; but *stycas* are found with the name of Ethelbert I., king of Kent,



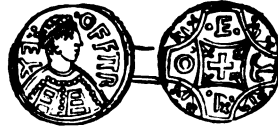
Stycas of Ethelred of Northumberland—866.



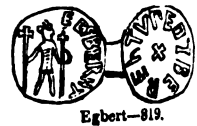
Earliest Anglo-Saxon, about 500



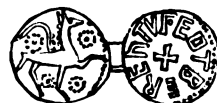
Ethelbert of Kent—597



Owa, King of Mercia—700.



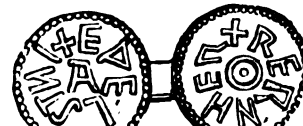
Egbert—819.



Ethelstan—890.



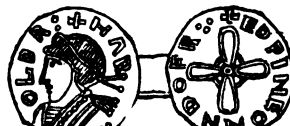
Alfred—872.



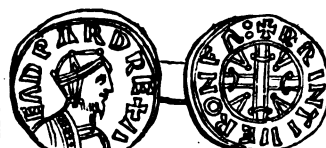
Ethelstan—924.



Canute—1017.



Harold—1035.



Edward the Confessor—1042.

A. D. 860—616; and of other kings of Kent. The regular Heptarchic pennies are, therefore, almost all of the eighth century, or from 700 till 832, when Egbert terminated the seven kingdoms. The coins of the chief monarchs then present almost a complete series from Egbert, A. D. 832 to Edgar, A. D. 959. Most of them bear rude portraits and sometimes curious inscriptions. Of Ethelbald, A. D. 857, and Edmund Ironside, A. D. 1016, there are no coins. Belonging to those times, appear coins of the archbishops of Canterbury; and afterwards we find pennies bearing the private mark of the bishops of Durham, and coins issuing from the archiepiscopal mint at York. The archbishops seem to have retained this privilege until the reign of Henry VIII.; for it was one of the charges against Wolsey, that he had put the cardinal's hat upon the groats and half-

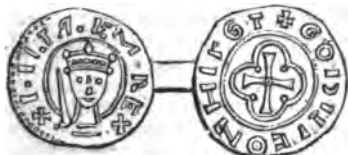
Henry VIII.; for it was one of the charges against Wolsey, that he had put the cardinal's hat upon the groats and half-

groats, issued from the mint at York, of which place he was prelate. On the reverse of all these coins, which has frequently the name of the city where they were coined, there is sometimes a cross so deeply impressed, that the coin might be easily parted, and broken into halves, which, so broken, were *half-pence*; or into four parts, or *farthings*.

In regard to the money struck by Cardinal Wolsey, Akerman observes that, "In the year 1529, among other articles exhibited against Cardinal Wolsey, was one charging him with having 'enterprised to join and imprint the Cardinal's hat' upon his 'coin of groats.' Ruding considers that the fault here laid to the Cardinal's charge was not merely the placing of the hat upon his money, but the striking of coins of a larger denomination and value than the penny, "he being the only prelate who struck groats and half-groats; but this conjecture is groundless, as there are half-groats of the other prelates with their initials. It was clearly the *hat* which gave the offence."

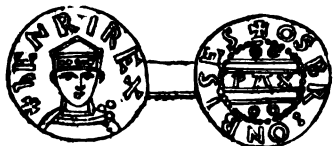
With the Anglo-Saxons gold seems to have passed current by weight; at least, no gold coin of their monarchs has been discovered. They computed by pounds, shillings, pence, and farthings; twelve pence making one shilling, and twenty shillings one pound, as at the present day. But there were two kinds of penny, the greater and the less: of the former five made a shilling, and of the latter, the skeatta, twenty were required. The greater penny always went by the name of *penning*. The Anglo-Saxons derived their knowledge of the art of coining from the Roman ecclesiastics, who had the privilege of coining money equally with the king. It is some sort of proof that the Anglo-Saxons were not so civilized, or accustomed to trade, as the ancient British, who used both gold and silver coins, while the Saxons had silver only.

The Norman conquest in 1066 made no alteration in the English penny, or *anglicus*, which was a coin celebrated all over Europe in the middle ages, and was almost the only money known in the northern kingdoms. In neatness of fabric, and in purity of metal, it is superior even to the Italian and French coins of that period. The series of English pennies extends almost without any failure from Egbert to Victoria. The kings wanting are John and Richard I. The coins of William Rufus and of Henry I.



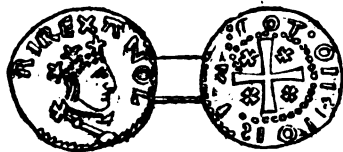
William II.

have some similarity; but of Henry the First's pennies the types are as various as upon those of any monarch of the English series: the reverses bear the name of the mint and the coiner. This, which was the Saxon practice, continued



Henry I.

till the reign of Edward I. Henry II. is said to have had but one type for his coins; but it seems probable that the pennies which are usually thought to belong to the first coinage of King Henry III. are in reality the last coinage of Henry II. at the time he reformed the national money, A. D. 1180.



Henry II.

Besides the principal ecclesiastics, it is said that the chief barons used to strike their own coin: but as none has been found with their marks, it is supposed that this was done only in times of anarchy, and that it was repressed by a powerful sovereign, as an encroachment on the royal prerogative.

There are, however, many coins of English bishops, and of St. Peter's pence, bearing STPETR on them. These pence originated with Offa, king of Mercia, engaging to pay the sovereign pontiff a yearly sum for the support of an English college at Rome; and to raise the money, he imposed the tax of one penny on each house possessed of thirty pence. This imposition, afterwards levied on all England, was denominated "Peter's pence."

Half-pennies and farthings, regularly made of silver, were first struck by Edward I., about 1280, for general circulation. After these came the *groat*, so called from the French *gros*, a large piece, which was introduced by Edward III. in 1354, and continues in use to this day, under the name of the *fourpenny piece*: that which was issued for circulation in 1836 is of a different type from the ordinary groat. There was formerly a half-groat in circulation. The *testoon*, or shilling, was first coined by Henry VII. in 1503. The appellation of "testoon" originated in the *teste, tête*, or head of the king upon it. The shilling was first, as it would seem, a German appellation, *schelling*; coins of which name had been struck at Hamburg in 1407. Henry VIII. first made the crowns of silver, which had formerly appeared in gold. In France, they were for a long time the largest gold coins, and were worth 10s. They were so called from the crown being once stamped on one side. Edward VI. coined half-crowns, sixpences, and threepences; and Elizabeth put out three-halfpenny and three-farthing pieces.

When coins are found which have more than one head on the obverse, they are most usually *joined*, that is, looking the same way, as on the money of William and Mary; but the coins of Philip and Mary, which were probably struck from treasure brought here by that king, are remarkable for bearing their portraits, except in one instance, facing each other, which circumstance called forth the following couplet of Hudibras,—

Still am'rous, and fond, and billing,
Like Philip and Mary on a shilling.

Though our space will not allow us to describe fully the coinage, with its changes, in all the different reigns of English history; yet we must not omit to particularise some of the more important coins which, from their value or long use, were well known and esteemed until the seventeenth century. The reader should remember that, from an early period, the circulation of foreign money, of various countries, was not only adopted, but even legalised, in England. This was the case with the bezant, already spoken of; and we proceed to notice a few others.

The *crown of the sun* was a French coin, first struck by Louis XI. of France in 1475. Henry VIII., in the fourteenth year of his reign, by proclamation ordered that crowns of the sun, ducats, and crowns of gold not of the sun, be received in currency; the crowns of the sun not clipped to go at four shillings and four pence sterling. Under Edward VI., in 1549, they were ordered by proclamation to pass for seven shillings, but were reduced to pass for six shillings and four pence, by a subsequent proclamation. They were also at this value in the reign of Queen Mary.

The coin called the *Angel* was not struck in England till the middle of the fifteenth century, it being originally a gold coin of France, where it was first coined, at least by that name, in 1340. In France, where the half and quarter angel were soon used, it was always of fine gold, but not always of the same weight. Angels and half-angels (angellets) are the only gold coins known of Richard III. When first introduced, the angel was valued at 6s. 8d., and, thus agreeing with the noble, was sometimes called the *noble-angel*. In the course of the reign of Henry VIII. and his successor, the value of the angel was raised to 8s. In Queen Mary's time it went for 10s., which value it kept till the end of the reign of Charles I. who was the last monarch who coined the angel. The usual device upon the obverse



Gold Angel of Queen Elizabeth.

of this coin was the figure of the angel St. Michael standing upon the dragon, and piercing him through the mouth with a spear, the upper end of which terminated in a kind of cross. The reverse of the earlier ones had a ship, with a large cross for a mast, with the royal arms in front. The angels of James I. and Charles I. have the mast of the ship with a maintop and no cross. The obverse had the king's titles surrounding the device. There were different legends and inscriptions used in different reigns.

The *mark*, and its half, the *noble*, (the latter so called from its material being the finest gold used in coinage,) seem to have been the most general ideal form of money in former ages; the former rating at 13s. 4d., and the latter at 6s. 8d. The noble was published as a substitute for the florins, on account of the inconvenient value of the latter,—6s. The obverse of the noble represents the king, Edward III., standing in a vessel, asserting the dominion of the sea. This coin, sometimes called the *rose noble*, together with its divisions, continued the only gold coin till the issue of the angels before described. In Henry the Sixth's time, it was made to pass for 10s., under the new name of *ryal*. Henry VII. issued the double *ryal*, or sovereign, of 20s., accompanied by the double sovereign. Henry VIII. coined gold crowns and half-crowns of the present value; but his gold was much debased. The rose noble was so termed in consequence of both sides being impaled in an undulating circle resembling the outline of an expanded rose.

The *sovereigns*, called at the accession of James I. *unites*, and sometimes *sceptre-pieces*, were valued at 20s.; they were nearly two inches in diameter, being proportionably thin. They were called *sceptre-pieces* from the figure of the king on the obverse sitting on his throne with his sceptre in his hand. The sovereigns were considered to be double *ryals*, when the *ryal* was reckoned at 10s. *Spur-ryals*, a gold coin of Elizabeth, form a very handsome sort of money: on



Gold Spur-Ryal of Queen Elizabeth.

the obverse is the queen with her sceptre, sitting in a ship in the sea, and in the centre of the reverse is the star-pointed figure of a spur, whence the name of the coin: these pieces went at 16s. There was also a gold coin in use in the fourteenth century called the *chaise* (this is the French word for a chair or seat); but this was an Anglo-Gallic piece of Edward the Black Prince, and does not strictly belong to the English series. It received the name of the "chaise" from the prince's appearing on the obverse seated in a chair of state.

We must not omit to speak of the *Louis*, or *Louis d'or*, which was a gold coin in the old system of France, and first struck under Louis XIII., in 1641. It has been considered as a current coin in most parts of the continent, though in England it has been only sold as merchandise, where, at different periods, according to the demand, its price has fluctuated from 18s. 6d. to 21s. sterling. About half a century ago, among other changes brought about by the Revolution, the old reckoning—by deniers, sous, livres, écus (crowns), and louis—was abandoned, and the decimal reckoning was resorted to,—centimes, décimes, francs, twenty franc pieces. Upon the return of the Bourbon family into France, the twenty-franc pieces, struck by Louis XVIII. in imitation of the Napoleons, received the name of *Louis*, or *Louis d'or*,—a designation which is likewise given occasionally to the like coin struck by King Louis Philippe, but which are more ordinarily called "twenty-franc pieces."

It may now perhaps occur to the reader to perceive whence originated the definite amount of certain legal and other public fees and payments. Every one has heard, for instance, of the attorney's charge of 3s. 4d., 6s. 8d., 13s. 4d., for certain services rendered to the party consulting him; but it requires a little acquaintance with the state of the ancient coinage, to satisfy one's self that he could not well

raise or sink his charge above or below the particular item in question. In the days of our forefathers, the labours of the legal functionary were remunerated by the payment of particular coins, according as the service, or the nature of the case, might be. When the lawyer had to receive 3s. 4d., his client paid him, in the reign of Henry VI., at the beginning of the fifteenth century, an angelet, or half an angel; the angel being then valued at 6s. 8d., though it afterwards rose to 10s. and the noble took the place of the angel. It is true that the pieces of money just referred to have no existence at the present day; but, as the foregoing specific charges still exist in, and are authorised by, the practice of our courts of law, lawyers cannot help making them, and we cannot help hearing about them. It is also a rule or custom to pay a fee of 6s. 8d. (the angel or noble) to the minister of a parish, on account of an extra-parochial funeral, the origin of which fee we may trace to a similar source.

To particularise further the coins of all these different reigns would not perhaps be very interesting to the general reader. We may, therefore, content ourselves with observing that the coinage was of gold and silver; for, excepting the Saxon *stycas* mentioned before, copper coin continued to be wanting in the English authorised money till the year 1672. Groats, testoons (shillings), crowns, florins, nobles, and marks, were the principal pieces of money in different reigns. Gold, though first coined by Henry III., about 1257, who struck a gold penny, value 20d., was not made current until the reign of Edward III., in 1344, when that prince first coined florins, which were soon succeeded by the nobles, and other coins already spoken of. The last silver farthing was coined in the reign of Edward VI., and the last silver halfpenny in the days of the Commonwealth. We pass on, therefore, to the state of the coinage under Charles II.

In some reigns prior to that of Charles II., the value of silver was to that of gold as 1 to 4: hence, the noble of Edward III., spoken of before, and published at 6s. 8d., might be now worth a guinea, on account of the present higher price of gold. The ancient relative value of gold to silver was as 11 to 1: but in the reign of James I. the proportional value of silver had sunk down as 1 to 13. Standard silver is now to standard gold, as 1 to 14. The coins which were in use before the present coinage was adopted, soon after the war which terminated in 1815, were, generally speaking, such as were established by Charles II. The thin hammered money of former reigns was, in his time, discarded. The gold and silver money had all along been made thin, because it was necessary to make the inferior pieces, at least, of a certain size, in order that they might be conveniently tangible for use. Thus, the gold penny, before spoken of, was three-fourths of an inch in diameter. The "sovereign," or "broad piece," in use in the reign of James I., and called in the republican condition of the country, the "twenty-shilling piece," gave way in the reign of Charles II., to the guinea, so called from the Guinea gold, out of which it was first struck. This gold was brought from Guinea by the African company. In order to encourage this company to import gold, they were permitted by charter to have the figure of an elephant stamped on these pieces. The guinea was proclaimed in 1663 to pass for 20s.; but from its intrinsic superiority over the former gold money, it always fetched 21s., and was styled the "guinea." This popular decision was accordingly afterwards ratified by government. Five guinea pieces, double guineas, half and quarter guineas, were struck at different times; but for obvious reasons, none but the guinea and half-guinea obtained general circulation; as likewise the gold seven-shilling piece.

At the time of the Revolution, in 1688, the silver coin of the country was in a very bad state; so that by the year 1696, the value of the guinea had risen to 30s. currency. "Clipping and false coining had for some time been carried on to an alarming extent, and at length roused the attention of Parliament, who appointed a committee to enquire into the abuse. The committee recommended a general re-coinage as a remedy for the evil; when the recommendation was debated in the house and finally adopted. The great recoinage occupied nearly four years, and was completed in 1699. The total amount of silver coined, was

In the Tower Mint	£5,091,121	7	7
In the Country Mints	1,791,787	12	0

Total 6,882,908 19 7

"The Mint charges amounted to £179,431 6s., and the charges and consequent losses are supposed to have been

equal to £2,700,000. In our own time the extensive coinages in the royal mint from the year 1816 to 1822, amounted to £7,402,236 11s. 6d."—AKERMAN.

In the course of a few years after this re-coinage, the guinea fell to its original value of 21s. The old gold coins, the Jacobus or unite (25s.), the Carolus, (23s.), and the broad piece (21s. or 22s.), were not called in till the year 1773.

As the coinage existing in our own times is a great improvement upon that of George III., and his predecessors; so, that of Charles II. was an improvement upon the thin hammered money of previous reigns. The improvement in the state of our coins in the seventeenth century, was due to the employment of more skilful artists in this line, and in particular of THOMAS SIMON, the celebrated engraver, of whose famous trial-piece, we have given a representation at the head of this article. This work, a specimen of the silver crown, was performed in order to interest the king in his behalf, and to prove to his majesty Charles I. not only that talent did not lie with foreigners, but that Englishmen deserved to be encouraged both from patriotic motives and for their superior skill. Simon was a native of Yorkshire: when he grew up, his natural abilities recommended him to the notice of Nicholas Briot, engraver of the Mint to Charles I. Briot being ordered to go to Edinburgh, to engrave some dies for medals and coins, in 1633, met with Simon, took him under his care, and taught him. When Sir E. Harley was master of the Mint, he recommended Simon as an engraver. The first public specimen of his talents was the Admiralty seal, engraved in 1636, when the Earl of Northumberland was lord high admiral: it is of exquisite workmanship, the ship being finished with astonishing minuteness. When Briot, who was a Frenchman, returned to his native country, Simon succeeded him as head engraver at the Mint, in 1646. When the civil commotions broke out, Simon incurred the king's displeasure for making for the parliament a copy of the royal seal; but, after the king's death, the parliament took Simon into favour; and throughout the interregnum Simon produced many hundred seals, medals, coins, &c., of various kinds: some of which have rarely been equalled for minuteness of execution. After Cromwell's death, Simon engraved the great seal for Richard Cromwell; and the coronation, judicial, and other seals of Charles II. At length, Rötiers, a Dutchman, in 1662, was appointed to the Mint; and this gave rise to the celebrated trial-piece. The frontispiece, which represents this, is a magnified view of that which is now in the possession of Thomas Hollis, Esq., F.R. and A.S.S. Round the edge of this coin is the following inscription:—"Thomas Simon most humbly prays your Majesty to compare this his Tryal-Piece with the Dutch, and more truly drawn and emboss'd, more gracefully order'd, and more accurately engraven, to relieve him." This fine piece of workmanship did not however profit him, except by adding eventually to his fame, and the Rötiers were still continued in employment. It is even said that the Rötiers were called over in 1662, by the directors of the Mint, as Simon's works proceeded too slowly. It is supposed that Simon died of the great plague in 1665; as nothing is known of him after that year, when he engraved a medal for Charles II., commemorating the victories of England over Holland. As engraver to the Mint, Simon received an annual salary of 50*l*. He is deemed by the most competent judges to have been the best engraver of modern times.

We have elsewhere alluded to the thinness of the old money, as resulting from the use of the hammer in coinage. The use of the hammer in fabricating money, being the only method first known, was of easy management and small expence; and hence the vast number of mints in almost every city of England, and the number of *moneys* whose names appear on early coins, sometimes amounting to more than a hundred, upon those of one prince. The moneyer was the coiner, who in early times put his name on the coin, and often the name of the town. These persons frequently revelled about with the kings, in order to coin money upon emergencies.

A consequence of the thinness of modern coins was their large size in respect of their value; so that no relief could well be given to the impression. We are told that Constantine the Great ordered the Roman coin to be struck thin, and with small relief, in order that the common fraud of covering lead or copper with gold or silver, which we know the thickness of the ancient coin led to, might be prevented. But, in fact, the money became thinner by the decline of the art both before and after the time of Constantine;

and it was barbarism, and not prevention of fraud, which caused this alteration.

No improvement was made in the method of coinage, until the power of the screw was applied to it in the French mint in the sixteenth century. The new invention was admitted into the English mint about the year 1561, when it was used together with the hammer, until the latter was wholly laid aside in 1662. The advantage of the new machine, known by the name of *the mill and screw*, over the old mode of striking with a hammer, consists chiefly in the increase of force, which is so great as to raise the impression at one blow. The edges of the hammered money were left in a rude and unfinished state, which exposed them to depredation by clipping. By means of the mill, a *graining* was applied to money, so as to form a regular circle on the outside of the legend, quite to the edge of the coin. The earliest specimens of Elizabeth's milled money exhibit instances of this invention. A legend was now imprinted upon the edges of the larger coins, and a graining technically termed *milling*, was applied to the outer extremity of the smaller; the present double sovereign and crown piece are examples of the former, and all our smaller pieces are specimens of the latter*.

Briot, the French artist before mentioned, was the person who established the use of the mill in this kingdom, by which means the art of coining was carried to such a perfection as it had not before reached. Hence, the works of Simon, Briot's scholar, perhaps excel any of modern times. Under Simon, the old awkward broad-piece begins first to assume the more decent form of the guinea; and the whole coin to become more solid and compact. The coin went on improving during the end of the seventeenth and the beginning of the eighteenth centuries. The artist who ranks next to Simon is Croker, chief engraver at the Mint in the reign of Queen Anne. After his time the chief part of the coinage of the kingdom fell into a bad state, from which it did not wholly emerge, until some years of the present century had passed over our heads.

In former years the coining of money at various local mints was either permitted or connived at by the government of the country. In the reign of Queen Elizabeth no mint was allowed, except in the Tower of London, which practice was continued till the civil wars compelled Charles I. to coin money at most of the principal towns which took up the royal cause: hence the square and rhomboidal *siege-pieces*. It is remarkable that, in all his difficulties, this monarch never debased the coin which he issued; a proceeding, of which so many other more fortunate monarchs have been guilty. Money was afterwards again ordinarily coined at the Tower, till the erection of the present Mint within these few years.

In AKERMAN'S *Numismatic Manual* we read that the Commonwealth struck money during the life-time of the king, (Charles I.) with his name and titles; but that after his death new dies were ordered to be made. The coins issued are distinguished from all others in the English series. The types furnished the cavaliers with subjects for much joke and ribaldry. The double shield on the reverse, was called "the breeches for the rump." In allusion to the legends, God and the commonwealth were said to be on opposite sides. A wag launched the following epigram at them:—

May their success like to their coin appear,
Send double crosses for their single cheer.

The witty Fuller says, "I hope hereafter, when the question is asked of our coiners, whose image and superscription is this? It will be returned, The Cæsar's of England!"



GOLD TEN-SHILLING PIECE OF THE COMMONWEALTH.

Silver pennies were still much used till the close of the reign of George I., but they are now not at all common, being principally coined to be given to poor persons on Maundy Thursday, as we have already noticed in our

* For an account of the process of COINING at the Royal Mint, see *Saturday Magazine*, Vol. VIII., pp. 163 and 289.

description of the "Custom of the Maundy;" see No. 562, p. 133.

For the derivation of the word *cash* some people have referred to a common *copper* coin of China and India, which is so called: others say that the term "cash" is now transferred by usage from the *case* which holds the coin, to the coin itself. According to the latter explanation, the word would be derived from the French, *caisse*, a box, case, or chest; also a merchant's or banker's cash-box, or counter. The term "hard cash" means *coin*, in contradistinction to bills, notes, or paper-money: but a very peculiar sort of "hard cash" were "Musket balls, full bore," which were a legal tender in Massachusetts, in 1656, and were current for a furthing a piece, provided no man were compelled to take above twelve at a time of them.

Till the time of Charles II. a regular copper coinage was not used, from a dislike towards copper; this being the metal chiefly used in counterfeiting the gold and silver coins: such counterfeits were termed "black money," in contradistinction to "white money," or good silver coin.

But it appears that there were two kinds of black money,—the counterfeit, and the authorised money of billon: the latter was very much used in France and also in Ireland. The want of a lower, but well tangible sort of money was long felt, and in consequence of the increase of *tradesmen's tokens* (see Vol. XVII., p. 63), the government of Queen Elizabeth had attempted to effect a copper coinage; but the queen being averse, the scheme was given up. King James in 1613 issued royal farthing tokens; but these were not well received. Charles I. issued the like; but at his death counterfeits and tokens increased so much, that in 1672 government took the matter regularly in hand, and issued farthings. Tin farthings were likewise used with a stud of copper in the middle. In 1693 the tin was all called in, and the copper coinage of farthings and half-pence went on improving. For the farthings of Queen Anne, which were chiefly trial-pieces, we refer the reader back to Vol. XVII., p. 76. The present copper coinage has been all executed within the last fifty years.

It does not appear that England has been singular in its long abstinence from a copper coinage. "It is worthy of observation," says Pinkerton, "that while copper money was in Greece of very ancient date, and in Rome two centuries older than silver, yet in almost all the nations of modern Europe it arose a thousand years later than silver."

Thus we see that the established metals for coining in modern times, are gold, silver, and copper; and that all other materials of coinage were regarded in a spurious light. We should, however, except the metal platinum, which the Russians employ in striking some of their money. This fine and valuable metal is extracted from the mines of the Uralian mountains, and has a specific gravity rather exceeding that of gold.

The quantity of alloy for gold, in order to harden the coin, and make it wear well, is *two* carats out of the twenty-four: that is, one-twelfth of the gold money is alloy. The alloy for silver is *three* parts in forty. The foregoing proportions relate, however, to the English coinage. In France the legal proportions of the different coins are as follow:—silver coins, 9 parts silver, 1 copper; copper money, 4 parts copper, 1 silver; gold coin, 9 parts gold, 1 copper. In the next place, the quantity of gold used in forming a sovereign, is rather below the proportional value of 20s., in order that no inducement may exist to melt down the national coin for the purposes of trade. Hence it is, that an English sovereign, which, by the tabular values of the respective coins, is equal to 24 francs, fetches 25 francs, and sometimes more, at the foreign mints.

The coinage of Scotland did not commence before the twelfth century; there being silver pennies of Alexander I. A.D. 1107. Though the Scottish money was originally the same as that of England in size and value, many causes had brought it so low, that in the seventeenth century, it was only one twelfth part value of corresponding English money; and so it continued till the union of the kingdoms cancelled the Scottish coinage.

In regard to the money of Scotland, it was for the most part fabricated after the fashion of the English. The copper coinage, though more ancient than that of England, was not earlier than the end of the sixteenth century, and seems to have been derived from the French.

By the articles of the Union, which took place at the beginning of the last century, it was appointed that all the coins should be reduced to the English, and the same accounts observed throughout. Till that period, the Scots

had, as we have just said, their pounds, shillings, and pence, as in England; but their pound was twenty pence English, and the others were in proportion. Accordingly, their mark—13s. 4d., Scottish—was current in England at 13½d.; and their noble in proportion. Besides these, they had their Turnorer pence and halfpence; their penny being one-twelfth of that of England, as noticed before; besides base money of achisons, baubees, and placks: the boddle, one sixth of the penny, one fourth of the achison, one-third of the baabee, and one half of the plack.

In Ireland, the coins are as in England; viz. shillings, pence, &c., with this difference, that their shilling is but equal to 11½d. sterling; or a shilling English is equal to 26 halfpence; whence their pound is only 18s. 4½d. of English money.

The Danes seem to have originated the Irish coinage about A.D. 930. The harp, the present distinguishing mark of Irish money, is not observed till the reign of Henry VIII., when the difference in value between English and Irish coin became apparent, and much base money was thrust upon Ireland. Both Henry VIII. and Queen Elizabeth coined base money, approaching to billon, for the use of this country. In 1601, Ireland obtained a regular copper coinage. In 1635, a mint was established in Dublin by Charles I. Since the abolition of this mint in 1640, in consequence of the Massacre and disturbances in that country, no legal gold or silver coins have been struck with the Irish badge; but copper only. James II. arriving in Ireland from France in 1689, instituted a mint, and issued shillings and half-crowns, struck of all the refuse metal that could be procured; for this purpose some brass guns were used, so that this coinage is generally termed *gun-money*. Pennies and half-pennies of lead, mixed with tin, were issued in 1690; and crowns of gun-metal, of the size of our half-crowns. Upon some occasions in the last century, some private individuals obtained patents for executing the copper coinage for Ireland. In 1722, William Wood obtained from George I. the famous patent which excited such discontent in Ireland. It was for coining halfpence and farthings. The patentee aimed at making a vast profit by the diminished size of the pieces. In this affair Swift distinguished himself in opposing the government. These coins are of very fine copper and workmanship, and have the best portrait of George I. anywhere found. Sir Isaac Newton, then at the head of the Mint, said they were superior to English farthings in everything but size. Those issued in 1737 were coined of just size and weight, with the harp only on the reverse, and are the patterns of those used at the present day. There being now no mint in Ireland, their copper coins are struck in London, and sent over.

In the year 1760, there was a great scarcity of copper coin in Ireland; upon which, a society of Irish gentlemen applied for leave, upon proper conditions, to coin halfpence; which being granted, they appeared with a very bad portrait of George II., and the legend VOCE POPULI. The bust bears a greater resemblance to the Pretender than to George II.; and it is not certain that this fact was not premeditated: it was said that these pieces were issued without any leave being asked or obtained.

The reader will see that our limits will not suffer us to enter into a description of all the various species of money now used in Europe and America, together with an enumeration of the respective values of each piece: for information of this sort, so useful to the mercantile adventurer, we must refer him to treatises on the article MONEY.

SECTION V.

MODERN MEDALS—PAPAL MEDALS—SPANISH AND FRENCH MEDALS—COMPARISON OF ANCIENT AND MODERN MEDALS—ENGLISH MEDALS—CORONATION MEDALS.

In the middle ages MEDALS seem to have been quite unknown. Till the fifteenth century, no medals appear of any country in Europe; excepting of Scotland, which has gold medals of David II., in the middle of the fourteenth century. These were struck in England during his captivity. The medal of John Huss, the famous reformer, which was struck in 1415, seems to have led the way for the series of medals, which afterwards sprang up in the different countries of Europe. The papal medals are not only the most elegant, but the most ancient series in Modern Europe. Paul II. created pope in 1464, is the first pontiff who has medals of his own time. After Paul II. coeval medals are found of all the popes. As it is the especial object of medals to commemorate among the people of the

existing generation, and of those who come after, some illustrious person, or some important event, no more proper occasion could have ever arisen for exercising this honourable privilege, than the discovery of America by Columbus in 1492, and the extension of this discovery soon after by Amerigo Vespucci.



The Spanish medals begin in 1503, and many of them are curious and interesting. Germany and Spain were as one empire under Charles V., of whom there are many medals: but the German ones begin with Frederic III., of whom there is one struck at Rome, A.D. 1453. Besides the papal medals, there are many belonging to the various states of Italy. Denmark, Sweden and Holland have likewise signalized themselves by medallic achievements.

Next to Italy, France is the most remarkable country for



MEDAL STRUCK BY NAPOLEON TO COMMEMORATE THE INVASION OF ENGLAND.

medals: but the French medals are neither fine nor numerous till the reign of Louis XIV., in the middle of the seventeenth century. There are also series of fine medals, comprising those which were struck under the consulate and the empire of Napoleon, down to the reign of the present king. The Napoleon collection at Boulogne contains one of the medals intended to commemorate the threatened invasion of England. It represents a Herculean figure disabling and crushing a monster, half man and half fish, which latter is meant to represent the British nation. The legend is *DESCENTE EN ANGLETERRE*. On the exergue is *Frappé à Londres, en 1804*. This was probably done to excite the confidence and vanity of the French people; but, as the scheme of invasion was either a feint or a failure, these medals were almost all soon suppressed, and no opportunity afforded for giving the shadow of truth to the exergue of the medal—“*Struck at London, in 1804!*”

As soon as medals began to revive, in the fifteenth century, they were made to serve the purpose of satire, until the printshops took to the business. Many satiric medals passed between Philip, king of Spain, and Elizabeth, queen of England. Satire seems to have been unknown to the ancient mint: but, in these later ages, a great number of medals have been struck for private men of eminent learning or talents; and in this respect modern medals excel those of the ancients. As to the execution of modern medals in comparison with ancient ones, in all that relates to portraits, human figures, and other detached objects, the ancients far exceed the moderns in character, truth, and taste: but in landscape, and all that belongs to perspective, the moderns are superior: when, for instance, we have on an ancient medal the view of a building, we see only its elevation; but on a modern medal the perspective is also afforded. An especial fault, however, too often occurs in modern portraits and reverses,—that the manners of the time and country are very often totally perverted. Personifications are of all ages, countries, and languages: heathen gods and goddesses thrust themselves upon Christian medals, and attract the adoration of connoisseurs! The like objection also applies, in great measure to our coinage:—but the fault here complained of is largely

partaken in by the arts of painting and sculpture; though it must be admitted that, with every generation, the public taste is herein improving.

The first English medal was of brass, A.D. 1480. Henry VIII. struck one of gold in 1545; and the first coronation medal was that of Edward VI. The medals of Simon, in the seventeenth century, are admirable. The medals of Queen Anne are illustrative of the achievements of Marlborough; and those of the English kings, executed soon after by Dassier, a native of Geneva, are very good: the latter are thirty-six in number, and are struck in fine copper.

The devices on the English coronation medals, are usually on the one side a representation of the sovereign, and on the other, some emblem of the circumstances of the period; but not always in the best taste.

At the coronation of George III., the king's gold and silver medals were struck by Laurence Nattier, and were ornamented on one side with his majesty's bust, and the inscription, *GEORGIVS III. D.G.M. BRIT. FRA. ET HIB. REX. F. D.*; and on the reverse, was a figure of the sovereign seated, with Britannia holding a crown above his head, and the inscription, *PATRIAE OVANTI (To his country triumphing), CORON. XXII. SEPT. MDCC LXI.*—Silver medals of the queen were also thrown into the scaffolding, and amidst the populace. On one side was represented her bust, with the inscription, *CHARLOTTA D.G.M. BR. FR. ET HIB. REGINA*; and on the other side her figure appeared at full length, standing by an altar, with a seraph about to crown her: the whole being encircled by the motto, *QVAESITVM MERITIS. (By merit obtained), CORON. XXII. SEPT. MDCC LXI.*

SECTION VI.

STUDY OF COINS AND MEDALS—PEMBROKE COLLECTION—UTILITY OF MEDALS—COUNTERFEIT MEDALS—CABINETS—MEDALLIONS AND MEDEAETS.—PRESERVATION OF COINS AND MEDALS.

History informs us that cabinets and series of Greek coins were formed by the Roman senators, as choice treasures: this was natural, considering that the Romans respected the skill and talent of the Greeks in all the arts and embellishments of life. Some of these sets of medals and coins of cities have come down to our times: but yet it must be owned, that the taste of the Romans was rather for *gems* than for medallic specimens. When, however, literature began to be cultivated in Italy, at the end of the fifteenth century, the study of medals was found conducive to the knowledge of ancient geography and history, and of ancient literature generally. In the succeeding century, cabinets began to be formed universally by people whose minds were awakened to the increasing light of knowledge. Hence we have, likewise, ancient orthography and customs elucidated, and the lives of the great men of antiquity enriched with their portraits. In the middle of the sixteenth century, Goltz, a printer and engraver, travelled over Europe in search of coins and medals, for the benefit of certain works relating to them, which he was about to publish. Excepting Italy, more ancient coins seem to have been found in Britain than in any other country. Camden is thought to have been the first English writer who produced medals in his literary compositions, about A.D. 1600. After this, we have many works illustrated with coins: such as *SPEED'S Chronicle*, 1610. Henry, prince of Wales, eldest son of James I., left to his brother Charles I. his collection of coins and medals, amounting in number to about 30,000. This cabinet was broken up and lost during the civil wars of his reign.

It would take us too long to enumerate the different public and private cabinets now existing: but we are tempted to observe that one of the finest collections in the world is that of Thomas, the eighth earl of Pembroke, who died in 1732, and who was the collector of the statues, &c., at Wilton House, South Wilts. This collection is vested in trustees, and deposited in the Bank of England, for sale, where they even now wait a purchaser who can command about 30,000*l.* They were published in a huge octavo volume in the year 1746.

As ancient architecture, sculpture, and poetry, have tended to improve the taste of modern times, so the study of coins and medals assists in promoting the same end; being particularly useful in guiding the judgment and views of the lovers of such arts and sciences as we just mentioned. Besides the ancient portraits on the obverse, which are likely to kindle the admiration of the painter and the sculptor,

the architect, as well as the painter, has on the reverse exquisite views of ancient edifices, which are found in perfect preservation on medals. Triumphal arches, temples, fountains, aqueducts, amphitheatres, circuses, hippodromes, palaces, basilicas, columns and obelisks, baths, sea-ports, pharoses, and the like, are all found on the reverses of ancient medals.

To a person of poetical imagination, the Roman coins are very entertaining, on account of the fine personifications and symbols which are to be found on their reverses. What can the additional experience of Hope found on the reverse of an ancient medal? She is there represented as a sprightly damsel, walking quickly, and looking straight forward; with her left hand she lifts up her garments, that they may not hinder the rapidity of her pace; while in her right hand she holds forth a rose-bud, an emblem infinitely more fine than the trite one of an anchor, which is the symbol of *Patience*, not of *Hope*. Happiness, Abundance, Security, Piety, Modesty, and the like, are all shadowed out under similar apposite emblems, springing out of Nature herself, and therefore just and true. Many passages of Sacred History are likewise illustrated or explained by reference to medals. The Mosaic account of the Deluge is confirmed by a coin struck at Apamea in Asia Minor, in the



reign of Philip I., about 650 B. C. On the reverse of this medal is a chest floating upon the waters: a man and woman seem coming out upon dry land. Above it hovers a dove with an olive-branch; and another bird is perched upon the roof. On the front part of the chest is the word NOE in Greek characters. Seven or eight of these medals are extant, and they are admitted by the best medallists to be genuine.

On some medals of Commodus, who lived at the latter part of the second century of the Christian era, the Supreme Deity is represented under the form of a bull, as indicative of his supreme power. On the reverse of some of the medals of Marcus Aurelius, who reigned somewhat earlier, are seen the bull and serpent. On the medals of Persia, and in the works of Zoroaster, this worship was practised. He represents God under the figure of the serpent, and describes him as "the master of all things—exempt from death—eternal in his duration—without beginning, and without parts."

On the medals of Tartary we find the figure of the serpent: on the reverse of a medal of Tyre we find the serpent encircling an egg; and we see the same figure on the medals of Japan: this people, in their cosmogony, say it was the warm breath of the serpent that called into life the first man.

As those coins and medals which are scarce, are, from that cause, the more valuable, whether they be the old Roman coins of lead,—or coins and medals in copper, brass, silver, or gold,—the metal itself merely affecting the value according to its weight,—it is not to be wondered at that a considerable part of the science of numismatics should consist in enabling the medallist to detect forged imitations of the objects of his regard. This art of forging is said to have arisen at the beginning of the sixteenth century, and it has since prevailed to a great degree. Counterfeit medals come under six heads: 1. Medals known to be modern imitations of the ancient, but valuable, because executed by the best Italian masters: 2. Medals cast from the former: 3. Medals cast in moulds taken from the antique: 4. Ancient medals retouched, and the obverses or reverses altered: 5. Medals impressed with new devices, or soldered: 6. Counterfeit medals which have clefts, or which are plated. When the art of imitating the genuine antique coins began to be practised, it was at first without any intention of deceiving, but merely to facilitate the study. The very clever imitations, however, of the artists of Italy soon passed for genuine, and became an article of a trade, which has continued to this day. This consideration is apt to throw great damp upon the zeal of the numismatic student.

Cabinets of medals are usually ranged into three distinct sizes: 1. That which contains, or is intended to contain, every issue of the mint, in every age and country. Such a cabinet belongs only to national museums, princes, and

others who have the command of great wealth. The Pembroke Cabinet, before spoken of, is one of those. 2. The smaller cabinet contains several sequences, or particular series of medals, from the earliest to the latest times; other medals, or such as belong to other sets, being received from curiosity and in order to give variety to the collection. 3. The smallest cabinet, usually called a *casket* of medals, includes all little collections of coins; in which, perhaps, not more than one sequence, or series, can well be formed. The coins of the Middle Ages form the department of study now chiefly pursued, with a view to the elucidation of history.

MEDALLIONS and MEDALETS belong likewise to the family of medals. Medallions were, in former times, medals of a size larger than ordinary; such a one is that which forms the frontispiece of our former paper. They were never current coins, as medals were; but were struck to serve as public monuments, or to be presented by a monarch to his friends, or by the mint-makers to a monarch, as specimens of fine workmanship. Medallions were commonly issued upon the commencement of a new reign, as coronation-medals are in these later days. Medalets were small coins, scattered among the people on solemn occasions: they were also struck for the use of slaves, and served as counters in gaming, tickets for baths and feasts, and money-tokens in general.

It is the opinion, however, of some medallist scholars, that the medalets of lead, alluded to in our former paper, were a species of mock money, used at the time of the Roman Saturnalia, when all the different usages and customs of society, whether good or bad, were ridiculed and parodied. Among many whimsical regulations made to gratify the Roman populace, during this week of general licence, was one which forbade the use of money: if any one offered a legal coin in payment, it was to be condemned as an act of madness, and the man was brought to his senses by a penitential fast for that day. To ridicule the idea of money, the mob rulers stamped this leaden circulating medium with the most grotesque figures and the oddest devices, such as a sow, a jackass, a fabulous bird, a general in his car with a monkey behind him, &c. As all this was done in mockery, this base metal was stamped with the letters S. C. See p. 86, col. 2. Pinkerton, referring to these lead coins, or tickets, regrets that "such curious remains have almost escaped the notice of medallists, and have not yet been arranged in one class, or named. A special work on them would be highly acceptable."

When a medal is in the least defaced in figures or in legend, the medallist will reject it, hardly excepting even the rarest coins. Hence, it becomes of importance to preserve medals in their original perfection, or as nearly so as possible. Nothing contributes so much to preserve brass and copper coins, as the fine rust, called in Latin *cerugo*, which appears like varnish on them, and which depends for the sort of it upon the particular situation or soil in which the coin or medal may have been lying for ages. There are, therefore, different kinds of rust; but, as Pinkerton says, "These rusts are all, when the real product of time, as hard as the metal itself, and preserve it much better than any artificial varnish could have done; concealing, at the same time not the most minute particle of the impression of the coin." In the case of gold and silver, the purer these metals are, the cleaner and freer from blemish, and the more mint-like will they be, wherever found, and whenever we may have to examine them: but the books of the medallists must be consulted by him who wishes to prosecute this subject, and who may, therefore, desire and need to acquaint himself further with all the spots, blemishes, and tarnishes, which obscure or adorn medals, and the means prescribed for safely removing them.

An examination of the medal-room of the British Museum, together with a perusal of more extended and systematic works on Numismatics, or the Science of Coins, &c. will promote and improve the taste of the reader for a subject so interesting to the poet, the painter, the architect, the historian, and the man of literature generally.

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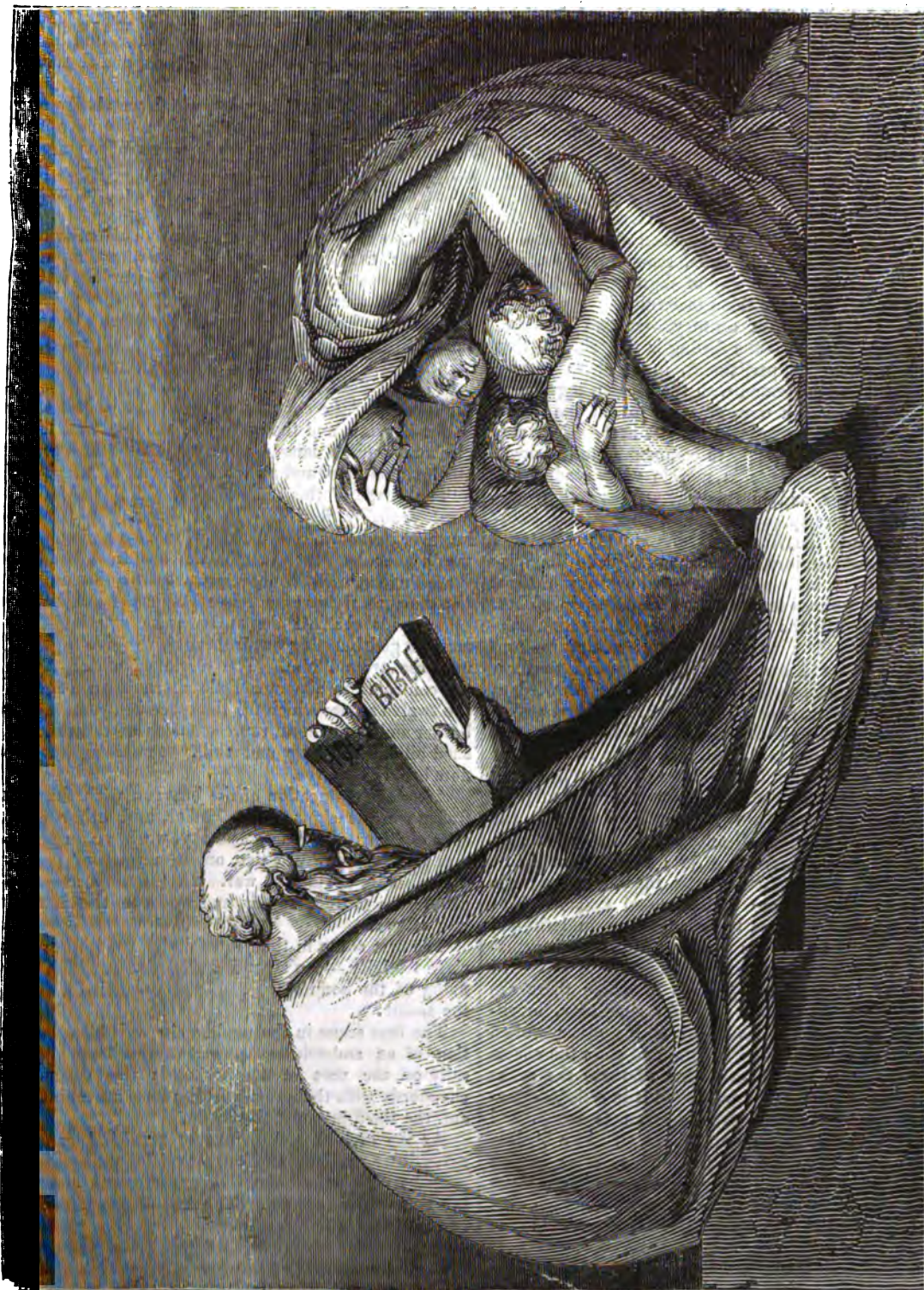
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"COMFORT YE THE FATHERLESS AND THE WIDOW." FROM A GROUP BY FLAXMAN.

JOHN FLAXMAN AND HIS WORKS. III.

The statue seemed to breathe,
And gazed into flesh; beneath the touch
Of forming art, imagination-fused.—THOMSON.

SEVERAL statues, designed to commemorate the distinguished persons of his time, now came from the hand of Flaxman. That of Sir Joshua Reynolds is one of his first and best. The painter is made to hold his Discourses on Art in his right hand, while the tips of the fingers of his left reach the top of a pedestal, or altar, on the side of which is a portrait of the saint he professed to worship.—Michael Angelo. There is in this work much tranquil dignity of look. A colossal figure of Sir John Moore was next made in bronze for the city of Glasgow; and the statue of Pitt was set up in the Town Hall of the same place. It is curiously observed respecting this last performance, that "both man and dress are too real and literal to excite that loftiness of feeling which is, or ought to be, the grand aim of noble works of art." "Why so?" the reader may probably ask. Let his biographer speak in extenuation of the sculptor's failings; "Here is a specimen of the school of tailor-sculpture: the capes, cuffs, seams, buttons, and button-holes, are all in the way of dignity: indeed it is a difficult matter to treat them tastefully." So true it is that, in the nineteenth century,—at two thousand years' distance of time,—the feeling is still abroad, that a British member of parliament, in order to inspire respect, should be decorated with the Roman toga!

But the works which were grateful to Flaxman were those which embodied poetical passages in the Bible, and with such he was ever ready to commemorate the dead. Such scriptural comments in marble were readily admitted in churches, and in this way statues and groups from his hand were spread abroad in India, Italy, Scotland, Ireland, and the West Indies. He made a statue of the Rajah of Tanjore, and a monument to the missionary Schwartz, both of which are now in the East, and have been noticed in the journals of Bishop Heber.

In the year 1810 the Royal Academy, after some consideration, created a professorship of sculpture, and bestowed it upon Flaxman. He proceeded to fulfil the duty of his office with enthusiasm and knowledge; and to his first lecture, delivered in 1811, stocked academicians, students, and connoisseurs. His works and his reputation bespoke respectful attention. His lectures were ten in number, and with these lectures both the sculptor and the painter should be familiar: the subjects are—1, English Sculpture; 2, the Egyptian; 3, the Grecian; 4, Science; 5, Beauty; 6, Composition; 7, Style; 8, Drapery; 9, Ancient Art; 10, Modern Art.

Some of his illustrations of the Pilgrim's Progress, belonging to this time, are said to equal that religious romance in simplicity, and to far surpass it in loftiness. The like may be said of his designs for Sotheby's translation of Oberon. But the author who most delighted the fancy of Flaxman was Hesiod, of whom there are thirty-six illustrations; and these for simplicity, loveliness, and grace, fairly rival any of his other works. They embody the story of Pandora, and show the effects of her descent to the earth. One of these the artist thought so well of that he modelled it in relief,—Mercury conducting Pandora from heaven to earth, and skimming with his charge through the air like a bird.

In the year 1820 Mrs. Flaxman died, after having lived with her husband thirty-eight years; the biographers make no mention of a family; so that we conclude that no sculptor in the second generation aspires to the glories of his sire.

He was now sixty-six years old, and was surrounded with the applause of the world. His two chief works at this period were the Archangel Michael vanquishing Satan, and the Shield of Achilles. The latter was exe-

cuted by commission from Rundell and Bridge, the eminent silversmiths; and, as it is considered to be one of the artist's most successful works, we shall do well in dwelling a little upon the description of it.

The detail of the various designs worked upon the exterior surface of the shield of Achilles is found in the eighteenth book of Homer's Iliad. This work of Homer is so named because it relates to *Ilium*, or Troy. The poet lived about eight hundred years B.C., and the destruction of Troy took place nearly two hundred years before Homer's time. The occasion, in the poem, for the description of the shield, is when Vulcan, by desire of Thetis, the mother of Achilles, makes the hero a new shield, together with a new set of arms; as Achilles, having lent Patroclus, his friend, his own armour, had lost it all, in consequence of Patroclus being slain, and then stripped by Hector.

The description of the poet, which we shall presently epitomise, is interesting, as affording a picture of ancient life and manners, and a charming view of nature in the early stages of society. It shows, moreover, that the art of design, and of working in metals, had attained a very high degree of perfection among the Greeks, at a period of which we have no positively authentic records.

It was the intention of the poet, as Pope justly observes, "to draw the picture of the whole world in the compass of this shield. We see first the universe in general: the heavens are spread; the stars are hung up; the earth is stretched forth; the seas are poured round. We next see the world in a nearer and more particular view; the cities delightful in peace or formidable in war; the labours of the country, and the fruit of those labours in the harvests and the vintages; the pastoral life in its pleasures and its dangers; in a word, all the occupations, all the ambitions, and all the diversions of mankind."

The shape of this celebrated shield was circular, and most probably four feet in diameter. Flaxman has, however, reduced the diameter to three feet. Round the border he first wrought the sea, in breadth about three fingers, wave following wave in quiet undulation. On the central boss he has represented Apollo, or the Sun, in his chariot: the horses seem starting forward, and the god bursting out in beauty, to give light to the universe around him. The circle of which Apollo is the centre is in diameter little more than a foot. On the twelve scenes which fill the space between the ocean-border and the general representation of the universe he shed all his learning and skill. These scenes we will now briefly describe.

After the delineation of the heavens with the sun and full moon, the signs of the Zodiac, and other principal constellations of the northern sky, we have a representation of two beautiful cities, one in a state of peace, and the other in a state of war. In the city at peace we have three distinct scenes, and we have the like in the city at war.

The first scene in the peaceful city represents a marriage festivity,—the second a trial for murder, and the fixing of the homicidal fine,—and the third a debate in the senate.

The first scene in the warlike city exhibits the formation of an ambush on the part of the besiegers, and a sally on the part of the besieged; the second shows shepherds with their cattle falling into an ambuscade,—and the third presents the battle.

As the earliest occupations of mankind consisted in agriculture, and the tending of cattle, we are next presented with a set of views of agricultural and pastoral life among the ancients. The first of the three agricultural scenes exhibits the tillage of the ground,—the second the harvest,—and the third the vintage. The first of the pastoral scenes presents us with a view of a herd of oxen attacked by lions, in spite of the keepers and their dogs; the second scene is that of sheep with the shepherds, together with the folds and huts,—and the last a dance, or rustic merriment.

In Flaxman's design the figures are generally about six inches high, and vary in relief from the smallest visible swell to half an inch. There is a convexity of six inches from the plane, and the whole contains upwards of a hundred human figures. Of this superb work our artist was justly proud. He received 520*l.* for the drawings and model. The first cast, in silver gilt, price 2000 guineas, was placed by King George the Fourth on his own side-board; a second was presented by him to his brother, the Duke of York; a third was made for Lord Lonsdale; and a fourth for the Duke of Northumberland. Two casts in bronze were made by the proprietors for themselves, and three were prepared in plaster,—one for the Royal Academy, another for Sir Thomas Lawrence, and a third for Flaxman himself.

It is considered that some of the noblest of Flaxman's works belong to his latter days; for example, his *Psyche*; his *Pastoral Apollo*, the statues of Michael Angelo and Raphael, and the group of the Archangel Michael and Satan. The *Psyche* and the *Pastoral Apollo* have a certain austere composure about them. The Michael Angelo and the Raphael are described as "poetic, yet real; heroic, yet familiar; and their costume, though not antique, is at once historic and picturesque." The group of Michael and Satan is spoken of as "a work of the highest merit—the conception is epic—the grouping grand, and the action godlike. The good angel is triumphantly trampling the evil one under his feet; and from the subdued agony of the latter, we may see that he has felt the heavenly spear." In this group there is a divine composure: "all is elevated—there is nothing low—there is much to excite awe, and nothing to disgust."

In the year 1825 Allan Cunningham and Flaxman became personally acquainted. The sculptor was making a statue of Burns, whose poetry he was very fond of; and his prospective biographer, being invited to see it, while in progress, visited the artist in his studio.

In the succeeding year, during which he was occasionally ailing, a very singular circumstance occurred to him. On Saturday, the second of December, he rose about nine o'clock in the morning, and found a stranger waiting to see him. "Sir," said the visitant, presenting a book as he spoke, "this work was sent to me by the author, an Italian artist, to present to you, and at the same time to apologize for its extraordinary dedication. In truth, Sir, I was so generally believed throughout Italy that you were dead, that my friend determined to show the world how much he esteemed your genius, and having this book ready for publication, he has inscribed it '*Al Ombra di Flaxman.*' (To the shade of Flaxman.) No sooner is the book published than the story of your death was contradicted, and the author, affected by his mistake, rich nevertheless he rejoices at, begs you will receive his work and his apology."

On this day our artist felt well and cheerful. On the next day he went to church, took cold, refused medicine, and went to bed. On Monday he said that he felt himself well enough to receive his friends to dinner whom had invited. They came, but were touched with the change in his looks, though they left him without feeling any apprehension of seeing him no more. An inflammation of the lungs was the result of the cold which affected him on Sunday, and the disorder spread with all rapidity. He found himself unable to breathe when lying in bed, and in spite of all that could be done for him, he died on Thursday morning, December 7, 1826. His body was accompanied to the churchyard of

Giles-in-the-Fields, by the president and council of the Royal Academy, on the fifteenth of the same month. The following is inscribed on his tomb:—"John Flaxman, R. A. P. S., whose mortal life was a constant preparation for a blessed immortality: his angelic spirit returned to the Divine Giver on the 7th December, 1826, in the seventy-seventh year of his age."

* Professor of Sculpture in the Royal Academy.

We will now conclude our notice of the life of Flaxman, by briefly summing up his artistic character in the words of his excellent biographer:—

Of his works there are four kinds,—the religious, the poetic, the classic, and the historical. In each of these he has left specimens which give him high rank among the sons of genius, but in all of them he has not attained the same degree of excellence: in the historical he was embarrassed with the unpoetic costume of these days of buttons and capes; in the classic he was compelled to obey the antique; but in the poetic and the religious he has been surpassed in purity and simplicity by no modern sculptor.

ON CHESS.

IX. CHESS WRITERS AND PLAYERS. (Continued.)

Behold four Archers*, eager to advance,
Send the light reed, and rush with sliding glance;
Thro' angles ever they assault their foes,
True to the colour which at first they chose.

SIR WILLIAM JONES.

Our last account of Chess players and writers brought us to about the middle of the sixteenth century,—a period when many excellent players of the game and several chess authors flourished. Among the former was no less a personage than John Frederick, elector of Saxony, who in 1547 was taken prisoner by the Emperor Charles the Fifth, and condemned to suffer death by being beheaded. Dr. Robertson, the historian of Charles the Fifth, says:—

This decree was intimated to the elector while amusing himself in playing at chess with Ernest of Brunswick, his fellow prisoner. He paused for a moment, though without discovering any symptom either of surprise or terror; and after taking notice of the irregularity as well as injustice of the emperor's proceedings,—"It is easy," continued he, "to comprehend his scheme. I must die because Wittenberg will not surrender; and I shall lay down my life with pleasure, if, by that sacrifice, I can preserve the dignity of my house, and transmit to my posterity the inheritance which belongs to them. Would to God that this sentence may not affect my wife and children more than it intimidates me, and that they, for the sake of adding a few days to a life already too long, may not renounce honours and territories, which they were born to possess." He then turned to his antagonist, whom he challenged to continue the game. He played with his usual attention and ingenuity, and having beat Ernest, expressed all the satisfaction which is commonly felt on gaining such victories. After this he withdrew to his own apartment, that he might employ the rest of his time in such religious exercises as were proper in his situation.

He was not, however, put to death, for in 1552, "before Charles left Inspruck, he withdrew the guards placed on the degraded elector, whom, during five years, he had carried about with him as a prisoner, and set him entirely at liberty."

Paolo Boi, a Sicilian, of the city of Syracuse, is one of the most distinguished chess-players of this time. The best account of him is contained in Carrera's elaborate *Treatise on Chess*, (of which we shall presently speak,) and it is from Mr. Lewis's translation of that rare work that we gather the substance of the following narrative. Paolo Boi was born of a rich and good family, and when a boy displayed great quickness of apprehension, so that he made considerable progress in literature at an early age. It was soon discovered that he had a wonderful talent for the game of chess, so that he could easily beat all the players of his native city. At this time the fame of the Spanish players, and the honours and rewards bestowed on them by Philip the Second, who was exceedingly fond of the game, excited the emulation of the youth, and he resolved to go to

* The bishop was formerly called the archer. See *Ant.* p. 79.

Spain, but first travelled through Italy, trying his skill with the best players that country could afford. Amongst others he played with "Il Puttino," and had the honour of being considered his equal, so that the two were spoken of as the light and glory of the game of chess. Paolo became the favourite of many of the Italian princes, particularly of the Duke of Urbino, several of the cardinals, and even of Pope Pius the Fifth, who would have given him a considerable benefice if he would have become a priest, but this he declined. Paolo was nevertheless a rigid observer of the forms, and partook largely of the superstitions of the Romish church, as appears from the following circumstance. When at Venice he played with a person whose name is not recorded, and lost every game. Upon reflection, and after having examined the games with great care, he found that he ought to have won; and not being able to account for his want of success, he began to suspect his adversary of using some secret art, whereby he was prevented from seeing the moves. To counteract these evil arts, he therefore resolved to play again with his antagonist, and to arm himself for the encounter with a rosary, rich in the valuable relics of great saints, and also by previously receiving the sacrament. Having done this he conquered his adversary, who, after his defeat, is said to have exclaimed, "Thine is more potent than mine."

At length Paolo arrived in Spain, where he played in the presence of Philip the Second, who gave him the revenue of certain offices in the city of Syracuse, of the value of five hundred scudi a year. Boi was a bold and daring character, and was very desirous of being employed in the service of the brother of the king, Don Giovanni d'Austria, on which account the king wrote a letter of recommendation in favour of Boi, from which we learn that Paolo had before served the king, though it is not stated on what occasion. The next notice we have of Boi's chess achievements is, that he played with some of the principal persons of the kingdom of Portugal, and won eight thousand scudi in one day. He also played with Sebastian, king of Portugal, who not only took delight in the game, but played it himself, and was reputed a good player. They often played three or four hours a day, and it is mentioned as an especial mark of the king's condescension, that once when the king was standing playing, and the Syracusan, (as was his duty,) with one knee on a cushion, having played a long time, and being desirous of resting, the king assisted with his arm to raise him, that he might kneel on the other knee.

Thus honoured by kings, Paolo Boi was highly esteemed by many noblemen of Sicily, Rome, Naples, and other places, and highly rewarded by them. He also went to Hungary, where he played with the Turks, who are particularly fond of the game, playing by memory when riding on horseback. Boi was in foreign countries during twenty years, so that in his own country he was supposed to be dead, for he unwillingly gave any account of himself. When he returned to Sicily he had no fixed place of residence, for he was often going from one city to another, either for his own pleasure, or to please some prince. On one of these occasions he met with his death, for when in Syracuse he was invited to Naples by the Princess of Stigliano, who, as well as her father, highly esteemed him. Three hundred scudi of gold were sent to him, to defray his travelling expenses; but shortly after his arrival in that city he was seized with a complaint in his stomach, brought on by the exertion of hunting, and died in the year 1598, having attained his seventieth year. His body was interred in the church of St. Francesco di Paolo, his obsequies being sumptuously celebrated in the presence of Prince Stigliano, and other Neapolitan cavaliers. This is Carrera's account of his death, but Salvio says he was poisoned by his servant for the sake of the wealth he

had acquired. The description of Boi's person and character are thus given by Carrera:—

I knew him in my youth, when I was at the city of Palermo, in the year 1597: his hair was quite white, his form robust, his mind firm. He dressed very fashionably, like a young man, and was very capricious; nevertheless he had many good qualities: he was exemplary in his conduct,—was extremely liberal and munificent—very charitable,—he attended mass every day, always giving alms to the priest that officiated, whoever he might be,—he confessed and took the sacrament frequently, and was very partial to religious persons. He never would allow any portrait to be taken of him, and the drawings of him that are now seen were made without his knowledge. He never would be persuaded, even in his old age, to fix his residence in his own country or elsewhere. In stature he was rather tall, well-proportioned, handsome, lively; eloquent in conversation, and gay and affable with every one. He left some writings on the game of chess, which I have not seen. I have thought it proper to give a full account of such a man, that his name may be known to posterity.

It does not appear that the writings here spoken of were ever printed.

Catherine de Medicis is spoken of as being a chess-player, and Paolo Boi much wished for an opportunity of playing with her, but was disappointed. Queen Elizabeth also seems to have known something of the game, and on a particular occasion, when Sir Charles Blount, (afterwards Lord Mountjoy,) had distinguished himself at a tilting-match, she sent him as a present a chess-queen of gold, at the same time highly enamelled. Her successor, James the First, may be likewise ranked among the royal chess-players, though he warns his son against the game, "because it is over-wise." This counsel does not seem to have been acted on, for we find a magnificent bag and elegant set of chess-men, which belonged to Charles the First, spoken of by Barrington as having been exhibited to the Society of Antiquaries.

During the sixteenth century many passages in contemporary writers seem to show that chess was practised more or less in England. A kind of comedy, by Middleton, on the game of ches was frequently acted at the Globe theatre on Bankside. It was a sort of religious controversy, the game being played by a member of the Church of England and another of the Church of Rome, and the former, in the end, gaining the victory. The play was considered too political, and the author was committed to prison, from which, however, he obtained his release by the following petition to the king:—

A harmless game, coyned only for delight,
'Twas played betwixt the black house and the white;
The white house won—yet still the black doth brag,
They had the power to put me in the bag.
Use but your royal hand; 'twill set me free,—
'Tis but removing of a man—that's me.

This century was likewise distinguished by the production of a Latin poem on chess. Marcus Hieronymus Vida, of Cremona, bishop of Alba, wrote a poem in praise of chess, called *Scacchia Ludus*, (the game of chess.) Of this work an extraordinary number of editions have been printed in various languages. Mr. Walker enumerates no fewer than twenty-four new editions or reprints of this work in Latin, eleven in Italian, five in French, and several in English.

The year preceding Boi's death (1597) Horatio Giannutio published his *Treatise on Chess*, at Turin. This book is extremely rare, and does not appear to have been remarkable for merit. Dr. Alessandro Salvio's work, which was published in 1604, is far superior. Salvio was considered the most ingenious master of his time, and his openings of games are said to evince the fertility of his genius and his promptness at resource. "Unfortunately," says Sarratt, "most of his openings are of little use in countries where the king is limited in his castling. Salvio, when he had the move, commonly castled in a manner which is not allowed in this kingdom, that is to say, he moved his king to his rook's square,

and his rook to his king's square." Salvio's book, *Il Puttino*, contains a historical account of the game of chess, and of players, with upwards of sixty games.

Don Pietro Carrera, of Militello, in Sicily, was the next chess writer of importance. His work appeared in 1617, a quarto, of six hundred pages, containing an account of chess and chess-players, a description of the pieces, and a number of games. Among his rules or cautions for playing, the following are distinguished both by oddness and sagacity:—

He who plays must not have his mind occupied elsewhere, perhaps in things of importance, because, without doubt, he will then be the loser.

Whoever is to play an important game must avoid filling his belly with superfluous food, because fulness is contrary to speculation, and offuscates the sight, so that it is necessary he should observe strict sobriety. Those people are praise-worthy, who, previous to playing, clear their head by medicines which have the virtue of rendering the spirits pure and subtle, by which means they may enter into the consideration and acuteness of the moves, with the greater intension.

Carrera invented two new pieces, to be added to the eight original chess-men. That which he calls *Campione* was placed between the king's knight and castle: its move is both that of the castle and of the knight. The other, named centaur, between the queen's knight and castle has the move of the bishop and knight united. Each of these pieces has its pawn, and, of course, the board must contain two more squares on each side, which will augment their number to eighty. This invention appears to have died with the inventor. Carrera was the author of works on divers other subjects, and is said to have been more versed in Sicilian antiquities than in chess. We may here quote a portion of his commendatory chapter on chess; he says:—

I do not deny that the time which is spent in playing, might be better spent in holy and praiseworthy works, but human weakness does not permit us to find ease in the constant practice of virtue; so we are easily inclined to pleasures, to vanities, and to vices; and in order not to be led into them and offend the Creator, we choose to apply ourselves to exercises of the body and mind. Whence, that youth who employs himself at chess, though he may have played all day, will have gained thus much, that he has not played at dice, and that he has eschewed idleness, which abounds in sins. As to remaining with the eyes fixed on the chess-board, it not only does not cause fatigue, but, on the contrary, great delight, and those who imagine it tires the intellect, are greatly mistaken, the solace and food of our mind being speculation; for the truth of which I appeal to those, who, being passionately fond of study, remain for many hours without lifting their eyes off their books.



CHESS BISHOP, AS DESIGNED BY FLAXMAN.

LILY OF THE VALLEY, *Convallaria Majalis*.

Sweet flower o' the valley, wi' blossoms of snow,
And green leaves that turn the cauld blast frae their stems;
Bright emblem of innocence, thy beauties I lo'e,
Aboon the king's coronet circled wi' gems.
There's nae tinsel ahint thee, to make thee mair bright,
Sweet lily! thy loveliness a' is thine ain,
And thy bonny bells, dangling sae pure and sae light,
Proclaim thee the fairest o' Flora's bright train.—J. L. S.

THE flowery month of May produces no plant of more exquisite fragrance, or more delicate form, than the Lily of the Valley.

In floral language it is made to represent a return of happiness, because it announces by its elegance and its odour the happy season of the year.

The graceful manner in which these perfumed bells are suspended on the stem, and the agreeable contrast which their broad leaves of bright green afford to the snowy corollas, could not escape the notice of our poets. Bernard Barton thus speaks of this flower:—

And sweetest to the view,
The lily of the vale, whose virgin flower
Trembles at every breeze beneath its leafy bower.

Mr. Leigh Hunt calls them:

The nice leaved lesser lilies,
Shading, like detected light,
Their little green-tipt lamps of white.

Keats says:—

No flower amid the garden fairer grows
Than the sweet lily of the lowly vale.

Hurdis moralizes on this flower that flourishes so well in the shade, where gayer plants would not exist:—

To the curious eye
A little monitor presents her page
Of choice instruction; with her snowy bells,
The lily of the vale. She nor affects
The public walk, nor gaze of mid-day sun:
She to no state or dignity aspires,
But silent and alone puts on her suit,
And sheds her lasting perfume, but for which
We had not known there was a thing so sweet
Hid in the gloomy shade. So when the blast
Her sister tribes confounds, and to the earth
Stoops their high heads, that vainly were exposed,
She feels it not, but flourishes anew,
Still sheltered and secure. And as the storm,
That makes the high elm couch, and rends the oak,
The humble lily spares,—a thousand blows
That shake the lofty monarch on his throne,
We lesser folks feel not. Keen are the pains
Advancement often brings. To be secure,
Be humble; to be happy, be content.

When poets thus sweetly endeavour to reconcile us to humble stations, their works may be compared to lilies of the valley, which give pleasure to all that behold them, and can never be found offensive by any rank or station of men. Prior, after looking at this flower, wrote:—

Why does one climate and one soil endure
The blushing poppy with a crimson hue,
Yet leave the lily pale, and tinge the violet blue.

These are reflections which flowers bring to our contemplation, and which must always end in our admiration of the infinite wisdom of the Creator, who formed man with mind, and the lily with fragrance.

This elegantly modest plant formerly grew in our woods and valleys in great abundance, but the increase in the number of our gardens, and the high state of cultivation of the country in general, have rendered the plant rare in its natural state; yet it is cherished in the garden by all the admirers of good flowers. Gerard tells us as late as 1597, that it then grew abundantly on Hampstead Heath, also on "Bushie heath," now Bushy Park, likewise near Lee in Essex, and it has been found in most counties of England, and is indigenous to most parts of Europe from Italy to Lapland: it grows abundantly in the woods of France and Germany.

The name of lily has been very improperly given to this species of *Convallaria*, as it has not the least affinity with the lily either in its root, fruit, or flower. We presume that it was called a lily from the purity of its white corolla, for even at the present time, notwithstanding we have orange and scarlet lilies, we attach an idea of delicacy to the very name of lily. As it grows spontaneously in shady valleys, it is natural to call it the lily of the valley. The name of *Convallaria* is derived from *convallis*, a valley. It was called *May lily* from the month in which it flowered.

The proper situation for this plant in the garden is the most rural and rustic part, where it is partially shaded by shrubs and trees; and it flowers even better in a north aspect than when fully exposed to the noon-day sun. It will grow in almost any earth, but it produces most flowers in a loose sandy soil that is rather poor than otherwise; for when planted in a rich garden mould, the roots spread and multiply rapidly, but the plants give but few flowers, and like most other creeping rooted plants, it seldom produces seed when it can propagate itself so readily by the nature of its roots.

The lily of the valley is a desirable creeper for the shady banks of lakes and ornamental streams, and we love to meet its grateful fragrance beneath the pendulous branches of the Babylonian willow, although

Nymphs and shepherds dance no more
By sandy Ladon's lilyed banks.—MILTON.

The autumn is the proper season for placing these perennial fibrous roots in the ground, when they should be covered with about two inches of earth, and not be disturbed oftener than every third or fourth year, as they seldom flower strong or plentifully after being removed. The plants should be kept free from weeds, and the roots thinned once in three or four years, according to the nature of the soil, and the increase of the plants.

The lily of the valley is one of the flowers that bears forcing in pots, and as but few plants are more agreeable for the house in the months of March and April, this mode of flowering the *Convallaria Majalis* should never be omitted by the florist who has the opportunity of doing it; and we strongly recommend the potting of their plants abundantly for the town, which at any reasonable price will never return unsold from the market, for it is a flower worthy of Paradise, and

Whoever a true epicure would be
May thee find cheap and virtuous luxury.—COWLEY.

These plants are so numerous in the woods of Eileriede, in the neighbourhood of Hanover, that the ground in many places is completely covered with them, and the air scented for a considerable distance by their agreeable perfume. These woods are regularly visited on Whit-Monday by numerous parties from Hanover, who go to gather these May-flowers, and the forest on that day is a scene of festivity and mirth. Cottages are erected for the sale of coffee and other refreshments, and neither the pleasures of tobacco, nor the twirling waltz, are omitted on that occasion. The roads leading to the forest are thronged throughout the day by persons of all ages, and few are the houses in the city of Hanover that are not furnished with the Whitsuntide bouquet of lilies of the valley.

And ye whose lowlier pride
In sweet seclusion seems to shrink from view;
You of the valley named, no longer hide
Your blossoms meet to twine the brow of purest bride.

BARTON.

The English gardens now possess several varieties of the lily of the valley, amongst which is the white with double flowers, the single and double red, and a variety with larger corollas that are variegated with purple. This latter kind is greatly esteemed in Paris, from whence it was first brought to this country; but as it does not increase so fast as the other varieties, it still remains more rare than we could wish to find it in the country in general.

[Abridged from PEARL'S *Flora Historica*.]

FRESH-WATER FISH.

II. THE SALMON, (concluded.)

SEVERAL of our English rivers were formerly celebrated for the excellent flavour of the salmon found in them, though in point of the number of the fish, they were probably always inferior to the rivers of Scotland. Sir Walter Scott regarded the possession of immense quantities of this rich and valuable fish as an advantage which nature has allotted to Scotland, as some compensation for the great inferiority of soil and climate to the sister kingdom; since where the earth is most sterile, the sea is often remarked to be most fruitful. Taken altogether, the British isles are held superior, with respect to their salmon fisheries, to any other land, though, as the progress of invention and manufacture advances, many of our streams are rendered obnoxious to the fish, and are almost deserted by them.

The accomplished author of *Salmonia*, or *Days of Fly-fishing*, had an opportunity of observing the state of most of the salmon rivers of the north of Europe. He fished in several of the Norwegian rivers, and found salmon in all of them; but those he took were small, and never exceeded a pound in weight. This was in the month of July; in August he visited Sweden, and fished in the magnificent Gotla, below the grand fall Trohetta, which to see, he declares, is worth a voyage from England; but he never raised any fish there worth taking. Another river, called the Falkenstein, abounded with salmon of good size. He supposes the saw-mills of Norway to be the cause of the indifferent supply of salmon in that country, for the quantity of saw-dust which floats in the water must be destructive to the fish, by sometimes choking their gills and interfering with their respiration. In Germany, he never fished for salmon, for the Elbe and the Weser were too foul for fly-fishing, and in the Rhine, in Switzerland, and its tributary streams, he never saw a salmon rise. Among English rivers, he commends the Derwent, flowing from the beautiful lake of Keswick, the Hadder, at Whitwell, and the beautiful but scantily stocked river Avon. Small salmon are to be met with likewise in most of the considerable Welsh, Devonshire, and Cornish streams, and occasionally in the rivers of Northumberland. The Thames was formerly much praised for its salmon; and Walton tells us that, in his time, it was famous above all the other rivers of England, for the fine flavour of the salmon caught in it. At present, the taking of a salmon in the Thames is comparatively rare.

The most considerable salmon rivers, as we have already intimated, are in Scotland: the Tweed, the Tay, the Don, the Dee, and most of the streams along the coast, afford a good supply. The Irish rivers also are celebrated, especially the Erne, at Ballyshannon, the Moy, the Bann, the Blackwater, and the Shannon.

Notwithstanding large exportations of fish from Scotland, the supply was formerly so very abundant in that country, that a large well fed salmon, perhaps about twelve pounds, could be procured for sixpence; and domestics going to hire themselves, made an agreement with their masters, that they should not be fed on salmon more than three times a week. Forty or fifty years ago, the art of packing salmon in ice for the London markets was brought to perfection, and since that period the value of the fisheries has risen incalculably; the salmon have become dear in proportion; and the inhabitants of the counties through which salmon rivers flow, see them taken and packed up for the metropolis, by hundreds, without having it in their power to purchase a pound for their own tables. An inducement was held out for the practice of new modes of catching the fish, and great industry was exerted in a trade which had become so profitable. Had not a certain check been placed on these proceedings by the laws and regulations made for the preservation of the salmon tribe, we should probably, ere this, have lost

the advantage of their visits to our rivers; and even as it is, they appear to be gradually deserting some of the southern rivers of Scotland where the supply was formerly very abundant.

The causes of this unwelcome desertion of their old haunts by the salmon, are still in operation, and it is confidently foretold by experienced anglers, that ere long, many of the once-famed salmon rivers will be destitute of this fish. In noticing the more prominent of these causes, we take the united testimony of Sir Humphry Davy and Sir Walter Scott, in saying that the change produced in the rivers and brooks of England and Scotland during the last twenty years, by the general system of drainage, has been a great cause of the diminution of fish in those streams. The moist, spongy, or peaty, soils which once composed a great part of the high lands of England, and the extensive morasses which covered the southern hills of Scotland, used to receive and retain, like sponges, the quantities of rain which fell upon them, and the moisture soaking from thence by slow degrees into rivulets and streamlets, was gradually transmitted to the main body of the river. Thus the rivers were slower in rising to flood than they are at present, and slower in subsiding from that state; and their full and equable stream allowed the salmon, at almost all times, to pursue their course towards the upland sources. But now that the work of drainage has been so extensively carried on, the moisture is no longer retained in the same degree by a spongy soil, but being carried off by numerous channels to the principal stream, this latter becomes suddenly swollen, and rushes onward with a rapid current which forces the fish into pools and dams, and in its subsidence, which is also sudden, leaves them there, unable to ascend higher, and thus they are taken in great numbers. These remarks apply more especially to Scotland, but, in a limited degree, they describe the state of English rivers also. There is another way in which drainage is supposed to be injurious to the fishing interest. The food on which the salmon and other fish principally subsist, is lessened in quantity by that cause. Sir Humphry Davy says,

I attribute the change of the quantity of flies in rivers to the cultivation of the country. Most of the bogs or marishes which fed many considerable streams are drained; and the consequence is that they are more likely to be affected by severe droughts and great floods, the first killing, and the second washing away, the larvæ and aurelias.

In many cases, the system of drainage has been indiscriminately carried on, and its good results, even to the proprietor of the land, are extremely questionable. Judicious persons will, in time, be led to qualify its excess, and this will doubtless improve the state of the rivers, by restoring to them a more equable stream.

The other main cause of the deficiency of the salmon arises from moral circumstances, for which it is to be feared there is no remedy. The privilege of fishing for salmon does not necessarily follow the possession of land on one or both banks of a salmon river. The cases are numerous where the right of fishing in any particular part of the stream has been conferred by charters or royal grants on individuals who are neither owners nor occupiers of the land in the vicinity. By whatever means such right has been obtained, each proprietor is anxious to make the most of his part of the river, and is almost much interested in the practices of those who occupy the portions above or below him. The proprietors of the upper part of the river receive great injury if the means employed in the lower fisheries are such as to prevent the ascent of the salmon to them; and the lower proprietors are equally aggrieved if the salmon are destroyed during the breeding season when they repair to the upper parts of the stream to deposit their spawn. Between the upper and lower proprietors, therefore, there should ever exist a good understanding as to their respective rights, and a careful maintenance of such

regulations as are best adapted to secure the supply of fish; for each is so much concerned in the actions of his neighbour, that to look only to present individual interest is to ensure future individual and general loss. Owing to the great demand for salmon, and the improved methods of taking that favourite fish, there is, at the present time, a degree of activity and success in the means adopted in the lower fisheries, which has a considerable effect in intercepting the salmon in their progress from the sea to the upper parts of the river. This occasions the value of the upper fisheries to be greatly diminished, and, consequently, renders the upper proprietors indifferent to the preservation of the fish. During the whole breeding season, or close-time, it is ordained by law that the fish should remain undisturbed, and be allowed to ascend to the heads of the streams uninjured; and, as we have already stated, they are, at that time, unwholesome and unfit for food. These laws are enforced with very high penalties, and it might be supposed that the temptation to infringe them would not be great, considering the inferiority of the fish at that season. Yet we are told that the spawning fish are destroyed in the upper parts of the river.

We must now proceed to describe the various means employed for the capture of salmon, in the different parts of the river, during the legally established season, which, in Scotland, extends from the first of February to the fourteenth of September, Sundays excepted.

The *stake-net* affords the most advantageous means for taking salmon at the mouth of the river. This net was first introduced on the Solway, about a hundred years ago, and was called a "raise" or "rise" net. At first it was nearly in the form of a crescent, and was fastened to two stakes. It rose with the flow of the tide, and the salmon were taken only at the ebb. Improvements were afterwards made, which rendered it available during the flood as well as the ebb-tide. When *stake-nets* became general, they were found to be exceedingly advantageous in increasing the quantity of fish taken; and such was the success with which they were used, that as many as five hundred salmon and grilse have been secured in one of them, at the same time. These nets are not adapted for any other situation than the mouths of rivers, and are only used when the tide is always ebbing and flowing, the stakes being firmly driven into the rocky ground on the banks of the river. The nets are fixed between high and low-water mark, and do not interfere with the return of the fish from the upper streams. Salmon fresh from the sea are as often to be found in the shallow as in the deep water, but those which are descending from the spawning ground are weak and out of condition, and always keep the middle of the stream. There is another sort of net used on the coast, or the tideway of a river, but it is nearly superseded by the one just described. It is called a *stage-net*, and requires the constant attendance of fishermen, on the top of a stage or platform.

At a higher portion of the river the *coble-net* is used with much effect. The fishermen go out in flat-bottomed boats, called *cobles*, and get their chief supply from the pools of the river, to which the salmon freely resort. In dragging their nets along the bed of the river, or pool, they frequently rake up the spawning-bed, or injure the young fry, so that this mode of fishing is deemed injurious, besides taking the fish in a less perfect manner than by the *stake-net*. The salmon are frequently bruised in being dragged along in the net, and not being immediately packed in ice, are often inferior in flavour to those procured at the mouth of the stream.

Another method of taking salmon on a large scale for public consumption, is by means of an artificial space or dyke in the river, called a *cruive*. This cruive is formed of stones, projecting in such a manner, that the fish, in ascending the river, are led into them, and inclosed, as it were, in a trap. The cruive is considered as liable to

abuse, since it can easily be formed in such a way as to prevent the ascent of the fish towards the stream head.

In *still-fishing*, as it is called, one end of the net is held by a man on the shore, another by a fisherman in his boat. As a fish approaches, it is surrounded by the net and pulled ashore.

A variety of other means are employed in the upper portion of the river, some of which can only be practised during flood-time, and others are common in ordinary fishing. We may mention one or two.

Burning the water, or *leistering*, is a common practice. A large number of nets are spread in every direction in the upper portion of the river, and one or two persons stand in a boat, with leisters in their hands. A third individual stands in the centre of the boat with a torch, generally composed of tarred rags. The moment a fish is discovered within reach he is struck.

The *halve-net* is a net fixed to the end of a pole, fourteen or sixteen feet in length. The fisherman carries the net on his shoulder to the river or frith, and placing it under water, waits the entrance of the fish.

Spearing is practised in nearly all our salmon rivers, but, as generally conducted, is considered illegal. The fish are speared late in the evening in their resting places, with a ten-pronged instrument.

Within the last fifty years the transmission of salmon to all parts of the country, has been wonderfully facilitated by the plan of packing the fish in boxes with ice, and also by the improved means of conveyance throughout the kingdom. Before that period the supply of salmon in the London market was at all times scanty, and in warm weather had almost wholly ceased. It was packed in straw, and sent chiefly from the different salmon rivers of England. If anything occurred to delay the vessel, the fish was obliged to be boiled and pickled before it was sent off, and a supply of fresh-taken fish was put into the ship as it was on the point of sailing. At the present time, in addition to the advantages above mentioned, we have steam-boats regularly arriving from all the great salmon rivers, bringing their cargo with nearly as much certainty and precision as a stage-coach would do, and allowing us to receive salmon in perfection, or rather in good condition, from a distance of five hundred miles. The produce of the fine rivers of Scotland is thus regularly conveyed to our markets, and the supply of salmon sent to London in one year alone (1835), amounted to 42,000 boxes, each box weighing on an average one hundred-weight. Even on a reduced estimate the quantity brought to market that season is said to have been 20,000 tons, or 4,480,000 pounds; which at ten-pence per pound would give 186,666*l.* The salmon are delivered to commission-agents, who charge five per cent., and take the risk of bad debts. This business is a lucrative one, and is in very few hands.

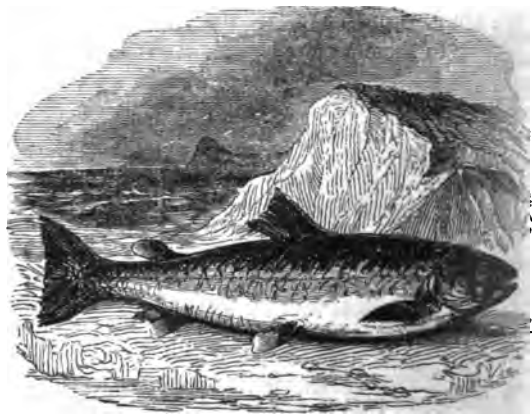
So long as seventy or eighty years ago, the value of salmon fisheries was very great, and in consequence of the great demand for this fish, it has gone on increasing. At the above period, as Pennant informs us, there were forty-one considerable fisheries on the river Tweed alone, extending upwards about fourteen miles from the mouth of the river, which were rented for about 5400*l.* per annum. The expenses attending the servant's wages, nets, boats, &c., amounted to 5000*l.* more, which, together made up the sum of 10,400*l.* Twenty times the sum of fish must have been caught to defray that expense, therefore, the salmon taken in the Tweed at that time must have been about 208,000 in one year. For the seven years preceding 1824, the rental of the Tweed fisheries averaged about 12,000*l.* One of the fisheries on the river Spey has been let at the enormous sum of 8000*l.* a year, and the expenses are supposed to have been 4000*l.* more.

We have scarcely mentioned the law respecting weekly close-time on salmon rivers, which forbids all

fishing operations, as well as the existence of any obstacles to the ascent of the fish, from twelve o'clock at night on Saturday to the same hour on Sunday. Were it not for this short respite, the salmon would scarcely ever reach the upper streams of those rivers where such vigilant means are used to entrap them, and consequently the trade in such rivers would soon fail. Thus the interest of all parties, as well as the veneration due to the Sabbath, demand this time of rest. Sir Humphry Davy in his *Salmonia*, remarks on the strictness of the Scotch in their observance of the Sabbath, and introduces in his dialogue a discussion respecting the manner of passing the day in Protestant and Roman Catholic countries.

We cannot omit the opportunity of placing before our readers the admirable reasoning of Sir Walter Scott on this subject, who, in noticing the argument above alluded to, gives his own opinion in the following words:—

If we believe in the divine origin of the commandment, the Sabbath is instituted for the express purposes of religion. The time set apart is the "Sabbath of the Lord;" a day on which we are not to work our own works, or think our own thoughts. The precept is positive, and the purpose clear. For our eternal benefit a certain space of every week is appointed, which, sacred from all other avocations, save those imposed by necessity and mercy, is to be employed in religious duties. The Roman Catholic church, which lays so much force on observances merely ritual, may consistently suppose that the time claimed is more than sufficient for the occasion, and dismiss the peasants, when mass is over, to any game or gambol which fancy may dictate, leaving it with the priests to do on behalf of the congregation, what further is necessary for the working out of their salvation. But this is not Protestant doctrine, though it may be imitated by Protestant churches. He who has to accomplish his own salvation, must not carry to tennis-courts and skittle-grounds the train of reflections which ought necessarily to be excited by a serious discourse of religion. The religious part of the Sunday's exercise is not to be considered as a bitter medicine, the taste of which is as soon as possible to be removed by a bit of sugar. On the contrary, our demeanour through the rest of the day ought to be, not sullen certainly, or morose, but serious and tending to instruction. Give to the world one half of the Sunday, and you will find religion has no strong hold of the other. Pass the morning at church, and the evening, according to your taste or rank, in the cricket-field, or at the opera, and you will soon find thoughts of the evening hazards and bets intrude themselves on the sermon, and that recollections of the popular melodies interfere with the psalms. Religion is thus treated like Lear, to whom his ungrateful daughters first denied one half of his stipulated attendance! and then made it a question whether they should grant him any share of what remained.



THE SALMON.

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BRITISH GUYANA



RANGES OF ROAINA MOUNTAINS, BRITISH GUYANA

I. A SHORT ACCOUNT OF GUYANA IN GENERAL.

It is curious to observe, on glancing at a map of Asia, Africa, or America, how many spots occur which are possessed, more or less completely, by European nations. Few circumstances are more indicative than this, of the power and civilization of the European states. The greater purity of ideas on matters of religion, the enterprising and industrious habits of the people, and the knowledge of the various arts and sciences diffused among them, all tend to bring about this state of affairs.

America once presented features such as these, to a very remarkable extent. Canada was claimed by France; the eastern portion of what now constitutes the United States, was an English colony; the immense country of Brazil was subject to Portugal; while nearly all the remainder of South America, as well as Mexico and Florida, were possessed by Spain. Great changes have, however, occurred in the political condition of these regions. England has lost the United States; Spain has lost her immense possessions; Portugal has lost Brazil; while the possession of Canada has been transferred from France to England. The general effect of these changes has been to render the whole of North America, southward of the great lakes and the river St. Laurence, independent of European control; and likewise the whole of South America, except a small country or region towards the north-east border.

The Canadian and Russian territories in North Ame-

rica, we do not propose to allude to farther here; but we wish to draw the reader's attention to the portion of South America just referred to, and which is called *Guyana*, *Guiana*, or *Guayana*; a region of which very little notice has been taken in our works on geography.

The upper part of South America is divided into great basins, by the rivers Orinoco and Amazon, both of which flow eastward into the Atlantic; and the name of Guyana used formerly to be given to the whole of the region between these two mighty rivers, a surface of country more than equal to three times that of France. But in recent times the name has been applied to a district not more than one sixth of this extent; because Brazil on the one hand, and the republic of Venezuela on the other, have appropriated more than five-sixths of the former Guyana. Even in its present limited extent, the boundaries of Guyana are but ill defined; but there seems to have been a sort of agreement to determine the limits by this arrangement:—that all that part of ancient Guyana which is drained by secondary rivers flowing into the Amazons, shall form part of Brazil;—that the portion which is drained by rivers falling into the Orinoco, shall form part of the republic of Venezuela; and that part only whose rivers flow at once into the Atlantic, shall continue to receive the name of Guyana. This limited district has a sea coast about four hundred miles in extent, from the eastern mouth of the Orinoco, to the river Oyapock.

Yet this country, limited as it is compared with former times, is divided into three parts, owned respectively by the British, the Dutch, and the French; British Guyana being the most westerly, near the republic of Venezuela; French Guyana the most easterly, near Brazil; and Dutch Guyana between the other two. It is not possible, nor is it indeed of much importance at present, to determine how far inland the territory of Guyana extends; for scarcely an European foot has trodden any parts except those immediately contiguous to the coast. Until the Geographical Society employed Mr. Schomburghk, a few years ago, to explore the inland parts of British Guyana, the authorities knew but little, and attended to but little, except the towns established on the coast for commercial purposes; while the portions of Guyana belonging to the French and the Dutch are still less known.

The possessions of the three countries are separated from each other by rivers; and it seems to be understood that Guyana extends to the sources of these rivers, wherever they may be. Beginning from the east, we find French Guyana separated from Brazil by the river Oyapock, the extent of which is but little known. Then follows the river Marony, which serves as a boundary between French and Dutch Guyana; this is a considerable river, rising in the Sierra Acoacy, and having, for a considerable distance from its mouth, an average width of a mile and a half. In the middle of the Dutch territory we meet with the river Surinam, which near its mouth, is about a mile in width, and is navigable for vessels of considerable size beyond the town of Paramaribo. On approaching the boundary between the Dutch and British possessions, we meet with the river Courantijn, which has been better explored than those hitherto named. It has been ascended to a considerable distance towards its source, to a point where two fine cataracts occur, each nearly one hundred feet in height. As it is more than nine hundred feet wide at this point, the inference is drawn that the source of the river is much farther inland. From the cataracts the river runs north-east; and after presenting several rapids, becomes navigable at a distance of a hundred and fifty miles from the sea. For forty miles from the mouth its width is as much as one mile; near the mouth it is four miles; and at the estuary or actual mouth, ten miles.

Farther westward, in the British territory, is the river Demerara, whose length is known to be at least two hundred miles, and is supposed to be much more; as it affords an easy means of transport for goods, there are many settlements on its banks. Lastly, we may mention the river Essequibo, which traverses British Guyana, and which has been ascended to a distance of two hundred and thirty miles from its mouth. During its course it receives the river Rupernoony, more than two hundred miles in length; and afterwards another river, the Siparony, whose source has not yet been ascertained. On approaching near its mouth, the Essequibo is farther augmented by the waters of the Mazarony and the Cuyuni, two large rivers which unite about eight miles above their junction with the Essequibo. This last-named river contains, in different parts of its course, numerous rapids, and also many small rocky islands, and banks of mud and sand, which render the navigation somewhat dangerous. From the source of the Rupernoony to the mouth of the Essequibo, is a continuous water communication nearly five hundred miles in length.

All these rivers have a course more or less north-east, by which they empty themselves into the Atlantic, and divide Guyana into several sections. The country is farther divided into two sections by a hilly region running nearly parallel to the shore, and at a distance of from forty to seventy miles from it. Northward of this dividing belt is a flat low country, forming that which

has alone been attended to by the nations who have established colonies there; while the district south of the mountain belt has been but little explored.

The low sea-girt land here alluded to, is nearly on a level with the sea at high water, and requires unremitting attention to the embankments and sluices necessary to keep out the sea. The greatest part of this low plain is covered with a soil of strong blue clay, highly impregnated with marine and vegetable salt, and with vegetable matter in a very divided state. The soil is very fertile, and thereby repays the outlay incurred for embankments and sluices. Other parts of the plain are open savannahs, that is, plains fit for pasturage, but not for farm cultivation; while some few districts distant from the rivers are unfit for cultivation, being without trees or shrubs, and entirely overgrown with fern.

The southern boundary of the maritime plain is formed of a range of hills, varying from fifty to two hundred feet in height; and then succeeds a series of more elevated plains, divided at intervals by ridges of hills running nearly parallel with the sea-shore. At different parts of these ridges are insulated hills, as well as elevated terraces, at heights of seven, nine, twelve, and fifteen hundred feet respectively. After passing several of these ranges of hills towards the south, we approach some extensive savannahs covered with grasses and plants; the winding courses of the river alone being marked by a border of trees. In some places the savannahs present a broad belt of good soil, but without any vegetation.

The general climate of Guyana may be indicated by saying that there are two rainy seasons and two dry seasons. One of the rainy seasons is longer than the other, and begins about the middle of April. At first the showers come only at intervals; but as the season advances they are more continuous, until at length, in the month of June, the rain pours down in torrents. It then gradually subsides, and ceases altogether by the end of August. Then commences the long dry season, which continues throughout September, October, and November. December and January constitute the short wet season, during which a moderate quantity of rain falls; and lastly, February and March constitute the short dry season. During the long rainy season, the rain often falls for several hours without ceasing; after which the remainder of the day is fine. Other times occur in which a few days will pass over without any rain falling. The heat is not so great as might be supposed from the almost equatorial situation (from about 2° to 8° N. latitude,) on account of the trade winds, which, passing over the whole breadth of the Atlantic from Africa to America, reach the coast of Guyana loaded with moisture, and the wind and moisture thus render the temperature of the air more supportable than it would otherwise be. There is likewise an alternation of land and sea-breezes, which,—as the sea-breezes are colder and blow in the day, and the land-breezes during the night,—contribute greatly to maintain an equable temperature. The thermometer seldom rises above 90°, or falls below 75°, so that the temperature throughout the whole year is such as we should term "summer heat." Thunder-storms, often violent but seldom very destructive, occur during the rainy season; the dreadful hurricanes of the West India islands being wholly unknown here.

It has been said that few countries on the surface of the globe can be compared with Guyana for vigour and luxuriance of vegetation, which shows itself especially in the great number of indigenous plants, and the large forest trees, which cover not less than one half of its surface. Many of the trees produce excellent timber; others are used for the making of furniture; such is the mahogany tree; or to furnish log-wood, while others are valuable on account of their fruit. Indian corn and rice are cultivated to such an extent, that three crops of

the former, and two of the latter, have been obtained in one year from some fertile pieces of ground. It was observed by Humboldt, and has since been confirmed by others, that wheat and similar grain do not succeed well in Guyana, since the altitude of the ground is too small; an intertropical latitude requiring a considerable elevation for the growth of these productions.

The territory of Guyana is inhabited by Europeans, African slaves, and native Americans. The Europeans went into this country as colonists, at different periods in past history; the Africans were, as in other and equally disgraceful instances, kidnapped from their houses and sold into slavery. The European settlers are principally descendants of the original Dutch colonists; the number of British and French being smaller. The native Americans of Guyana are, generally speaking, more civilized than the other aborigines of America. They cultivate Indian corn, Cassava, and some other roots; but they are still attached to a wandering life, and a slight inducement, or sometimes only fancy, leads them to abandon a well-cultivated piece of ground, and to remove to a wilderness, where they undergo much toil in rooting out the forest trees, and in preparing a new piece of ground. Some of these natives work for the European settlers as day-labourers. Their colour varies from that of a Spaniard or Italian, to a very dark copper hue.

These details relating to Guyana are to be taken as a whole, without reference to its division among the three European possessions. It was necessary to take this general view of the country, in order to understand the relation between the different Guyanas. But from this point we shall dismiss the Dutch and French settlements, and confine our attention to the British territory, which is indeed the only part of which much is known in this country. We will merely state in conclusion, that Dutch Guyana is frequently called Surinam, the capital being Paramaribo; and that French Guyana is called by them Cayenne, with a capital of the same name.

ON THE PLEASURE AND PROFIT ARISING FROM CULTIVATING PLANTS AND FLOWERS.

It was a saying of the celebrated Sterne, "that most people have their hobby-horse or amusements;" the literal meaning of which I take to be, that most people have their favorite pursuits or amusements; and so long as these pursuits are compatible with our duty to God as Christians, and militate not against the welfare of our fellow-men, so far are they innocent, rational, and profitable. Among all the various amusements which this fascinating world holds out, I think none is more innocent, more rational, or more profitable than the cultivation of flowers: those beautiful gems with which our divine Creator has studded our meadows, and kindly furnished to beautify our gardens; whose brilliant colours vie with the rainbow, and infinitely surpass the most costly tints, and whose balmy fragrance scents the surrounding atmosphere with perfumes more agreeable than the spices of Arabia! Who can behold their exquisite symmetry; who can admire their diversified yet splendid colours; or, who can feast his senses on the aromatic sweets which emanate from their beautiful blooms, without feeling a sort of sacred pleasure stealing imperceptibly into his very soul, and leading its finest feelings willing captives to their inimitable charms?

It is said, and very truly too, that the study of astronomy, that sublime science, which teaches the various revolutions of those spheres which nightly bespangle the nocturnal heavens, is admirably calculated to lead the mind from Nature up to Nature's God. And if the contemplation of those luminaries, placed as they are at such immeasurable distances; and which can act only

upon the ocular nerves, has this tendency; how much more ought the beauties of Flora, producing as they do, a threefold evidence on the senses! Yes—

The blushing tint, the crimson streak,
The powers of heavenly wisdom speak;
And all their balmy fragrance join,
To show their Author is divine.

In fact, there is not a blade of grass, or a wild flower that decks our lawns, but which is replete with instruction, and shows forth the handy-work of the Great and glorious Creator of the universe.

Not a tree,
A plant, a leaf, a blossom, but contains
A folio volume. We may read, and read,
And read again, and still find something new,—
Something to please, and something to instruct,
E'en in the noisome weed.—HURDIS.

Solomon, the wisest man, was a great admirer of the beauties of the floral kingdom. And our blessed Redeemer expressly commands us to "consider the lilies of the field;" and if, with an example like that of Solomon before us, and after receiving a command from our Saviour himself, we can still remain insensible to their charms—still refuse to contemplate their inimitable beauties, we must lack much of that spirit of refinement which purifies the grossness of depraved human nature, and makes man fit for the society of Heaven.

The men
Whom nature's works can charm, with God himself
Hold converse: grow familiar day by day,
With his conceptions; act upon his plan;
And form to his, the relish of their souls.—AKENSIDE.

Among all the productions of the vegetable kingdom, there is not a single individual but which has its uses; even those very tribes which daily remind us of man's awful fall, and the curse pronounced upon the earth for his sake; have in them properties of peculiar usefulness, and prove beneficial to the wants of man.—God hath made nothing in vain!—some are for use, others for ornament, and not a few, perhaps all, are possessed of medicinal properties. Properties! without which, life itself would be a burden; and which, if utterly deprived of, it would be utterly impossible for man to exist.

Since then, there is such innocent amusement, such rational pleasure, and such mental improvement in the cultivation of plants and flowers, and since it is so well calculated to enhance our spiritual interests, and render us more fitting for the society of beings of a higher order than ourselves, and especially for the society of our divine Maker, let me, for one, disdain more ignoble and trifling pursuits, let me fly from the deluded votaries of mere sensual gratifications, and in

The calm retreat!
(Far from the noisy haunts of sordid men,
Where Flora trains her lovely offspring up,
To captivate and charm! There let me muse!
Surrounded by her rich and dazzling train,
Till lost in ecstasy, my soul takes wing;
And soars from nature up to nature's God!
There may I lie, wrapped in the flowery vest
Of silent rapture, till my soul breaks forth,
And in the language of the immortal bard,
Who sung the fatal fall—transported cries,
"These are thy glorious works, Parent of good!
To us invisible, or dimly seen
In these thy lowest works; yet these declare
Thy goodness beyond thought, and power divine!"

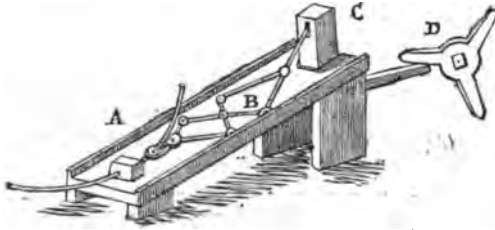
[From HARRISON'S Floricultural Cabinet.]

A MIND, by knowing itself, and its own proper powers and virtues, becomes free and independent. It sees its hindrances and obstructions, and finds they are wholly from itself, and from opinions wrong conceived. The more it conquers in this respect, (be it in the least particular,) the more it is its own master, feels its own natural liberty, and congratulates with itself on its own advancement and prosperity.—SHARPLEY.

WIRE-DRAWING.

2. MANUFACTURING DETAILS

Fig. 1.



IN our former article on this subject we gave a slight sketch of the wire-manufacture, from early times to the present. The mode of manufacture may now fittingly be brought under our notice.

In detailing the steps by which this branch of manufacture was improved in Germany, we had occasion to allude to Rudolph's invention. The machine by which he manufactured wire was similar to that represented in the annexed cut, fig. 1; in which A is an inclined plane, at the lower end of which is placed a drawing-plate, perforated with one or more holes; B is a jointed shank, terminating at the lower end in a pair of pincers, and at the other connected with a lever C; the tail-piece of this lever being so placed as to be pressed down by the arms of the rotating cam, D. By this means the pincers are drawn back, and the wire gradually forced, or rather pulled, through the holes in the drawing-plate, thus assuming the form and size of the hole through which it is made to pass.

On many parts of the Continent, most iron wire was, until the last few years, made by a machine somewhat resembling this. But there are many faults in wire thus produced; in the first place, every piece of wire exhibits, at intervals of a few inches, the marks of the pincers; and, in consequence of the wire being drawn by a succession of jerks, the surface becomes more or less unequal.

But by the improved modern processes, the wire acquires a surface and consistency almost mathematically uniform. Let us suppose that iron is the metal of which the wire is to be made. A square bar of iron is first worked into a cylinder, by being passed between rollers. These rollers are turned or cast with grooves on their peripheries, at right angles to the axes; the grooves being made of different sizes, so as gradually to reduce the bar to the required thickness. These rollers are made of hardened steel, and are generally about eight inches in diameter. When a pair of rollers, with corresponding grooves, are made to revolve three or four hundred times in a minute, a bar of steel, an inch square, and thirty inches long, is drawn from the heating furnace at a strong red heat, and placed in one of the grooves. By the aid of machinery it is speedily drawn through the largest groove. Being then introduced into the next sized groove it is further reduced in size; until, after having passed through eight grooves in about a minute, it is increased from two and a half to thirty or forty feet in length, and from a square to a cylindrical form. As the bar passes through any one of the grooves, it comes in contact with a third roller, so placed as to turn the end of the bar backwards, and drive it into the next smaller groove: the bar is thus performing a serpentine path backwards and forwards, between the rollers. The iron is thus reduced to the size of a sixth or eighth of an inch in diameter, and is then laid in coils, which are sold to the wire-drawer for farther reduction into wire of any required degree of fineness.

For some purposes the iron is prepared by *tilting* instead of *rolling*. A faggot of small bars is welded together by being heated, and then forged with a large

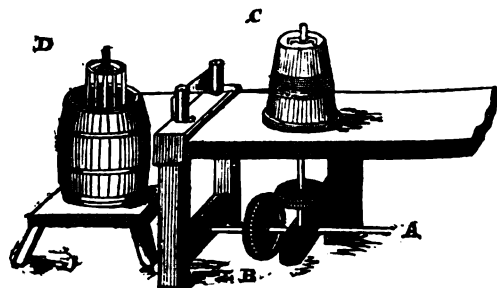
tilt hammer, weighing a hundred pounds, and making one hundred and thirty strokes per minute. When an iron bar of proper quality is thus formed, it has to be worked into rods of a proper size for the wire-drawer; and for this purpose the workman heats six or eight inches of the end, and works it regularly under a smaller tilt hammer, weighing about fifty pounds, and making twenty strokes per minute. By a succession of strokes, and re-heatings, the iron becomes reduced to the proper diameter, and acquires greater tenacity or toughness than if prepared wholly by the rollers, a quality very advantageous for some purposes.

The square bar of iron being reduced to a cylindrical rod, the wire-drawer commences his operations. The drawing-plate, by which the thickness of the wire is determined, is generally a stout piece of the best shear steel, about six inches in length, an inch and a half in diameter, and with two opposite sides, one flat, and the other roundish. Numerous holes are punched, in a tapering form, so as to be larger at the flat than at the round side of the plate. This plate is set up in a vertical position, and a force is applied to draw the rod successively through the various sized holes. This force is either hand, steam, or water power, according to circumstances.

Supposing the power to be manual labour, the workman proceeds as follows:—The point of the rod, after being sharpened to some distance from the end, by hammering or filing, is inserted through the largest hole, and the drawing-plate is placed behind two stout iron pins on the work-bench. A pair of nippers, attached to a short chain, is made to grasp the point of the rod, and this chain, by means of a lever, is drawn back, so as to drag the rod a small distance through the hole in the plate. When a certain quantity is thus pulled through, the workman attaches it to the surface of a conical or cylindrical drum, placed vertically in front of the drawing-plate. This drum is made to revolve on a vertical axis by a lever springing horizontally from its upper end; and the workman sets this drum in rotation by walking round his low work-bench, and pushing the lever before him. The coil of rod or thick wire is held in one hand, the tapered end, after passing through the draw-plate, is attached to the drum, and the man, by forcing the drum to revolve, at once draws the wire through the hole in the plate, and winds it in a coil on the drum. When all the wire has been in this way pulled or drawn through one hole, the whole process is repeated with a hole of smaller diameter; and so on, until the wire has been reduced to the required thickness. When it becomes so fine that little power is required to draw it, the workman adopts an easier arrangement of machinery, and winds the wire on an iron cylinder, which has a lever capable of being moved round by hand, instead of requiring from the workman a circuit round his work-bench.

When the wire is drawn by steam, water, or horse power, instead of by manual labour, a somewhat different arrangement is adopted, as in the adjoining figure.

Fig. 2.



A is a horizontal shaft, set in rotation by the moving power supposed to be situated at the right hand of the

cut. A vertical bevel wheel, *b*, on this shaft, catches in the teeth of a horizontal wheel, connected with a vertical spindle, whereby the conical drum, *c*, fixed to the upper end of this spindle, is set in rotation. On a stool near the draw-bench is a tub, *e*, containing starch-water, or stale beer grounds, in which the wire, coiled upon the reel, *d*, is dipped, to remove the oxide that may adhere to the surface. Between the reel and the drum is seen the draw-plate, through holes in which the wire is drawn by the revolution of the drum. The reel is so placed in or on the cask as to be able to revolve as the wire is unwound from it. By a succession of drawings through holes of different sizes, the wire is at length reduced to the desired size.

The manufacture of the draw-plates has always been deemed a matter of great importance, since the too rapid abrasion of the edges of the holes would cause considerable inconvenience and loss to the manufacturer. The French pay particular attention to their plates, and produce them in the following manner. A band of iron is forged two inches broad and one inch thick; and about a foot in length is cut off and heated to redness in a charcoal fire. It is then beaten on one side with a hammer, so as to work the surface into furrows or groves, in order to aid the retention of a substance called *potin*, which is to be welded on one side of the iron. This *potin* is nothing but fragments of old cast-iron pots. These fragments are broken on an anvil, and mixed with pieces of white-wood charcoal. The mixture is put into the forge, and heated till melted into a kind of paste. Fusion and cooling are repeated ten or twelve times, by which the qualities of the cast-iron are changed, and made nearly analogous to those of steel; yet, so far from becoming brittle, it will yield to the blows of the hammer and the punch.

The bar of iron which is to make the draw-plate is covered with a layer of prepared *potin*, on the side which is furrowed, and the thickness of about half an inch. The whole is then wrapped up in a coarse cloth, which has been dipped in clay and water, and then put into the forge. The *potin* is more fusible than the forged iron, and melts more quickly: during this fusion the plate is withdrawn from the fire occasionally, and the *potin* is gently hammered, to make it melt and amalgamate with the iron. This process of heating and hammering is frequently repeated, to render the union more perfect.

The union being effected, the plate is again heated and forged by two men, by which it is expanded to the dimensions required. Cast-iron, when used alone, cannot be forged; but, in the present instance, the alloy of cast with wrought-iron, and the repeated fusion with charcoal, give to the plate the property of malleability. While the plate is still hot, the holes are pierced. This is effected with a well-pointed punch of German steel, applied on that side of the plate which was not covered with *potin*. The plate requires to be heated four times in the fire before the punching is effected; and at every heating a finer punch is employed, so as to produce a taper hole. The holes are not punched quite through by the plate-makers; but the wire-drawers, when the plate is quite cold, finish the piercing by means of sharp tools, and give to the holes what size they please. Each plate is pierced with a great number of holes, all of which are conical, the apex of the cone being on that side of the plate which was coated with *potin*, and which is harder than the other. In some manufactories the draw-plates are made of common hardened steel, without the peculiar preparation here described.

During the process of reducing the size of wire, by drawing through a series of holes decreasing in diameter, the iron or other metal is liable to become very stiff and hard, and requires to be repeatedly softened. The iron is heated red-hot in a closed furnace, and then

placed in a vessel containing acid liquor: this immersion causes the scale produced by the heating to come off, on the wire being afterwards laid in stale-wort, or the grounds of ale, and then well scoured.

The different metals require somewhat different modes of treatment, during their reduction to the form of wire; but the above details will convey a general idea of the processes.

The quantity of wire used in our manufactures is enormous. Besides the strings of musical instruments, pins, and needles, and countless other small wares, the cards for the cotton manufacture consume a very large quantity. These cards are strips of leather covered with small wires; and Professor Barlow has adduced a remarkable proof of the quantity of wire used for making these cards. Machines have been invented, by the action of which the wires are cut, prepared, and fixed in the leather, at the rate of 130 per minute; and considering a working-day to consist of eleven hours, 85,800 inches of wire are worked up by each machine. There are one hundred of these machines in the manufactory of Mr. Dyer of Manchester; and these machines will therefore work up 8,850,000 inches of wire per day, or to the amount of about thirteen miles and a half in length.

MEMORY.

Say whence the charm that those sweet scenes impart,
To raise at once, and to subdue the heart—
To paint sweet fiction in the hues of light,
And lead the mind through ages wrapt in night?
Whence the soft power that speaks alike to all,
And binds the sternest in her thrilling thrall?
'Tis thine, dear Memory, thus to fill the soul,—
Thus o'er the heart to exercise control,—
To wrest from time some portion of his prey,
Breathe life in dust, and animate decay!

No joy we boast, but which the coming hour
May whelm in sorrow, or with pain o'erpower.
Still former scenes sweet recollection claims—
Still burn the embers of our former flames—
Still every cloud fond memory tints with light,
And gilds with stars the mind's obscurest night;
O'er life's rude storms a rainbow hue she casts,—
Her's is the beam that every cloud outlasts.

Thus, when the traveller quits his native shore,
The scenes he leaves seemed ne'er so dear before;
As less and less its fading traces grow,
His heart is grieved with unavailing woe—
His anxious eye he strains across the main,
To view those native, long-loved scenes again.
So by thy light, sweet Memory, we survey
Youth's hours of bliss, and childhood's happier day—
So once again, while tears the eyes bedew,
Reflected in thy glass these scenes we view.
Sweet childhood! still we mourn those halcyon hours
When guileless peace and innocence were ours—
When every change could only add to joy,
Which neither woe could blight, nor care destroy!
When life was sweet, and every sorrow feigned,
The elastic mind defied, and soul disdained;
When all was pure as Eden's lovely bowers,
And every smiling path was strewn with flowers.
Delightful days! alas, ye blushed to fade—
Your bloom 'neath sorrow's blighting breath decayed;
The flower which smiles amid the summer gales,
When autumn blows, its short-lived lustre fails;
The leaf that spring beholds so bright and green,
A few short months, and sad and sear 'tis seen:
The opening buds that brightly meet the morn,
Oft from their stem by evening blasts are torn:
So does keen anguish smite the woe-worn brow,
And grief its empire is maintaining now,
And must the withered leaf alone be here!
Must every smile be followed by a tear!
No! still that eye one kindling spark relumes—
Its wonted fires it once again resumes:
As the warm brilliance of the sunbeam shines,
And melts the snow that crowns the Apennines—
Thus lights the heart sweet Memory's genial ray,
Thus gilds its woes, and smiles its cares away. T. A.

GARDEN HERBS.

WORMWOOD.

COMMON Wormwood, (*Artemisia absinthium*), is a perennial herb, growing wild in many parts of Great Britain; but also cultivated for medicinal purposes. Many species of *Artemisia* are reared in gardens, but their virtues were never less called into action than at present. A favourite plant of this family is the South-ernwood (*Artemisia abrotanum*), seldom absent from the cottager's garden, where it is known by one of its common names, *old man*, *maid's delight*, &c. This aromatic herb is of a shrubby habit, growing to the height of three or four feet, but seldom producing flowers in this country. In warmer climates it puts forth an abundance of small yellow blossoms. It will exist in the densest parts of a crowded city, where the rays of the sun seldom visit it, and where the air is very impure. It was formerly used in medicine; and the tincture it affords, being employed in the form of a lotion or ointment, is said to remove cutaneous eruptions, and also to prevent the hair from falling off. The woody part of this plant yields a yellow dye. We must pass by the other species, and confine our remarks to the subject of the present article.

The root of the common wormwood is branched and woody; the stems rise to two or three feet, are branching, angular, and furrowed. The lower leaves are bipinnate; the upper digitate with oblong, obtuse, very entire segments. The flowers are pedicellated, nodding, hemispherical, and of a brownish-yellow colour. The florets of the disk are numerous, but those of the ray few; and the receptacle is covered with white silky hairs, shorter than the calyx. The botanist will recognise it from the above description, as belonging to the natural order *Compositæ*; in which it is a member of the *Corymbiferous* tribe.

The generic name of this plant is said to have been conferred by Queen *Artemisia*, a Carian princess, who adopted the plant, and changed the appellation from *Parthenis* to that of her own name. The knowledge and use of this herb is of high antiquity. The Egyptians made great use of it in their worship of Isis. Branches of it were carried by the priests of this goddess in their solemn and religious processions, when they recited in verse the arts which had been taught by this deity. The Romans also made use of wormwood in their solemnities and sacrifices, particularly during the festival called *Latinæ*; when those who gained the prize in the chariot race and other games, had the decoction of this herb presented to them to drink; which honourable reward was devised, according to Pliny, to secure the good health of the victorious charioteer, seeing that his success had rendered him worthy of long life.

The bitterness of this herb has been noticed in the sacred Scriptures; and we find wormwood mentioned, in a figurative manner, to express that "evil and bitter thing," the departure from God, and from his commandments; and also to represent the woe consequent thereon. We quote a few passages:—

Lest there should be among you man, or woman, or family, or tribe, whose heart turneth away this day to go and serve the gods of these nations; lest there should be among you a root that beareth gall and wormwood.—Deuteronomy xxix. 18.

Ye, who turn judgment into wormwood, and leave off righteousness in the earth.—Amos v. 7.

And the Lord saith, Because they have forsaken my law which I set before them, and have not obeyed my voice, neither walked therein; but have walked after the imagination of their own heart and after Baalim, which their fathers taught them. Therefore I will feed them, even this people, with wormwood, and give them water of gall to drink.—Jeremiah ix. 13, 14, 15.

The nauseous flavour of wormwood has caused it to be nearly discarded from modern use, although it is one

of our most powerful bitters. Its bitterness is derived from what is usually called extractive matter, and is retained by the decoction after long boiling. A pound of the herb yields about five ounces of this extract. The taste of the Romans must have been extremely different from ours, or they must have had such a supreme regard for their health as to take willingly what was repugnant to them, for Pliny tells us, that wormwood was, in his days, a common drink among the people, and held in high esteem. It was considered astringent and diuretic, and was said to prevent sea-sickness, and to create appetite. It was also given as a remedy for jaundice, mixed with honey and nitre for the cure of the quinsy; and as a fomentation for chilblains. The smell of the herb was thought to procure sleep to invalids. The ancients also put it into their ink to prevent mice from eating their writings; laid it in wardrobes to preserve their garments from the moth; and burnt it to drive away gnats. The ashes of the plant were mixed with oil of roses, and used to blacken the hair of the head.

All the old writers agree in saying, that the species of wormwood which grows on the sea-coast is very advantageous to cattle, and that sheep in particular, when fed on it, fatten very rapidly. "As we all know," says Phillips, "that the feeding on savoury herbs gives a relish to the flesh of animals, it is worthy the trial of those, who feed flocks on the coast, to sow a plot with this hardy plant. It may be raised upon any soil, either by seeds or slips in March, and the seeds ripen in August."

Wormwood is sometimes spoken of as an antispasmodic, and the older writers extol it as a vermifuge; but it deserves little attention at the present day in either of these characters. The French are fond of it, and spoil some of their excellent *liqueurs* with its flavour. The beverage, called *eau d'absinthe*, employed by gourmands to increase their appetite, is prepared from this plant, by the addition of alcohol, and subsequent distillation. Some of our publicans sell a liquor, called *peril*, which is said to be all seasoned with the tops of wormwood.

This herb should be gathered when in seed, as that is the time when its virtues most abound. Dr. Lewis thought, that the roots might be applied to some useful purpose; their virtue resides chiefly in the cortical part; and rectified spirits extract their flavour better than watery liquors. The oil of wormwood being rubbed on furniture, is said to prevent the attacks of insects. This oil is obtained by distillation, one hundred weight of the fresh herb yielding upon an average four ounces.

Before the hop had become so well known and highly prized, great use was made of wormwood in the composition of beer. When properly managed, the flavour given to malt liquor by this herb is said to be nearly equal to that of hops, and has been by some persons even preferred. For this purpose the plant is gathered when in seed, and hung up in small bundles to dry. When thoroughly dried, a certain quantity of good strong malt liquor is to be impregnated with it. This is set by for use, to add to the beer when brewed; agreeably to the taste, or the time it is required to be kept. This method is mentioned in the *Philosophical Transactions*, and it is also added, that the wormwood intended for this purpose should have its seeds carefully preserved in drying, and it is best when not used till the year after it is gathered. Perhaps it was from the above use of wormwood in the preservation of ale that a common species (*Artemisia vulgaris*) obtained the name of *Mugwort*. This species was also formerly called *Cingulum Sancti Johanni*, because it was foolishly imagined, that if a crown was made of this herb and worn upon the eve of St. John, (a time when many other superstitions were practised,) it would secure the person who should wear it and afterwards throw it into the fire, uttering certain words, from all diseases and misfortunes;

for the following year. Mugwort was also suspended over the doors of houses, to prevent evil from happening to the inhabitants; it was worn by travellers to save them from weariness during their journey; and was said to purify even a pestilential air. For this latter notion there seems some ground, since we are told by Philips, that a gentleman at the bar, to whom he recommended it, assured him that he had experienced its reviving qualities in heated courts, as being nearly equal to a change of air. Some persons are of opinion that the fabulous and superstitious notions concerning this plant, all took their origin in virtues which really exist in it; and that the custom of travellers to provide themselves with this herb arose from the relief it affords when used to bathe the feet that are weakened or galled by over exertion. The testimony of our modern Pharmacopias is, however, different from this; for it is expressly stated that as an external application, infusion of wormwood has no advantage over warm water.

There is a sort of wormwood, common in China, which furnishes the *masa* used by them as a caustery. This is a soft woolly substance, prepared from the young leaves of the plant by beating them when thoroughly dried, and rubbing them in the hands till the fine fibres only are left. A little cone of this substance is laid on a diseased part, previously moistened, and is then set on fire at the top. It thus burns slowly down, producing a dark spot on the skin, which ultimately sloughs and produces a scar. This mode of treatment is much used in Eastern countries.

Culpeper devotes a long astrological essay to the subject of wormwood, and is more than usually droll. We give a few extracts from him, as tending to illustrate the state of knowledge of the time in which he wrote.

I would willingly teach astrologers and make them physicians, if I knew how, for they are most fitting for the calling; if you will not believe me, ask Dr. Hippocrates and Dr. Galen, a couple of gentlemen that our College of Physicians keep to vapour with, not to follow. In this herb I shall give the pattern of a ruler, the sons of art rough cast, yet as near the truth as the men of Benjamin could throw a stone; whereby my brethren, the astrologers, know by a penny how a shilling is coined. As for the College of Physicians, they are too stately to learn, and too proud to continue. They say a mouse is under the dominion of the Moon, and that is the reason that it feeds in the night; the house of the Moon is Cancer; rats are of the same nature with mice, only they are a little bigger; Mars receives his fall in Cancer, *ergo*, wormwood being an herb of Mars, is a present remedy for the biting of rats and mice.

Wheals, pushes, black and blue spots coming either by bruises or beatings, wormwood, an herb of Mars, helps, because Mars (as bad as you love him, and as you hate him) will not break your head, but will give you a plaister. If he do but teach you to know yourselves, his courtesy is greater than his discourtesy.

Culpeper winds up his Essay thus:—

He that reads this and understands what he reads, hath a jewel of more worth than a diamond: he that understands it not, is as little fit to give physic. There lies a key in these words which will unlock (if it be turned by a wise hand) the cabinet of physic. I have delivered it as plain as I durst; it is not only upon wormwood as I wrote, but upon all plants, trees, and herbes; he that understands it not, is unfit, in my opinion, to give physic. This shall live when I am dead; and thus I leave it to the world, not caring a farthing whether they like or dislike it. The grave equals all men, and therefore shall equal me with all princes; until which time the eternal Providence is over me; then the ill tongue of a prating fellow, or one that hath more tongue than wit, or more proud than honest, shall never trouble me. Wisdom is justified by her children. And so much for wormwood.

Wit loses its respect with the good when seen in company with malice; and to smile at the jest which plants a thorn in another's breast, is to become a principal in the mischief.—SHERIDAN.

SOLUBLE GLASS.

SEVERAL ancient writers speak of a Roman architect who discovered the means of so far altering the nature of glass as to render it *malleable*; but the Emperor Tiberius, fearing lest the value of gold might be lowered by the discovery, caused the architect to be beheaded, and thus his secret died with him. A similar discovery is said to have been made in France, in the reign of Louis the Thirteenth. The inventor presented a bust formed of *malleable* glass to the Cardinal Richelieu, and was rewarded for his ingenuity by perpetual imprisonment, lest the French glass manufacturers should be injured by the discovery. In our own day a description of glass, perhaps more remarkable, and certainly far more useful than *malleable* glass, has been discovered by M. Fuchs, the curious properties and important applications of which we propose briefly to notice.

Soluble glass is a union of silica and an alkali which has, in addition to some of the properties of common glass, the property of dissolving in boiling water. The preparation of soluble glass does not greatly differ in its early stages from that of common glass, an account of the manufacture of which will be found in the third volume of this work, to which we refer the reader.

When sand and carbonate of potash are heated together, the carbonic acid is not entirely driven off, unless the sand be in excess, but the whole of the gas may be expelled by the addition of powdered charcoal to the mixture.

Carbonate of potash and pure sand being taken in the proportion of two to three, four parts of charcoal are added to every ten parts of potash and fifteen of sand. The charcoal accelerates the fusion of the glass, and separates from it all the carbonic acid, a small quantity of which would otherwise remain, and exert an injurious effect. In other respects the same precautions that are employed in the manufacture of common glass are to be observed. The materials must first be well mixed, then fritted, and finally melted at a high heat, until a liquid and homogeneous mass be obtained. This is removed by means of an iron ladle, and the glass pot filled with fresh frit.

The crude glass thus obtained is usually full of bubbles: it is as hard as common glass: it is of a blackish gray, and more or less transparent at the edges. Sometimes it has a whitish colour, and at others is yellowish or reddish, indicating thereby that the quantity of charcoal has been too small. Exposed to the air for several weeks, it undergoes slight changes, which tend rather to improve than injure its qualities. It attracts a little moisture from the air, which slowly penetrates its mass without changing its aggregation or appearance, except that it cracks, and a slight efflorescence appears at its surface. If after this it be exposed to heat, it swells up, owing to the escape of the moisture it has absorbed.

In order to prepare the glass for solution in water it must be reduced to powder by stampers. One part of the glass requires from four to five of water for its solution. The water is first boiled in an open vessel, the powdered glass is added gradually, and is continually stirred, to prevent its adhesion to the vessel. The boiling must be continued for three or four hours, until no more glass is dissolved. If the boiling be checked before the liquor has thus attained the proper degree of concentration, carbonic acid will be absorbed by the potash from the air, and produce an injurious effect. When the solution has acquired the consistence of syrup, and a density of 1.24, it is fit for use. It is then allowed to repose, in order that the insoluble parts may be deposited: while it is cooling a film forms on the surface, which after some time disappears, or may be dissolved by depressing it in the liquor.

Soluble glass being employed only in the liquid state, it is preserved for use in solution. No particular care is necessary to preserve the liquid, as, even after a long

space of time, it undergoes no perceptible change, if the solution have been properly prepared. The only precaution is not to allow too free an access of air to it.

Soluble glass may be prepared by using carbonate of soda, instead of that of potash. This glass has the same properties as the other, but is more valuable in its applications. The solutions of these two kinds of glass may be mixed in any proportion, and the mixture is sometimes more useful than either of the solutions separately.

The solution of soluble glass is viscid, and when concentrated becomes turbid or opalescent. The solution unites with water in all proportions. At a density of 1.28 it contains nearly 28 per cent of glass, and if the concentration be carried beyond this point, it becomes so viscid that it may be drawn out in threads like molten glass. When the solution is applied to other bodies, it dries rapidly in the air, and forms a coat like a varnish; a property which leads us to notice some of the numerous and varied applications of this curious preparation.

It is well known that all sorts of vegetable matter, such as wood, cotton, hemp, linen, paper, &c., are combustible, but in order to burn them, two conditions are necessary,—an elevated temperature, and free access of air to supply the oxygen necessary to their conversion into water and carbonic acid. When once inflamed their own combustion supplies the heat necessary to the chemical action, provided they be in contact with the air. If deprived of such contact, and made red-hot, they will yield inflammable volatile products, but the residual carbon will not burn, because deprived of air; and thus the combustion will cease of itself. Such is the property of all the fixed fusible salts, if they be composed of substances incapable of yielding their oxygen at a low red heat, either to carbon or hydrogen. Such salts melt as the vegetable matter becomes heated: they form upon it a coating impermeable by air, and either prevent or limit the combustion. The phosphate and borate of ammonia have such a character, but they are so readily soluble in cold water as to be liable to objections which are not found in soluble glass. This last-named substance forms a solid and durable coating, which suffers no change by exposure to the air (since soluble glass possesses the valuable property of being almost entirely unaffected by cold water): it does not involve any great expense, and is easy of application. But in order that it may not fail, particular care must be taken, both in preparing and employing it. To cover wood and other bodies with it the solution must be made of a pure glass, otherwise it would effloresce and fall off. But still a slight degree of impurity is not injurious, although after a few days a slight efflorescence will appear: this may be washed off by water, and will not occur a second time. When a durable coating is to be applied to wood, the first solution must not be too strong, for if it be it will not be absorbed: it will not displace the air from the pores, and consequently will not adhere strongly. A more concentrated solution may be employed for the after-coats, but each coat must be dry before another is applied, and the drying, in the most favourable weather, will occupy at least twenty-four hours. When the glass is made with potash the coating is liable to crack: this defect does not apply to glass made with soda.

Although soluble glass is of itself a good preservative from fire, yet it fulfils the object better when mixed with incombustible powders, such as those procured from clay, whiting, calcined bones, powdered glass, &c. In applying soluble glass to the woodwork of a public building at Munich ten per cent of yellow clay or yellow earth was added. After six months the coating had suffered but little change: it was damaged only in a few places where it had need of some repair. This arose from the very short time allowed for the preparation and application of the glass.

None of the methods hitherto proposed for making

cloth fire-proof appear so advantageous as the application of soluble glass, for it does not act upon vegetable matter, and completely closes the spaces between the threads: it fixes itself into the web in such a way that it cannot be separated, and increases the durability of the fabric. The firmness which it gives to stuffs does not injure them for use as curtains, because it does not prevent them from being rolled easily. The application of soluble glass to cloths is not a difficult operation, but still it is not so easy as might at first be supposed. It is not sufficient to coat or dip them in the solution: they still require after this operation to be subjected to pressure. M. Dumas suggests that this object might perhaps be best attained by passing them between rollers plunged in the solution. When a cloth is only coated with soluble glass, and put into the fire, it will remain incandescent after it is taken out. This is not the case when it has been properly impregnated with the solution. A still better purpose is answered in this case, when litharge has been added to the solution: the stuff in drying yields to the shrinking of the mixture, and becomes inseparable from it, which is the reverse of what happens when applied to wood. A single part of litharge in fine powder is sufficient for fourteen parts of concentrated liquor.

Soluble glass is capable of many other applications, and particularly as a cement: for this purpose it is superior to all those which have hitherto been employed for uniting broken glass, porcelain, &c. It may be used instead of glue or isinglass in applying colours, although when employed by itself it does not make a varnish capable of preserving its transparency when in contact with air.

A **PROUD** man is a fool in fermentation, that swells and boils over like a porridge-pot. He sets out his feathers like an owl, to swell and seem bigger than he is. He is troubled with a tumour and inflammation of self-conceit, that renders every part of him stiff and uneasy. He commits idolatry to himself, and worships his own image; though there is no soul living of his church but himself, yet he believes as the church believes, and maintains his faith with the obstinacy of a fanatic. He is his own favourite, and advances himself not only above his merit, but all mankind; is both Damon and Pythias to his own dear self, and values his crony above his soul. He gives place to no man but himself, and that with very great distance to all others, whom he esteems not worthy to approach him. He believes whatever he has receives a value in being his; as a horse in a nobleman's stable will bear a greater price than in a common market. He is so proud, that he is as hard to be acquainted with himself as with others; for he is very apt to forget who he is, and knows himself only superficially; therefore he treats himself civilly as a stranger, with ceremony and compliment, but admits of no privacy. He strives to look bigger than himself, as well as others; and is no better than a parasite and flatterer. A little flood will make a shallow torrent swell above its banks, and rage, and foam, and yield a roaring noise, while a deep silent stream glides quietly on; so a vain-glorious, insolent, proud man, swells with a little frail prosperity, grows big and loud, and overflows his bounds, and when he sinks, leaves mud and dirt behind him. His carriage is as glorious and haughty, as if he were advanced upon men's shoulders, or tumbled over their heads like Knipperdolling. He fancies himself a Colosse; and so he is, for his head holds no proportion to his body, and his foundation is lesser than his upper stories. We can naturally take no view of ourselves, unless we look downwards, to teach us what humble admirers we ought to be of our own value. The slighter and less solid his materials are, the more room they take up, and make him swell the bigger; as feathers and cotton will stuff cushions better than things of more close and solid parts.—**BUTLER.**

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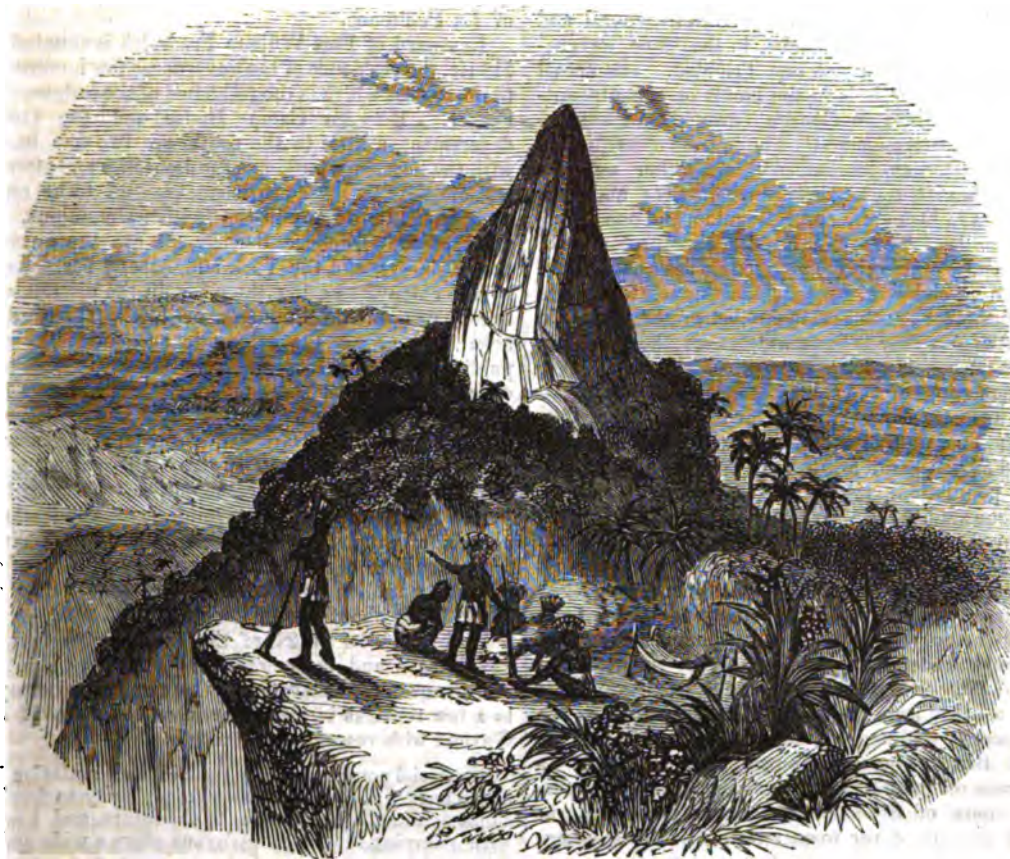
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BRITISH GUYANA



MOUNTAIN OF ATARAÏPU.

II. HISTORY OF BRITISH GUYANA.

WE must now endeavour to give a sketch of the history of British Guyana, in order to show the steps by which the British became possessed of land in this quarter.

In the year 1580 the Dutch attempted to form settlements along this coast, on the banks of the great rivers, and they established a factory or station, called *Nieuw Zeeland* at the mouth of the Pomeroon, with liberty from the States General of Holland to establish a trade there. The Spaniards, who possessed the neighbouring territory, viewed these proceedings with jealousy, and, aided by the natives, drove the Dutch from their settlement. The leader of the latter party, however, an enterprising man, named Joost Van Den Hoog, succeeded in gaining possession of a small island at the confluence of the rivers Massaroon and Cuyuni. A few years afterwards Jan Van Peere, a native of Flushing, made another attempt at colonizing, and after a few skirmishes with the Spaniards, established a party on the territory between the Berbice and Courantin rivers, where they were supplied by the Dutch government with slaves from Africa.

About the middle of the following century Charles

the Second made over to Lord Willoughby, governor of Barbadoes, the whole of this territory, although really possessed by the Dutch. The earl named it Surreyham, in honour of the earl of Surrey, a name afterwards altered to Surinam. We find, however, that such arrangements were subsequently made as confirmed the possession to the Dutch. In the wars which ensued, the colony was attacked and taken,—sometimes by the English, and sometimes by the French,—but re-captured by the Dutch. Towards the latter end of the century the colony was transferred to the Dutch West India Company, and the Government at home contracted to supply slaves from Africa at the rate of 250*l.* each! Such was the light in which traffic in human beings was regarded at that time.

In 1720 the proprietors of the colony, not having a sufficient capital for the cultivation of lands, made certain commercial arrangements in respect of shares, by which money was raised, and the farther improvement of the colony insured. Twenty years afterwards the settlers on the Essequibo, thinking that the low lands near the coast would be more advantageous, obtained permission to form a colony on the banks of the Deme-

rara, which they effected. The island of Borsden was named the seat of government; but Stobroek, now George Town, at the east point of the mouth of the river, afterwards superseded it.

From 1781 to 1814 a repeated series of changes took place in the possession of the colony, arising out of the hostilities between England, France, and Holland, the result of which was, that all that part of Guyana west of the river Courantin became the property of the British, the colony of Surinam remaining in the hands of the Dutch. The British territory comprised the colonies of Demerara, Essequibo, and Berbice, all three of which were, in 1831, united into one colony, called British Guyana, in which form it still remains.

British Guyana is now under a governor-general and commander-in-chief, who includes in the same government the islands of St. Lucia and Trinidad. The actual administration of affairs is in the hands of a lieutenant-governor, who resides in George Town, Demerara, assisted by a legislative council, including the chief-justice, high-sheriff, attorney-general, and ten other persons. Justice is administered by three chief-justices and four puisne judges in Demerara and Essequibo, and one puisne judge in Berbice. There are, besides, six "protectors of Indians," whose offices correspond to this designation, and also sixteen special justices, who were appointed on the passing of the act for the emancipation of the slaves, in 1834, and whose duty it is to watch over the execution of the law on behalf of the apprenticed slaves.

The population of the colony is nearly as follows,—or rather was so a short time previous to the commencement of the operation of the emancipation act. In Essequibo and Demerara, whites, three thousand; free coloured population, six to seven thousand; slaves, seventy thousand. In Berbice, whites, six hundred; free coloured people seventeen hundred; slaves, twenty thousand,—making, therefore, for the whole colony, about three thousand six hundred whites, seven or eight thousand free coloured, and ninety thousand slaves. The number of the negroes in respect of whom compensation was awarded, under the provisions of the emancipation act, was 69,579, and the portion of the twenty millions sterling, so nobly awarded by the British nation as the purchase-money for negro freedom, which was paid in respect of British Guyana amounted to 4,268,809*l*.

The towns of British Guyana are few. New Amsterdam, the capital of Berbice, was commenced building in 1796; the position of the former town Old Amsterdam, which was higher up the river Berbice, being found inconvenient. It is situated on the east bank of the Berbice, immediately above the junction with the Caujee river, where it is intersected by canals, and has all the advantages of the tides. It extends about a mile and a half along the Berbice, and each house has an allotment of a quarter of an acre, completely insulated by trenches. The government house is of brick, in the European style, and has been deemed the finest building in the colony. The other inhabitants of the district of Berbice are scattered in small villages a short distance up the river.

The capital of British Guyana is George Town, situated amidst dense foliage on the east bank of the river Demerara, about one mile and a half from a small fortification, built of mud and fascines, with two low platforms, and termed Fort William Frederick.

It has been remarked by Mr. Montgomery Martin, that if it were not for the tropical scenery around George Town, it might be mistaken for a Dutch city. Except close to the river, the houses, raised on supports, to prevent dampness, are widely scattered, built of wood after the Dutch style, with a *stoupe*, coloured according to the taste of the owners, surrounded by a garden and lofty trees, and separated from each other by canals, dykes, or mud embankments. The most ancient part of the capital, Stabroek, runs back from the river towards the

forest, consisting of two rows of houses, full a mile long, with a broad and shaded road between them, and a canal in the rear of each line of houses, communicating with the river. In consequence of the scarcity of fresh water, each house is provided with a large cistern, and pipes leading into it, for the preservation of rain water.

The barracks, hospitals, and public buildings evince the taste and munificence of the colonists, at whose cost they have been erected. George Town is divided into the following districts: Kingston, joining Fort William Frederick; Cumingsburgh, north and south; Vlissingen, which is subdivided into Rob's Town and Lacey's town; Stabroek, part of the old Dutch capital; also Eu, Rust, and Charles Town, which are bounded by the plantation of La Penitence.

Eastward of Fort William Frederick is situated Camp House, the residence of the governor, a few hundred yards to the east of which is the residence of the ordnance store-keeper. Between Camp House and the Ordnance department, a little to the south, are two fine hospitals, with the necessary buildings for domestics and attendants, and opposite to these are barracks, said to be equal in accommodation to any in the British Dominions. Eastward of the Ordnance department are the quarters of the engineers, and the York and Albany barracks, built by the colony. Facing the river, in the district of Stabroek, new public buildings of brick, stuccoed, have been erected by the colony to accommodate all the public officers. Near these buildings is the Scotch church, a very handsome modern structure, to the east of which are the town guard-house, &c.

The commerce of Guyana, so far as regards exports, is confined principally to sugar, rum, molasses, coffee, and cotton. Of these commodities, the quantity exported in 1836 was nearly as follows:—a hundred million pounds of sugar, three million gallons of rum, four million gallons of molasses, six million pounds of coffee, and half a million pounds of cotton,—the value of the whole being about two millions sterling.

Such is a brief sketch of the colony, with respect to government and commerce; and before we proceed to the topographical features of the country, we may refer to a few remarks by Mr. Martin on the state of British Guyana with respect to colonization.

The social condition of the mass of the population is now in too great a state of transition from slavery to freedom to admit of much speculation as to the future, and I conclude with observing that British Guyana offers a wide and fruitful area for the industry of the emigrant, the enterprise of the merchant, and the science of the geologist, and natural philosopher. Millions of acres of fertile land, now lying waste, are adapted to the cultivation of every tropical product of which the mother-country stands in need. Tobacco, cotton, opium, silk, pepper, rice, indigo, timber, drugs, dyes, and spices, may be raised and exported to an incalculable extent, with benefit to all who engage in these pursuits. Surrounded as British Guyana is by the continental possessions of France, Spain, Holland, Portugal, &c., it behoves the British nation to view with interest, and even anxiety, the progress of our colonial power on one of the most eligible spots of the American hemisphere.

The next article of this series will introduce us to the topographical beauties of the country

SUPPOSING the body of the earth were a great mass or ball of the finest sand, and that a single grain or particle of this sand should be annihilated every thousand years. Supposing then that you had it in your choice to be happy all the while this prodigious mass of sand was consuming, by this slow method, until there was not a grain of it left, on condition you were to be miserable for ever after; or supposing that you might be happy for ever after, on condition you would be miserable until the whole mass of sand were thus annihilated, at the rate of one sand in a thousand years; which of these two cases would you make your choice?—SWISS.

DRUIDICAL REMAINS IN ENGLAND.

THE rough and unhewn stone monuments found in many localities in England are generally attributed to the Druids, and with justice, for, as regards antiquity, all remains of a time prior to the nativity of our Saviour, are entitled to be so distinguished. It is almost impossible to assign any precise period for the erection of these curious structures, for, in fact, they were not all erected at one time; but still it must be evident to all that they were built by a people ignorant of architecture and sculpture, and, in all probability, of cemented walls; though this latter invention appears to have been known in very remote ages: however, we may safely say that they were erected as early as four or five hundred years before the Christian Æra.

Structures of this kind are in India known by the appellation of Pandoo Koolies, and a fabulous being named Pandoo, and his children, are believed to have been their authors; we find like erections also in many other parts of the globe, and to doubt for a moment of their having had the same origin would be absurd, as they all bear the same striking characteristics, whether they be in India, on the shores of the Mediterranean, in France, Denmark, in Sweden or Norway, or on the coast, or in the interior of our island.

The priesthood of the people, by whom these extraordinary structures were raised, are known by the name *Druids*, a term properly signifying *sacrifice under oaks*, for which trees they had much veneration, and from the remains of their temples, and their tenets and superstitions with which we are acquainted, we may infer with some degree of probability, that they were the descendants of a tribe of Brahmins, who at some distant period emigrated from the peninsula of India to the northern and western shores of Europe.

The structures of the aboriginal inhabitants of England seem to form themselves into the six following classes.

1. Single stones or pillars.
2. Temples and circles of stones.
3. Tolmens.
4. Cromlechs, or stones of sacrifice.
5. Logan, or rocking stones.
6. Cairns, or heaps of small stones.

The single stones which stand at the head of the above list, are evidently of patriarchal origin, and the earliest account of such erections is to be found in Genesis xviii., where Jacob we are told set up a pillar, anointed it, and called it *Bethel*, that is, *God's house*; but it is probable that pillars of this description were in use in Palestine many years previously, to commemorate remarkable events by a people ignorant of the use of letters; and, consequently we find them in the Scriptures also called *stones of memorial*. Among the early Greeks, pillars erected upon the centre of the tumulus or mound of earth raised over the body of the deceased, were their only sepulchral monuments: in the same manner, we read Jacob erected one to the memory of his beloved wife Rachel: the name given to these pillars by the Greeks was *Barvles*, which by some is considered a corruption of the word *Bethel*. In after years the upright pillars, or obelisks, were worshipped as typical of the *solar beam*, and some suppose the *round towers* of Ireland to have been built with the same view, though undoubtedly at a subsequent period. The most remarkable pillar of this description is one in the churchyard of the village of Rudstone on the Wolds, in the East Riding of Yorkshire, at no great distance from the coast: its height is about twenty-four feet above the ground; and, according to the account of Mr. Pegge, in the fifth volume of the *Archæologia*, its depth under ground is equal to its height above; its width is about six feet, and its thickness two feet six inches, the material is a coarse kind of rag-stone, and its weight is computed

at eighty tons. It appears more than probable that the village of Rhudstone derived its name from this pillar, *Rud*, or *Rhudd*, meaning both in the British and Saxon dialects *red*.

The first mention we find of a circle of stones is at the time when the children of Israel crossed the Jordan dryshod, and Joshua commanded one man of each tribe to take a stone from the bed of the river, and to set it up at the place where the ark was about to rest for the night; that they were arranged in a circular form is evident from the name Gilgal or Galgal which was given to the spot, *gal* being the Hebrew for a circle or wheel, the reduplication, according to the eastern custom, serving to give it eminence, that is to say, *The circle*.

However, these circles have reference to, and were used as, temples in the solar worship. The circle of nineteen stones at Boscawen, in Cornwall, might have referred to the lunar cycle, which consisted of nineteen years; circles of nineteen stones also occur in many other localities, and others of twelve and thirty, the former referring to the months, the latter to the days of the solar month; many circles of other numbers also occur; as to the number of stones composing which, but little light can be thrown at this present time, so far remote from the age of their construction. There is a circle of this description at Rollrich in Oxfordshire, and another near Keswick in Cumberland, of which the stones are only from two to six feet in height; those of Stanton Drew are from eight to twelve feet; but the most magnificent temples of this kind in England are those of Abury and Stonehenge. The temple of Abury is in the form of a serpent and orb, a figure we see so often repeated in the sculptures of the ancient Egyptians; and antiquaries are of opinion that it was dedicated to the worship of the serpent, as symbolical of the evil demon, a worship very prevalent in Egypt and the East: the number of stones composing this temple, was, according to Stukely, 652, among which there were two circles of twelve, and two of thirty stones, the length of the serpent is about two miles. There are also the remains of a temple of the serpentine form at Carnac, in Brittany, still surpassing Abury in magnificence, of which it is computed that as many as four thousand stones still remain. The immense block of which Abury was constructed, appears to have been brought from the neighbouring hills, and the whole edifice was formerly surrounded by a trench and mound.

Stonehenge, though less in magnitude than Abury, has from its position received a much greater share of notoriety*; it is situated on Salisbury plain, about eight miles from Salisbury, and, from the greater art displayed in its construction, appears to have been erected at a later period than that of the former temple. So many descriptions of this temple have appeared in print, that we will here confine ourselves to a comparative notice of the relative sizes of Abury and Stonehenge.

Number of stones at Abury . . .	652
Stonehenge . . .	140
Extent of Abury . . .	8750 cubits.
Stonehenge . . .	240

The largest of the stones of Abury is double that of the largest of Stonehenge in superficial measure; the stones of the outer circle of Stonehenge are as lofty as those of Abury, but much narrower.

We now come to the *Tolmen*, which signifies the *hole of stone*. This was either an immense stone passed upon the points of a rock, so as to admit of the passage of the body of a child, or, in some cases, of a man, or a huge portion of rock, with a passage bored through; anciently great effects were produced, or believed to be, by being passed through these apertures; and, in some parts of Cornwall at no very distant period, children afflicted with weakness in their limbs were passed through the apertures of the Tolmen

* See *Saturday Magazine*, vol. I., p. 185.

to be cured. There are two of these stone deities in the Scilly Islands, but the most remarkable is one situated in the tenement of Méu, in the parish of Constantine, Cornwall; it is a vast pebble of oval form, placed upon the points of two natural rocks; it is placed due north and south, and its longest diameter is thirty-three feet.

Cromlech is a name derived from the Hebrew, and signifies a devoted stone; they were used as altars for the sacrifice of human and other victims, and the northern countries they are denominated *blod*, that is, blood stones. The cromlech is generally a large oval stem supported upon others, and is to be met with in many places in Cornwall, Wales, and other spots in England and Ireland. One is in existence near the Kennel avenue of Abury, and another at Rollrich; but the one best known is that called Kit's Cotty-house on the downs between Maidstone and Rochester. Some antiquaries, however, suppose these stones to have been a distinct class from the altars, and to have been used for giving oracular responses, like those of Delphos and Dodona; and there is a tradition respecting the upper stone of a Cornwall cromlech, which was removed to serve as a bridge over a neighbouring brook, which gave to it the power of speech, but, at one time, when making an oracular effort it cracked, and has ever since been silent.

Logan, or rocking-stones, are, if possible, still more curious than any of the preceding classes; some of them are enormous masses of stone, placed upon the peaks of rocks, others are placed upon the level ground, and others again on rocky eminences, both on the coast, and in the interior; many of them vary from eighty to one hundred tons; but are yet so accurately poised as to vibrate upon the slightest pressure of the hand, or even a strong puff of wind. They were in all probability used as ordeals for the detection of criminals, the priests having sufficient dexterity to persuade the ignorant multitude that these stones were inspired by the deity. Mason alludes to this in his *Caractacus*:—

Behold yon huge
And unhewn mass of living adamant,
Which poised by magic rests its central weight
On yonder pointed rock.—Fixed as it seems,
Such are its strange and virtuous properties,
It moves obsequious to the slightest touch
Of him, whose breast is pure; but, to the traitor!
Although a giant's prowess nerved his arm,
It stands as firm as Snowdon.

The most celebrated Logan is one situated near the Land's End, Cornwall, which some years back was displaced by a Lieutenant Goldsmith, the commander of a revenue cutter, and some of his men; but in consequence of the general indignation excited in Cornwall in consequence of this mischievous frolic, it was replaced with much difficulty and labour by the same Lieutenant, and now rocks as before. It is an enormous block of granite, weighing between eighty and ninety tons.

Cairns. In many parts of the British Isles, and more particularly in Wales, Scotland, and Ireland, and also in other northern countries, are conical heaps of small, irregular stones, generally surmounted by a flat stone of larger dimensions; the name is derived by Rowland from the Hebrew *Kerew-Ned*, a *cooped heap*: they are sometimes sepulchral monuments, but more generally we believe as altars, upon which in olden times the fires were kindled in honour of Beal or Apollo on May Eve, and the other Druidical festivals, and in the Highlands of Scotland, and in some parts of Ireland May-day is still called *Bealtine*, or *La Bealtine*.

We have now briefly reviewed these extraordinary remains of the ancient Britons; but as the subject is one of great interest, we may possibly refer to it again.

CHARLES BARCLAY WOODHAM.

ON CHESS.

X. CHESS WRITERS AND PLAYERS, (continued.)



THE CHESS KNIGHT, AS DESIGNED BY FLAXMAN.

Then four bold Knights for courage famed and speed,
Each Knight exalted on a prancing steed:
Their arching course no vulgar limit knows,
Transverse they leap, and aim insidious blows;
Nor friends nor foes their rapid force restrain;
By one quick bound two changing squares they gain;
From varying hues renew the fierce attack,
And rush from black to white, from white to black.

SIR W. JOSEPH.

THE year during which Carrera's *Treatise on Chess* appeared, was productive also of the work of Gustavus Selenus. This is a fictitious name adopted by the author, Augustus, duke of Brunswick Lunenburg. This work which is a large quarto of 550 pages, was printed at Leipsig, in 1616. He appears to have been an indefatigable player: he has analysed with great perseverance and attention some of his favourite games; and he occasionally displays considerable skill in his deviations from the models laid down by other players. He strongly reproves several of Damiano's moves; but Sarratt is of opinion that the duke has committed the same mistake as Ruy Lopez in venturing to criticise a better player than himself.

A considerable portion of his work is occupied by a long and uninteresting description of the game called the Battle of Numbers, or Rhythmomachai.

It also contains some futile attempts to improve the game of chess; and, among these, there is one which is as remarkable as it is ridiculous. It is extracted from a work (deservedly consigned to oblivion), written in German verse by James Mennels, and published at Costentz in 1607. Mennels has favoured the world with many situations in which check-mate is effected by a pawn: some of these present a ludicrous appearance; one party having six, and sometimes seven queens; but it must be observed, that this same Mennels has deemed it meet to deprive the queen of her horizontal and perpendicular powers: he allows her to move only in a diagonal direction; so that supposing the king to be on his own square, if the adversary's queen, properly supported should take the king's bishop's pawn, giving check, the king by removing to his bishop's square, or to his own second square, will be secure from all danger! SARRATT.

Gustavus Selenus also mentions the method of playing the courier game as practised at Ströbeck, a village situated between Halberstadt and Brunswick, at a distance of about six miles from the former place; and celebrated for some centuries on account of its inhabitants being good chess-players.

The introduction of chess into this village, is due to the following circumstance:—Towards the end of the fifteenth century, a dignitary of the cathedral at Halberstadt was exiled to Ströbeck; and being deserted by his former friends, he became the more attached to the inhabitants of the village, who had received him so

Kindly that he was at a loss how to testify his gratitude. After much consideration he determined on teaching them the game of chess. He did so, and was delighted to find that they became partial to it, and made great progress in it. He soon felt amply rewarded for the trouble he had taken, for not only did they become proficient in the game, but it afforded him many opportunities of improving their morals and behaviour, which improvement became apparent in their intercourse with their neighbours. After some time, the exile was honourably recalled to his cathedral, and eventually became Bishop of Halberstadt. His prosperity did not make him forget his village friends—his Ströbeck, as he used to say—but on the contrary, he often went there and conferred many benefits on the community, amongst which he founded a free-school. A special injunction was laid on the masters of this school, to instruct all their pupils in chess, and to distribute prizes (consisting of chess boards and sets of pieces) at the end of every year, to the best players. In thus encouraging the game of chess, the worthy bishop had a higher object than mere amusement: he saw that by encouraging a game which draws so largely on the mental powers, his villagers would not be attracted by games of chance, nor injured by the vices and dissipations which accompany them. His object was happily gained; and we cannot but express a hope that ere long, the study of chess will be considered a necessary part of education, and, as such, introduced universally into schools of every description. It would be indeed delightful to see the same effect produced in our villages by the introduction of this game, as was witnessed at Ströbeck. The villagers devoted most of their leisure time to chess: the knowledge of the game became hereditary: mothers taught it to their daughters; fathers to their sons; the old men bequeathed the paternal chess-board to their children; there was an innocent emulation among families, each trying to surpass the other. The fame of Ströbeck extended throughout Germany, and many a chess player visited it to try his skill. It is said that the villagers generally proved victorious. After a time the evil custom of playing for money was introduced—the villagers grew vain of their skill, and wanted such a lesson as was given to them by the celebrated Silberschmidt, who visited them as a stranger, and agreed to play a match for a considerable sum of money. He vanquished their champion elect, and the villagers paid the money, but would not grant a certificate required by the conqueror attesting their defeat. "Take the gold," said they, "but leave us our glory." "Good people," replied Silberschmidt, "the money I have won from you I give to your poor and to your school; but on one condition, namely—you must swear that you will never more play for money. The noble science of chess carries its interest in itself; a single game won, is a treasure of satisfaction to the winner." The villagers took the oath, gave the certificate, distributed the money as was proposed, and never again staked any thing but their skill on the chess board.

Mr. Lewis visited this interesting village in 1831. He describes it as lying in a hollow about a mile from the high road, and containing about one hundred and twenty houses. Mr. Lewis walked to the village and introduced himself to the resident clergyman, whom he found an obliging and well educated man: the inhabitants were then in the fields gathering in the harvest, but a subsequent day was named for a trial of skill.

He informed me, (says Mr. Lewis,) that the game is still much played there, and that they have several strong players; though himself no player of the game, yet he is so persuaded of the advantage of cultivating it, that he encourages the children who attend the school, to practise it at proper times, and has succeeded in obtaining the grant of a small sum annually from the community, for the purchase of six chess boards and men to be given to the

best six players among the scholars, the number of whom amounts to forty-eight; the method of ascertaining who are the best is, in the first instance, to have two sets of tickets, each numbered from one to twenty-four; these are drawn by the boys; then the two ones, two twos, &c., &c., play together; those who lose go out, and the remaining twenty four draw numbers in a similar way, and so on, until only six winners remain, to whom the boards are given.

In part of the village public house, Mr. Lewis observed the sign of a chess-board in the wall; it was rudely made up of stone: in the public room were hung up three boards,—one the common chess-board, and the others larger for the use of those who play the courier game.

At his next visit, Mr. Lewis called on the syndic of the village, who accompanied him to the public house and showed him the old chess-board and men, which were kept carefully locked up.

The board is of large size, being above two feet square, including the border, which is about four inches broad; on the border is a representation of the village of Stropcke, (it is spelt thus,) but not in *bas relief*, according to Mr. Silberschmidt's account, but rather in rude Mosaic; there appear to have been at that time three towers or steeples in the village, two only of which now remain, the third having been taken down, and the building converted into a saw mill. According to an inscription on the board, it appears to have been presented to the village by the Elector of Brandenburg, on the 13th of May 1651; on the other side, the board is divided into ninety-six squares, (twelve by eight,) this is intended for the courier game, which is played with the usual chess-men, to which are added for each player, four pawns, two couriers, a man and a fool, which last two are now called state counsellors.

The said elector also made them a present of two sets of chess-men, one of ivory, and the other of silver, half of which were gilt; the latter set is lost, having been lent to the dean and chapter at Halberstadt, who forgot to return them; this occurred so long since, that no one now living recollects having seen them: the ivory set is much too small for the board; the pieces are in tolerable preservation, and have nearly the same shape as those commonly played with; the upper part of the bishop, instead of being shaped like a mitre, has the form of a scoop. They have only two works on chess, one of them an imperfect copy of Gustavus Selenus, the other Koch's *Codex der Schachspielkunst*, in two volumes; the former they have had a long time; the latter was presented to them some years since by their present worthy pastor.

Mr. Lewis played three games of chess with one of the villagers of Ströbeck, and won them all. He considered his antagonist a weak player, and, from what fell in course of conversation, doubted whether there are any players in Ströbeck to whom a first rate player could not give a knight.

One of the most distinguished players that we have next to notice in the order of time is Gioachino Greco, commonly called the Calabrian, from Calabria, the place of his birth. He was of very low extraction; but having accidentally learned the game of chess, he improved so rapidly, that Don Mariano Marano, a celebrated player, being informed of his aptitude for chess, received him into his house, and treated him as one of his family; and under his tuition, Greco soon improved so much as nearly to equal his master. Bayle speaks of him in these terms:—

Greco played at chess so skilfully that it cannot be thought strange that I consecrate to him a little article. All those who excel in their profession to a certain degree, deserve that distinction. This player did not find his match anywhere. He went to all the courts in Europe, and signalized himself there at chess in a most surprising manner. He found famous players at the court of France, such as the Duke of Nemours, M. Arnaud, Chaumont, and La Salle; but though they pretended to know more than others, none of them were able to play with him, nor could they cope with him altogether. He was at chess a bravo, who sought in all countries some famous knight with whom he might fight and break a lance, and he found none whom he did not overcome.

Mr. Lewis (whose edition of Greco is the best) thinks this is certainly an exaggerated account of Greco's skill; but his work exhibits so much skill and ingenuity, and abounds with so many brilliant and instructive situations, that we know of no more fascinating work for the student in chess:—

It does not often happen (says Mr. Lewis), that Greco's method of attacking can be much improved, for in that part of the game he is eminently skilful, but the like praise cannot be given to his system of defence; it must, indeed, be evident that, as most of his games are won by brilliant moves, the defence is necessarily imperfect.

There have been many editions of Greco's work. The first English edition was published in London, by Herringman, in 1656, and is very imperfect. In 1750 appeared an edition, "so contrived that any person may learn to play in a few days without any further assistance." On this assurance, Mr. Lewis very properly remarks:—

Let not any one be led, by this promising title, to suppose that so difficult a game as chess is to be learned in a few days; considerable practice is necessary to form even a moderate player, but to become a first-rate player, genius and much study are indispensable requisites.

Greco died in the East Indies at an advanced age and bequeathed all his property to the Jesuits.

In 1672 was published "The famous game of chesse-play, being a princely exercise, whereby the learner may profit more, by reading of this small book than by playing of a thousand mates." The author of this book, one Arthur Saul, introduces some doggerel verses laudatory of his game:—

All you that at the famous game
Of chesse desire to play,
Come and peruse this little booke,
Wherein is taught the way.

The hidden slights to understand
That no man yet hath shonne,
Which other authors speak not of
And still remained unknown.

Even all things that concern this game,
And may thee excellent make,
Therein was cause that me did move
This paines to undertake.

&c. &c. &c.

Among his rules and laws of the game is the following advice:—

Doe not at no time that thou playest at this game (out of a conceit as I said, that anything becomes thee well) stand singing, whistling, knocking or tinkering, whereby to disturb the minde of thy adversary, and hinder his projects; neither keepe thou a calling on him to playe, or hastening of him thereunto, or a shewing of much dislike that hee playeth not fast enough; remembering with thyselfe, that besides that this is a silent game, when thy turne is to play, thou wilt take thy owne leasure; and that it is the royall law so to deal with another, as thyself wouldst be dealt withall.

PREJUDICE is an equivocal term; and may as well mean right opinions taken upon trust, and deeply rooted in the mind, as false and absurd opinions so derived, and grown into it.—HURD.

We find this great precept often repeated in Plato, *Do thine own work, and know thyself*; of which two parts, both the one and the other generally comprehend our whole duty, and consequently do each of them complicate and involve the other; for he who will do his own work aright, will find that his first lesson is to know himself, and he who rightly understands himself, will never mistake another man's work for his own.—MONTAIGNE.

The maxim, "*in vino veritas*—a man who is well warmed with wine will speak truth," may be an argument for drinking, if you suppose men in general to be liars; but, sir, I would not keep company with a fellow, who lies as long as he is sober, and whom you must make drunk before you can get a word of truth out of him.—JOHNSON.

CHRISTIAN CONSOLATION ON THE DEATH OF FRIENDS.

It has been said, and I believe,
Though tears of natural sorrow start,
'Tis mixt with pleasure when we grieve
For those the dearest to the heart,
From whom long-loved at length we part;
As by a Christian's feelings led
We lay them in their peaceful bed.

Yet speak I not of those who go
The allotted pilgrimage on earth,
With earthborn passions grovelling low,
Enslaved to honour, avarice, mirth,
Unconscious of a nobler birth:
But such as tread with loftier scope
The Christian's path with Christian hope.

We grieve to think that they again,
Shall ne'er in this world's pleasure share:
But sweet the thought that this world's pain
No more is theirs; that this world's care
It is no more their lot to bear.
And surely in this scene below
The joy is balanced by the woe.

We grieve to see the lifeless form,
The livid cheek, the sunken eye:
But sweet to think corruption's worm
The living spirit can defy.
And claim its kindred with the sky.
Lo! where the earthen vessel lies!
Aloft the unbodied tenant flies.

We grieve to think, our eyes no more
That form, those features loved, shall trace
But sweet it is from memory's store
To call each fondly-cherished grace,
And fold them in the heart's embrace.
No bliss 'mid worldly crowds is bred,
Like musing on the sainted dead!

We grieve to see expired the race
They ran, intent on works of love:
But sweet to think, no mixture base,
Which with their better nature strove,
Shall mar their virtuous deeds above.
Sin o'er their soul has lost his hold,
And left them with their earthly mould!

We grieve to know that we must roam
Apart from them each wonted spot:
But sweet to think, that they a home
Have gained; a fair and goodly lot,
Enduring, and that changeth not.
And who that home of freedom there
Will with this prison-house compare?

'Tis grief to feel, that we behind,
Severed from those we love remain:
'Tis joy to hope, that we shall find,
Exempt from sorrow, fear, and pain,
With them our dwelling-place again.
'Tis but like them to sink to rest,
With them to waken and be blest.

O Thou, who form'st thy creature's mind
With thoughts that chasten and that cheer,
Grant me to fill my space assigned
For sojourning a stranger here
With holy hope and filial fear.
Fear to be banished far from Thee,
And hope thy face unveiled to see!

There before Thee, the Great, the Good,
By angel myriads compassed round,
Made perfect "by the Saviour's blood,
"With virtue clothed, with honour crowned,
"The spirits of the just" are found:
There tears no more of sorrow start,
Pain flies the unmolested heart,
And life in bliss unites whom death no more shall part.

[BISHOP MANT'S *British Monks*.]

FRESH-WATER FISH. III.
THE TROUT. (*Salmo fario*, Linn.)

Should you lure
From his dark haunt, beneath the tangled roots
Of pendant trees, the monarch of the brook,
Behoves you then to ply your fittest art.
Long time he, following cautious, scans the sky;
And oft attempts to seize it, but as oft
The dimpled water speaks his jealous fear.
At last, while haply o'er the shaded sun
Passes a cloud, he desperately takes the death,
With sullen plunge. At once he darts along,
Deep-struck, and runs out all the lengthened line;
Then seeks the farthest ooze, the sheltering weed,
The cavern'd bank, his old secure abode;
And flies aloft, and flounces round the pool,
Indignant of the gulls. With yielding hand,
That feels him still, yet to his furious course
Gives way, you now retiring, following new
Across the stream exhaust his idle rage:
Till floating broad upon his breathless side,
And to his fate abandon'd, to the shore
You gaily drag your unresisting prize.—ТРОУТ

THIS beautiful fish is much prized and sought after, not only on account of the skill and patience required for its capture; for the trout, says Isaac Walton, "is more harp-sighted than any hawk, and more watchful and timid than your high-mettled merlin is bold;" but also on the estimation in which it is held as an article of food: "he may justly contend with all fresh-water fish, as the mullet may with all sea-fish, for precedence and faintness of taste; and that, being in right season, the most dainty palates have allowed precedence to him."

The trout is known among ichthyologists as the yellow ray salmon with red spots, having the under jaw somewhat longer than the upper. It varies in appearance, according to the locality in which it is found; so much so as to induce the belief that several species exist. Mr. Yarrell thinks it probable that more than one species of the common trout may exist in this country; but considering the various geological strata traversed by rivers in their course, the effect these variations of soil must produce upon the water, and the influence of the water on the fish,—remembering also the great variety of food afforded by different rivers, and the effect which these causes in various degrees are likely to produce,—we need not be surprised at the variations both in size and colour which are found to occur. In the midland counties, where the trout thrives according to its habit of feeding, and the nature of its food, its figure is subject to slight variations; but the greatest variety is to be found in the length both of its ground colour, and spots. Its general length is from twelve to about sixteen inches; its weight quite uncertain. Occasionally it has been taken of ten and twelve pounds weight, and sometimes more; but as Mr. Blaine remarks, "a four or five pounds' trout is considered a very good sized fish, and one more often sought for than taken." Its colour is yellowish gray, darker or browner on the back, and marked on the sides by several rather distant, round bright red spots, each surrounded by a tinge of pale blue gray. Sometimes the ground colour of the body is a purplish gray, the red spots much larger, more or less mingled with black, and the belly of a white or silvery cast. The fins are of a pale purplish brown, the dorsal fin marked with several darker spots: the head is rather large, the scales small, and the lateral line straight. The female fish is of a brighter and more beautiful appearance than the male.

The trout seems to appreciate the slightest changes in the weather, and shifts its ground with variations in temperature. Nothing can surpass the quickness of its expressive eye; which is assisted by what may be termed a sensibility of feeling, which enables it to detect the slightest agitation of the water. A shadow moving over the stream, the footstep of the passenger along the bank, and every similar trifles do not escape the notice of the trout. This is one reason why trout-fishing is so favourite a

sport; skill, not strength, is required; so that those who love a quiet employment among the retired and beautiful scenes of nature, will continue to throw their line amid the sunny nooks which Walton describes so well:—

Turn out of the way a little, good scholar! toward yonder high honeysuckle hedge; there we'll sit down and sing, whilst this shower falls so gently upon the teeming earth, and gives yet a sweeter smell to the lovely flowers that adorn those verdant meadows.

Look! under that broad beech tree I sat down, when I was last this way a fishing; and the birds in the adjoining grove seemed to have a friendly contention with an echo, whose dead voice seemed to live in a hollow tree near to the brow of that primrose hill. There I sat viewing the silver streams glide silently towards their centre, the tempestuous sea; but sometimes opposed by rugged roots and pebble-stones, which broke their waves, and turned them into foam. And sometimes I beguiled time by viewing the harmless lambs; some leaping securely in the cool shade, whilst others sported themselves in the cheerful sun; and saw others craving comfort from the swollen udders of their bleating dams. As thus I sat, these and other sights had so fully possessed my soul with content, that I thought as the poet has happily expressed it,

I was for that time lifted above earth,
And possessed joys not promised in my birth.

We have said that the appearance of the trout varies according to the locality in which it is found; and these variations depend for the most part on difference of soil and of food. That trout should differ within a limited locality is not so easily explained. Mr. Yarrell suggests that a close examination of those parts of the fish which afford the most permanent characters should be made in order to determine whether the subject ought to be considered only as a variety, or be entitled to rank as a distinct species. In some of the lochs of Scotland, great variation has been observed in the trout according to the quality of the water. In some of them, where the water is clear, the fish are reddish or silvery: in others, where the loch receives the drainings from boggy moors, they are nearly black, and of small size. The most brilliant and beautiful trout are generally found in streams that flow rapidly over gravelly or rocky bottoms. They are finest in appearance and flavour from the end of May till towards the end of September: an effect produced by the greater quantity and variety of nutritious food obtained during that period. An experiment was made some years ago, to ascertain the relative value of different kinds of food, which is thus related by Mr. Stoddart:—

Fish were placed in three separate tanks, one of which was supplied daily with worms, another with live minnows, and a third with those small dark-coloured water-flies which are found moving about on the surface, under banks and sheltered places. The trout fed on worms grew slowly, and had a lean appearance; those nourished on minnows, which, it was observed, they darted at with much voracity, became much larger; while such as were fattened upon flies only, attained, in a short time, prodigious dimensions, weighing twice as much as both the others together, although the quantity of food swallowed by them was in nowise great.

The spawning time of the trout, according to Sir Humphry Davy, is from the middle of November till the beginning of January; their maturity of roe depending upon the temperature of the season, as well as on the nature and quantity of their food. Mr. Blaine has observed, that the largest individuals of the species spawn the first. At the close of September they quit the deep water to which they had retired during the latter part of Summer, and make great efforts to gain the source of the currents: "he will get" as Walton says, "almost miraculously, through weirs and floodgates against the streams; even through such high and swift places as is almost incredible;" and having got to the end and sides of a stream, or the gravelly bottoms of lakes not yet destitute of weeds, they make beds, and deposit their ova therein.

At the spawning time the trout should not be taken: a remark which applies generally to all fish; their flesh is then insipid, and they afford but little or no sport. At other times, when the trout is in good condition, the head is small, and the body oval, the flesh of a deep red, and the general colour that of a deep olive above, and of a bright silver below: the spots are also brilliant and distinct. "A hog-back and a little head to either trout, salmon, or any other fish, is a sign that that fish is in season," is Walton's homely rule.

Sir Humphry Davy says that the red hue of trout, salmon, and char, is to be attributed to a peculiar coloured oil, and that the colour may be extracted by alcohol. This, perhaps, will account for the decrease in the red colour of trout, when they are emaciated by spawning, or when they inhabit waters that are not suited to them.

The weight and dimensions of this fish are, as we have said, subject to much variation. Some remarkable instances are recorded of very large individuals of the species being caught. One was taken on the 11th of January, 1822, in a little stream ten feet wide, branching from the Avon, at the back of Castle-street, Salisbury, whose weight was twenty-five pounds. Mrs. Powell, at the bottom of whose garden the fish was first discovered, placed it in a pond, where it was fed: it lived four months, and at the time of its death it had decreased in weight to twenty-one pounds and a quarter. A trout was taken in September, 1832, in the neighbourhood of Great Driffield, which measured thirty-one inches in length, twenty-one in girth, and weighed seventeen pounds.

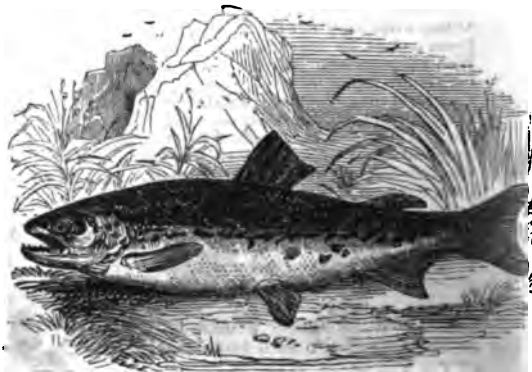
In its habits the trout is solitary and predacious. It avoids man; although there are instances in which it has lost much of its wildness by domestication. Mr. Daniel relates an anecdote in proof of the familiarity of the trout. He says:—

The garrison of Dumbarton Castle, in Scotland, was [in 1808] thrown into general lamentation by the sudden loss of its *oldest veteran*, who had served therein, a general favourite of the various regiments who annually change their quarters, while he remained on permanent duty, without any alteration in rank or condition, for the long period of twenty-eight years. He was, however, always deemed an odd fish, being neither more nor less than a trout, which having been caught by an officer in the river Leven, was brought alive and put into the garrison well, that flows to the surface, where in time it became so tame as to receive its food of bread, &c., from the hands of the soldiers, in the water. When first taken it weighed little more than a pound, and (from the quality of water, as is supposed,) it never afterwards increased in size. The loss of this extraordinary favourite, was, we are told, much regretted by those who compose the present garrison of Dumbarton Castle, and will probably be so by many others, who in former years have been equally diverted by the pleasing intercourse with their aquatic comrade.

The sensitive nature of the trout makes it very choice in the quality of its pasture, and causes it to be affected by any impurity to which its haunts may be subjected. It cannot endure salt-water, and any mineral impregnation is also unfavourable to it. A few lumps of lime thrown into a pool will soon destroy all the trout contained in it; they depart also from the brooks which flow through fields which are manured with lime. They die in the water in which flax is steeped, and the drainage of a mine is often sufficient to banish all the trout from a considerable stream.

In Ireland the gillaroo or gizzard trout is much esteemed. They are found in the Irish lakes, such as those of Galway, and are particularly remarkable for the great thickness of their stomachs, which bearing some slight resemblance to the organs of digestion in birds, are called gizzards. Their food is chiefly shell-fish and snails, but they rise readily at a fly. In Canada there are trout of an enormous size, some of them, according to Mackenzie, measuring five feet in length; yet of a delicate flavour. In Lake Superior, trout have been taken of fifty pounds' weight.

The trout should be cooked, if possible, on the day on which it is caught, and be kept as cool as possible until everything is ready for cooking. A large handful of salt must be put into a kettle of water, and when this boils the fish is to be put in. A trout of about a pound weight will be properly cooked in about ten minutes. It should be served up immediately, and eaten with mustard and vinegar only.



THE TROUT

PRESENT time and future may be considered as rivals; and he who solicits the one, must expect to be discountenanced by the other.—REYNOLDS.

EVERY man is rich or poor, according to the proportion between his desires and enjoyments. Of riches, as of everything else, the hope is more than the enjoyment; while we consider them as the means to be used at some future time for the attainment of felicity, ardour after them secures us from weariness of ourselves, but no sooner do we sit down to enjoy our acquisitions than we find them insufficient to fill up the vacancies of life. Nature makes us poor only when we want necessaries, but custom gives the name of poverty to the want of superfluities. It is the great privilege of poverty to be happy unenvied, to be healthy without physic, secure without a guard, and to obtain from the bounty of nature what the great and wealthy are compelled to procure by the help of art. Adversity has ever been considered as the state in which a man most easily becomes acquainted with himself, particularly being free from flatterers. Prosperity is too apt to prevent us from examining our conduct, but as adversity leads us to think properly of our state, it is most beneficial to us.—JOHNSON.

A MAN who has been brought up among books, and is able to talk of nothing else, is a very indifferent companion, and what we call a pedant. But we should enlarge the title, and give it to every one that does not know how to think out of his profession and particular way of life. What is a greater pedant than a mere man of the town! Bar him the play-houses, a catalogue of the reigning beauties, and you strike him dumb. The military pedant always talks in a camp, and in storming towns, making lodgements, and fighting battles from one end of the year to the other. Everything he speaks smells of gunpowder; if you take away his artillery from him, he has not a word to say for himself. The law pedant is perpetually putting cases, repeating the transactions of Westminster-hall, wrangling with you upon the most indifferent circumstances of life, and not to be convinced of the distance of a place, or of the most trivial point in conversation, but by dint of argument. The state pedant is wrapt up in news, and lost in politics. If you mention either of the sovereigns of Europe, he talks very notably; but if you go out of the gazette, you drop him. In short, a mere courtier, a mere scholar, a mere anything, is an insipid, pedantic character, and equally ridiculous.—*The Spectator*.

LONDON:

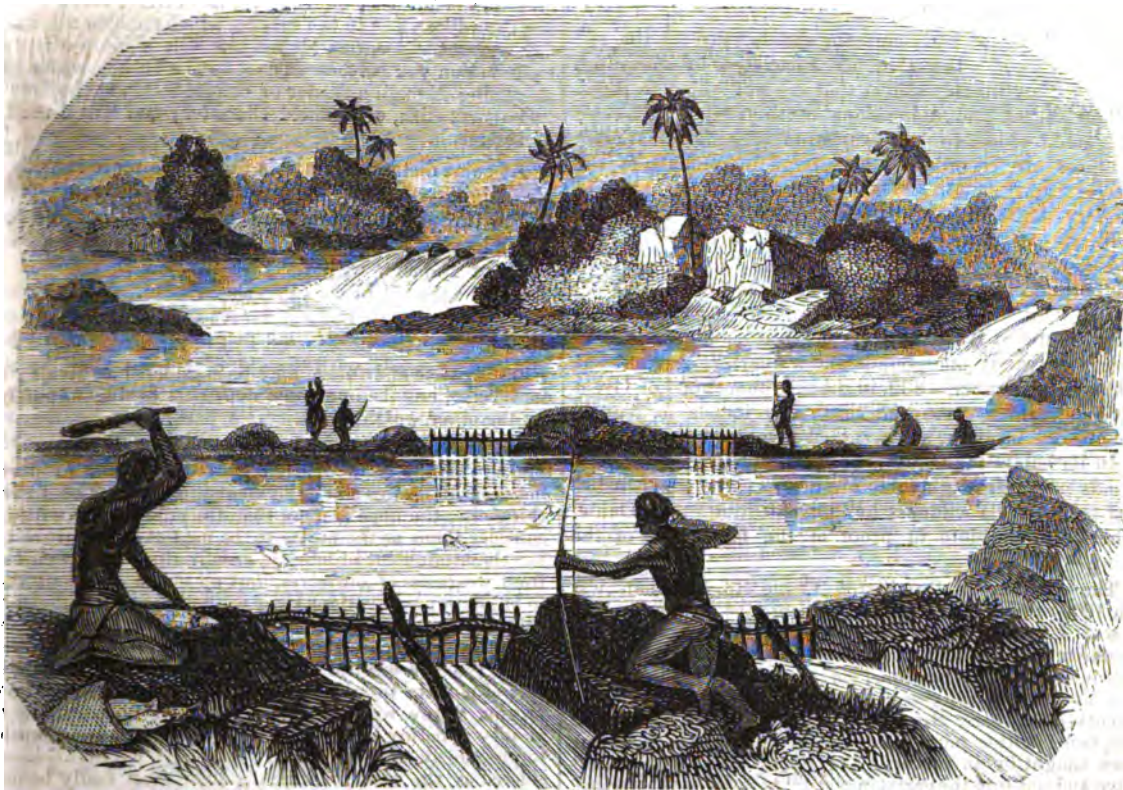
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BRITISH GUYANA.



VIEW ON THE MASSAROONY, WITH NATIVES FISHING.

III. VOYAGE UP THE MASSAROONY RIVER.

HAVING, in our first article, given an outline of Guyana, in its whole extent, and in the second a sketch of the historical and political events which have brought British Guyana to its present state, together with a notice of the seat of government, &c., we proceed to visit the interior of the country.

It is a fact observable in all infant colonies, that the banks of the rivers, as well as the sea-shore, become the parts first settled; and the object of this arrangement is sufficiently obvious. One consequence of this is, that if we follow the course of the principal rivers, we shall meet in succession with most of the objects worthy of notice. We shall adopt this plan on the present occasion. British Guyana comprises the three provinces of Essequibo, Demerara, and Berbice, named from three rivers bearing those appellations; and nearly all the settlements, except those inhabited by the native Indians, are situated on the banks of these rivers. We will begin with the Essequibo.

The Essequibo empties itself into the Atlantic by a mouth fourteen miles wide; but this is separated into four channels, by three low islands, one of which is seven miles in length. These islands, as well as many others near the mouth of the river, are covered with sugar plantations. For more than thirty miles the river is eight miles in width, and is described as appearing almost like a lake studded with numerous wooded islands, bounded on either side by a dense and almost impenetra-

ble forest, rich in all the exuberant verdure of a fruitful soil under a tropical sun. We soon arrive at the point where the united rivers of the Cuyuni and the Massaroonny fall into the Essequibo. We will turn into the latter river, and after tracing its course, return to the Essequibo.

Mr. Hillhouse voyaged up the Massaroonny some years ago, and was joined by another gentleman, and the two hired a canoe and a small hunting boat, which they manned with twenty-three Indians. They took with them, besides articles for their own use, various others with which to purchase the good will of the natives, such as beads, needles and pins, razors, looking-glasses, &c. The provisions consisted of rum, sugar, salt, hams, rice, butter, biscuit, salt fish, and other articles.

The lower part of the course of the river is divided into ten or twelve channels, by innumerable islands stretching parallel to the banks. Here too are a number of rapids, which are ascended by the natives in their canoes thus:—The rapids do not fall in one sheet over a level ledge, but force themselves through a number of fissures, large intermediate blocks of granite dividing the different shoots of the fall. At the base of these blocks is an eddy, into which the canoe is forced, where it becomes stationary, having no current either way. The crew now spring upon the rock, and wade as far up as they can find footing. By means of a long and stout rope they then pull the canoe into one of the shoots of the fall, where there is water enough to float

her, and by main strength haul her up the ascent. They then take her out of the current, and lay her stern against the top of the rock, from whose bottom they have just mounted, with her head right up the stream, and at a given signal they spring into her, and, pulling with all their strength, endeavour to cross diagonally the different currents till they get into another eddy. This is the time of greatest danger in ascending, for if the men are not active in seizing the paddles, the head of the canoe is taken by the current, and she drifts broadside down the fall, where she must be inevitably upset.

Mr. Hillhouse's party ascended numerous rapids by such means as these,—voyaging during the day, from seven o'clock till about four, and forming a bivouac on land during the night, under tents formed of sail-cloth. Whenever a party of friendly Indians was encountered the travellers purchased cassava bread, or any other provisions which happened to be attainable. It was found that the natives had a very curious mode of catching fish, by driving them to the surface as an escape from the effects of a vegetable thrown into the water. A kind of vine, called the *hai-arry*, has a root about two inches in diameter, filled with a narcotic gummy milk. The natives beat the root with heavy sticks, till it is shredded like coarse hemp: they then immerse it in water, which speedily becomes whitened with the juice. This infusion is then thrown on the surface of the river, and in about twenty minutes every fish at that spot rises to the surface, where it is either taken by hand or shot with arrows. A cubic foot of the root will produce this effect over an acre of water; and what is remarkable, the fish are not found to be deteriorated in quality by this proceeding. A fish called the *pacou*, averaging seven pounds in weight, is captured by these means, aided by the following: when the natives find a part of the river abundantly supplied with this fish, they enclose it with a wall of loose stones, a foot above the surface of the water, leaving two or three spaces about ten feet broad, for the fish to enter. For these spaces they prepare wooden hurdles, and about two hours before day-break they proceed silently to stop the apertures with them. The fish are thus enclosed in a temporary pond, which is inspected at day-break, and an infusion of *hai-arry* is poured on the surface of the water.

Mr. Hillhouse and his companions found it quite a relief when, after having proceeded for many days up the river, they got rid of the innumerable islands, rapids, and falls, and came to a spot where the river presented an open and placid aspect. It appeared like an inland lake, and at a distance of sixty miles was discerned the summit of a mountain called Arthur's Table, five or six thousand feet in height. The migratory habits of the Accaway Indians, who inhabit this region, were strikingly exemplified during the voyage: a populous village one year is often totally deserted the next, and the inhabitants some hundred miles away. In 1830 Mr. Hillhouse had met with an Indian settlement, consisting of about two hundred persons, and when he visited the same spot in 1831, with the hope of obtaining a supply of provisions, he found the place wholly deserted.

When they had been twenty-six days on the river our travellers came to the fall of Macrebah, on the Corolung creek, which empties itself into the Massaroony.

The features are so totally dissimilar (says Mr. Hillhouse) to those which are generally described as beautiful and romantic, that I can only state, whatever was the cause, my chief sensation was an oppression of the senses, from which I was glad to escape. In the first place, the water of the creek, though perfectly transparent, is a deep chocolate colour, and the sands are reflected in it, of a bright claret or purple. The creek winds about in the most opposite directions, and at every turn a large and bold spit of white sand projects, which contrasts most unpleasantly with the surrounding water. There is uniformly no middle ground for the landscape; but from the dark and still creek, with

its uniform fringe of trees, starts up, as if by magic, a perpendicular cliff, of one thousand or fifteen hundred feet height, which you know is distant, but which you feel as if in your most dangerous proximity; and as you see all around you detached masses, apparently torn from these gigantic walls of nature, you expect every moment to see one of them blocking up the creek before you, or cutting off your retreat. Every two or three hours you come to an immense block of granite, to pass which you have a channel barely wide enough for your craft: then the channel widens to one hundred and fifty yards, and you are in a claret-coloured lake, so shallow that you can scarcely swim. At the very last you enter a capacious basin, as black as ink, surrounded by a bold extensive sand, as white as chalk, and you hear a fall of water before you, but perceive no current, though there is a foam like yeast on the surface, which remains the whole day without any visible alteration. On a more attentive examination you perceive at a distance a broken white line, struggling through a cluster of granite rocks, at the base of two quartz cliffs, of a mixed character; and this is the fall of Macrebah.

At some distance from this fall is one more considerable height,—that of Coomarrow, the body of water falling through the immense depth of six hundred feet. After leaving this fall Mr. Hillhouse fell in with a large party of Indians, with forty or fifty boats, engaged in fishing by the aid of the narcotic infusion. Men, women, and children, with bows and arrows, knives, and nets, were chasing the intoxicated fish in all directions. Mr. Hillhouse himself, with the aid of one man and a net, captured a hundred and fifty-four fish, averaging four or five pounds' weight each. The party then landed, and employed themselves for two days and nights in smoking and curing the fish, by which they obtained an abundant supply for the remainder of their journey. The natives of the surrounding districts brought abundance of yams and cassava bread, which the travellers willingly purchased.

Here the travellers were within two days' ride of the sources of the Massaroony, but as the rainy season was about to commence, the party returned. The mode in which these regions are inhabited may be inferred from an answer given by the natives to Mr. Hillhouse, who asked whether the mountains were inhabited. They replied, "No: where would the people get water?" It appears then that the scanty population are to be found only near the creeks which fall into the large rivers.

The natives here alluded to are generally very inoffensive in their behaviour, though in a very low stage of civilization. Sir J. E. Alexander, while going up the river, saw a family of natives crossing it in their log canoe: he paddled after them, and landed under some locust-trees, where he found a native settlement. The logies were sheds, open all round, and covered with the leaves of the trooly palm, some of them twenty-four feet long; and suspended from the bamboo timbers of the roof were hammocks of net-work, in which the men were lazily swinging. One or two of those who were awake were making arrow-heads out of hard wood. The men and children were entirely naked, with the exception of a cloth round the loins, but the women had blue petticoats and braided hair. They were employed in scraping the root of the cassava tree into a trough of bark: the shreds are then put into a long press of matting, and the poisonous juice expressed, after which the dry farina is baked on an iron plate. The old women were weaving square aprons of beads, together with armlets and ankle ornaments. Some were fabricating earthen pots, and all the females seemed to be actively employed. They offered their visitor a red liquor called *cacavee*, prepared from the sweet potatoe, also *picarry*, an intoxicating beverage made by chewing the cassava, and allowing it to ferment. At some of their feasts the Indians prepare a small canoe full of this liquor, by the side of which the entertainers and their guests roll together in a state of brutal intoxication for two or three days, their helpmates looking after them, and preventing the sand

from getting into their mouths. This is certainly a practice sufficiently debasing, but the liquor is not so baneful as ardent spirits, and the natives are well again after a night's rest. Fish, which the men had shot with their arrows, and birds, were brought out of the canoe, and smoked-dried on a grating of bamboos over a fire.

We shall here terminate our notice of the Massaroon, and in the next paper resume our route on the Essequibo, from the spot where the Massaroon enters it, and then proceed up that river towards its source.

AMICABLE CEREMONIES.

II.

SALUTATIONS.—REVERENCES.

IN a former article, at page 158 of this volume, we entered into a description of various amicable ceremonies used in different parts of the world. We here resume the subject, in order to extend still further our descriptive notice of SALUTATIONS.

As we have before shown, salutations consist, for the most part, of certain gestures; and oftentimes an express assurance, or wish, is added to such mute signs of feeling. The difference in the forms of salutation often extends so far, that one nation considers that a mark of rudeness, which another esteems a mark of civility.

In most German countries, for instance, it is an act of politeness to kiss the hands of ladies: but in Italy, this is regarded as a mark of familiarity which is permitted only to the nearest relations. In Russia, however, the ladies allow not only the hand to be kissed, but even the forehead, and would consider themselves insulted by the omission of this ceremony.

Instead of the customary salutation in the protestant countries of Germany—"Good morning,"—"Your servant," &c., the Roman Catholic of these parts of the world was accustomed to salute in the manner prescribed by the Pope, Benedict XIII., in 1718,—“Praised be Jesus Christ;” to which the answer is,—“For ever, Amen.”

The military salutations introduced among the Germans, at the beginning of the sixteenth century, consist in touching the hat or cap, lowering the standards and the sword, or raising the musket.

The usual salutation of the miner is—"Good luck to you."

Vessels out at sea, when they meet, salute each other by a discharge of cannon, by striking the flag, or by the cheers of the sailors, &c.

In one of the larger Cyclades (islands of the Archipelago), persons saluting reciprocally moisten each other's hair.

The salutation of the Hindoos in Bengal consists in touching the forehead with the right hand, and bending the head forwards. They first place the right hand on the breast with a profound inclination, then touch the ground, and finally, the forehead with the same hand; calling themselves all the while the most humble slaves of him whom they so salute.

The inhabitant of the island of Sumatra, when he salutes, bends the body profoundly, begs the left foot of him whom he addresses, kneels on the ground, and applies this foot to his own crown, forehead, breast, and knee; finally, he touches the ground with his head, and remains for some moments stretched out at full length.

At an entertainment in Persia, the host goes a considerable distance to meet his guests, bids them welcome with the most respectful compliments, then returns hastily to the door of his own house, and waits their arrival to repeat the same demonstrations of respect.

Mr. Russell, in his pleasant sketches of the domestic manners of the Turks, says,—

A bashaw rises from his seat on the entrance of some of

the principal personages, but receives all other visitors sitting. Other persons of distinction usually rise to welcome, or bid farewell, to their guests. As soon as the visitor has taken his place, a string of pages make their appearance, preceded by an officer, called Kahwagee, distinguished by a large silk apron, who carries a round salver, covered with red cloth, in the middle of which salver is placed a coffee pot, surrounded with half-a-dozen small cups reversed. The first page, carrying a large silk or embroidered napkin, drops down on his knees, and, resting on his hams, spreads the napkin over the stranger's robe, so as to prevent its being accidentally soiled. A second, in the same attitude, presents the sweetmeat in a crystal cup, together with a small spoon, with which the guest helps himself. A third, having received a cup from the Kahwagee, stands ready with the coffee; he does not kneel, but stooping gently forward, first lowering, then quickly advancing the hand, delivers the cup with a dexterity to be acquired only by practice. A fourth brings the lighted pipe, and first laying down an utensil, called niffida, for preserving the carpet, upon which the bowl of the pipe is placed, he presents the other end of the pipe, by an easy movement of one arm, while the other hand is placed on the breast. The moment the coffee is finished, a page is ready to receive the empty cup, which he catches, as it were, between both hands, the left palm turned up: another page, kneeling also, removes the napkin, and the coffee cup being replaced on the salver, the Kahwagee retires, while the pages, one hand laid on the girdle, and crossed by the other in the attitude of humble attendance, remain at a little distance.

In China, some salutations are peculiar to men, and others to women: but the latter are not allowed to salute the former. Children, in saluting, fall on their knees before their parents, and servants before their master or mistress.

In one of the Japan islands, the inferior, of two persons saluting, takes off his sandals, puts his right hand into his left sleeve, permits his hands, thus crossed, to sink slowly upon his knee, passes the other person with short measured steps, and a rocking motion of the body, exclaiming with a fearful countenance, "Augh! augh!" (Do not hurt me!)

The women of Siam, even when advanced in age, are saluted with the names of the most beautiful and most precious objects in nature, but not without the additional word "young"; as "young diamond," "young gold," "young heaven," "young flower," &c.

In Ceylon, when persons salute, they raise the palm of the hand to the forehead, and make a low bow.

The greeting of the common Arabian is "Salâm alikum" (Peace be with you),—a salutation which has been long in use among the Jews. At the same time, he places his left hand upon his breast, as a sign that this wish comes from his heart. The reply is, "Alikum essalâm" (With you be peace). But Arabians of distinction embrace each other two or three times, kiss each other's cheeks, and inquire two or three times after each other's health: at the same time, each kisses his own hand. The Arabs of the Desert shake hands six or eight times. In Yemen, a province of Arabia, persons of distinction, after a long refusal, allow their fingers to be kissed.

The negroes of Sierra Leone bend the right elbow, so that the hand touches the mouth: the person saluted does the same: they then put their thumb and forefinger together, and withdraw them slowly. Other negroes snap their fingers on meeting each other, pull the comb out of their hair, and replace it.

In Lower Guinea, the saluting person seizes the fingers of the other, brings them into a particular position, presses them, and cracks them hastily, calling—"Akkio, Akkio," (Thy servant, thy servant). Cracking the fingers appears to be a genuine negro mark of friendship, with the expressions—"Auzi, Auzi," (Good day, Good day): or "Bere, Bere," (Peace, Peace). If the Mandingoes, in Western Guinea, salute a female, they take her hand, raise it to their nose, and smell it twice.

The king of Dahomey, a district of Guinea, when wishing to salute foreigners, sends a messenger with a band of negro soldiers. The officers of the corps approach the visitors with drawn swords, which they brandish over their heads with curious gesticulations and motions. They then place their swords upon their bodies, and after a repetition of these ceremonies, the messenger presents them his hand, and drinks to their health.

When a native of Morocco wishes to salute a foreigner, he rides full speed towards him, as if about to run him down; he then suddenly stops, and discharges his pistol over the head of the stranger. Persons of equal rank salute each other nearly in the European way: they shake hands, and kiss each other's face and beard, particularly if they are friends.

The Egyptians, in saluting, extend their hands, place them upon their breast, and bend their heads. The greatest act of politeness is to kiss their own hand, and afterwards to place it upon their heads. They only kiss the hands of men of distinction; not of women. Inferior officers hold the stirrups of their superiors when mounting on horseback. In the divan, the inferior takes off the slipper of the superior, places it by his side, and receives the same salutation from the latter.

In some countries of Africa people take off their clothes, fall on their knees, bend their heads to the ground, and cover their head and shoulders with sand. In others, they seize the right hand of him for whom they wish to show respect, and raise it to their mouth.

The salutations between the different tribes in the north-west of America are very ceremonious. If two tribes meet, they stop at the distance of twenty or thirty steps, throw themselves on the ground, and remain for some moments in this position. The two eldest of each party then advance, and relate very circumstantially the dangers they have encountered. As soon as they have finished their relations, they all begin to sigh. These sighs are finally changed into a yell, in which the young girls, particularly, endeavour to outdo the others of the tribe. With these manifestations of sympathy both parties approach, but each sex separately. Tobacco-pipes are handed about, and their affliction is soon changed into merriment.

The savage of Louisiana territory, when saluting a person of distinction, begins a loud howl: in the hut he repeats the salutation, holding his hands above his head, and howling three times. He returns thanks with another howl, when the superior invites him, with a sign, to sit down.

The manner in which the inhabitants of South America salute each other, is short. Their address is—"Ama re ka," (Thou); and the answer—"A," (Yes).

The people of the Society and Friendly Islands, who, in saluting, touch the ends of each others' noses, return the salutation by each rubbing the hand of the other on his own nose and mouth.

The inhabitant of Otaheite, in choosing a friend, presents him sometimes with a part of his dress, and sometimes with the whole.

We shall conclude this subject by detailing a few salutations, which partake more largely of the character of *reverence*; remarking, by the way, that the tendency to slavish salutations and abject *REVERENCES* has always prevailed, and still eminently prevails, in the Eastern regions of the globe.

The Russian throws himself on the ground before his master, clasps his knees, and kisses them: this is a very ancient custom, and is still prevalent in the East, where they usually kiss the feet of their superiors.

The Pole bows to the ground, and the Bohemian kisses at least the gown of any one for whom he wishes to express his profound respect.

The Turk crosses his hands, places them upon his breast, and bows.

In China if two persons meet on horseback, the infe-

rior in rank dismounts from his horse before the superior, and remains standing until he has passed.

In Siam, the inferior throws himself on the ground before his superior. The latter then sends one of his attendants, who are very numerous in the case of persons of distinction, to examine whether he has eaten, or carries with him, anything of an offensive smell:—if so, he receives a kick from the superior, and must retire immediately: otherwise, the servant lifts him up.

In Ceylon, an inferior throws himself on the ground before a superior, continually repeating his name and dignity; while the latter very gravely passes on, and hardly deigns to utter a word of reply.

The Abyssinians and some other people of Africa fall on their knees before their superiors, and kiss the ground.

Thus have we given our readers a tolerably full description of the various modes of saluting and of showing respect, which are in vogue in different parts of the world; and we cannot help remarking that, though such modes are for the most part singular, and often *apparently* ridiculous, they are perhaps more referrible to nature, than we may at the first view be led to suppose.

RELIGION.

As when upon some dismal night
The wanderer wends his way,
Some star appears to guide aright,
And lead him on till day—
So is the hope, O God! that's given
By thee to man of future heaven;
Like that, it shines when all is drear,
And 'mid our darkness shows moost clear.

When on the foaming billows tossed,
The mariner destruction fears,
Yet shall his vessel not be lost—
A lighthouse on the rock appears.
And thus, when near the rock, O God—
The rock of sin, and guilt's abode—
Thy word, a lighthouse to the soul,
Shall warn us off the dangerous shoal.

Or, if through lonely deserts straying,
Oppressed with toil, fatigue, distress,
We see a distant fountain playing,
All once again is happiness.
So shall thy word, great Father, give
Thy children hope, and bid them live;
A fountain springs on Calvary,
And they who drink shall never die.

Yes, ever there, till time shall end,
Thy promise ever lives—
Thrice happy we, if God befriend,
And every fault forgives;
And here, though earthly woes combine,
Thy word shall always brightly shine;
And, God, be thou for ever thus,
A fountain, star, and light to us.

T. A.

As we see some grounds that have long lain idle and uncultivated, when grown rank and fertile by rest, to abound with and spend their virtue in the product of innumerable sorts of weeds and wild herbs, that are unprofitable, and of no wholesome use; even so it is with wits, which if not applied to some certain study that may fix and restrain them, run into a thousand extravagancies, and are eternally roving here and there in the inextricable labyrinth of restless imagination.—
MONTAIGNE.

FRUGALITY may be termed the daughter of prudence, the sister of temperance, and the parent of liberty. He that is extravagant will quickly become poor, and poverty will enforce dependence, and invite corruption. It will almost always produce a passive compliance with the wickedness of others, and there are few who do not learn by degrees to practise those crimes which they cease to censure.—
JOHNSON.

RURAL SPORTS FOR THE MONTHS.

MAY.

This subtle plunderer of the beaver kind,
Far off, perhaps, where ancient alders shade
The deep still pool, within some hollow trunk
Contrives his wicker couch: where he surveys
His long purlieu, lord of the stream, and all
The finny shoals his own.—On the safe sand
See there his seal impressed! and on that bank
Behold the glittering spoils! half eaten fish,
Scales, fins, and bones, theavings of his feast,
His seal I view! O'er yon dark rushy marsh
The sly goose-footed prowler bends his course,
And seeks the distant shallows.—SOMERVILLE.

THE OTTER, (*Mustela Lutra*.)

OTTER-hunting, though fallen into comparative disuse, is yet sufficiently practised to make it desirable that we should notice it among our other sports. It was formerly a favourite British pastime, and during the reign of Queen Elizabeth large packs of otter-hounds were kept in various parts of the kingdom for the diversion of the young nobles. These hunts were attended with certain formalities duly to be observed. The dresses of the hunters were of a gay description, consisting of a green vest, bordered or turned up with red; a cap of fur, encircled by a gold band, and occasionally surmounted with a small dyed ostrich feather; waterproof boots, ornamented with red or gold tassels. A disorderly sort of hunt was also carried on by the lower orders when a whole village crew or township united to pursue the otter. On these latter occasions weapons of all descriptions and dogs of various kinds were employed.

Otter-hunting is pursued at a season when fox-hunting and hare-hunting are given up, and consequently has its advocates among those who can ill bear the tedium of waiting for the return of the more popular sports.

The return of warm weather, which invites the sportsman to this diversion, likewise diminishes the risk attendant on it. The otter-hunter is considered unfit for his occupation if he fears the consequences of a "ducking;" and if he is lucky enough to spear the otter, he usually plunges into the stream without hesitation, and raises his prey out of the water, while his hounds press eagerly around him to give a few more shakes to the tough hide of the animal.

The weapons formerly used in the chase of the otter were a forked spear with small barbs, and a single spear with a slight barb, a mere ash-pole, pointed at one end, being in use among the peasantry. At the present time a more efficient weapon is used by the best otter-chasers; this is the modern spring barb, which is so constructed as to secure the otter, and prevent the possibility of escape when once he is struck with this weapon. The pursuit of this animal is commenced at an early hour in the morning, as the game may then be more readily tracked to his couch or kennel. This is

generally formed in a bank by the side of a river, brook, or pond, and artfully concealed by having its opening behind a bush, beneath some overhanging ridge of earth, among twisted roots, or in some equally unsuspected place. Sometimes the otter leaves its couch as soon as it becomes sensible of the approach of the hounds, and, diving under water, makes its way up the stream, so as for a time to distance its enemies. The water is now carefully watched by the sportsmen, and when they have tracked the animal, either by means of the mud he stirs up, or by the air-bubbles on the surface of the water, all is animation, and the dogs are encouraged in their busy search, while the huntsmen watch their opportunity to take aim with their spears when the animal next presents himself to view. If within reach, the dexterous sportsman transfixes the animal with a lunge; if not, he casts his spear at him, and when not successful in his aim, has either to wade, or swim after the spear, as it remains imbedded in the mud. Sometimes the weapon is thrown with so steady an aim that it passes directly through the otter, when both are brought to the water's edge in triumph, as we have before stated; sometimes the otter escapes the spear altogether, and becomes personally engaged with the dogs. Here a vehement struggle arises, and the animal is not often killed before he has inflicted severe, if not fatal, wounds on some of the dogs.

The quantity of fish destroyed by otters is enormous, for it is known to kill many more than are necessary for its sustenance, and it appears to prefer the head of the fish, leaving in many cases the body untouched.

Rapine and spoil

Haunt e'en the lowest deeps: seas have their sharks
Rivers and ponds enclose the ravenous pike;
He, in his turn, becomes a prey—on him
The amphibious otter feasts.

Nor spears

That bristle on his back, defend the perch
From his wide greedy jaws; nor burnished mail
The yellow carp; nor all his arts can save
The insinuating eel, that hides his head
Beneath the slimy mud; nor yet escapes
The crimson-spotted trout, the river's pride,
And beauty of the stream. Without remorse
This midnight pillager, raging around
Insatiate swallows all. The owner mourns
The unpeopled rivulet, and gladly hears
The huntsman's early call.

Otter-hunting is pursued with much ardour in Scotland and in Ireland. In the latter country, where the grossest superstition still prevails amongst a large class of the peasantry, a strange creature is reported to inhabit their lakes and rivers, which they call the *master-otter*. He is supposed to be endued with amazing virtues. Where a portion of his skin is, the house cannot be burned, or the ship cast away, and neither steel nor bullet will harm the man who possesses an inch of the precious material. The narrators cannot depose to their ever having been fortunate enough to see one themselves, but there is a story current among them of one having been killed by three brothers called Montgomery, who from poverty became immensely rich, and whose descendants are opulent to this very day. At *Dhu-hill* one of these animals is reported to have been seen about sixty years ago, attended by about one hundred common-sized otters, who waited upon the master like dutiful and loyal beasts.

The ravages committed by otters make it necessary to have recourse to other methods of taking them, when hounds trained for the purpose are not at hand. As the animal rejects every kind of bait, a trap is employed which is covered with mud, and rendered invisible to him. This is placed near the landing-place of the otter, which may always be detected by the scales and other portions of fish scattered about. As soon as the trap strikes, the otter plunges into the water carrying it with

him, and is soon carried by its weight to the bottom of the stream.

There is not enough of variety in the details of otter-hunting to make it necessary for us to dwell further on them; we therefore proceed to the natural history of the otter. From the nature of the otter's food, and from the animal being so much an inhabitant of the water, it has been a question among those who possessed but little knowledge of natural history, whether he was of the nature of a land animal or a fish. Thus we find the following conversation between one of Isaac Walton's anglers and a huntsman engaged in the pursuit of the otter: "I pray, honest huntsman," inquires Piscator, "let me ask you a pleasant question; do you hunt a beast or a fish?" "Sir," replies the otter hunter, "it is not in my power to resolve you; I leave it to be resolved by the college of Carthusians, who have made vows never to eat flesh. But, I have heard, the question hath been debated among many great clerks, and they seem to differ about it; yet most agree that her tail is fish; and if her body be fish too, then I may say that a fish will walk upon land; for an otter does so, sometimes five or six or ten miles in a night to catch for her young ones or to glut herself with fish. And I can tell you, that this dog-fisher, for so the Latins call him, can smell a fish in the water a hundred yards from him." The above allusion to the Carthusians, relates to the fact, that the brotherhood of that monastery at Dijon, though prohibited the use of animal food, were permitted to eat the flesh of the otter on *maigre* days.

The place assigned to the otter in Cuvier's system is near the sub-division of polecats and martens, from which animals it presents but little deviation, except that the teeth are more developed in certain parts, the feet webbed, and adapted for swimming, and the tail flattened horizontally. Otters are aquatic in their habits, but are incorrectly termed amphibious animals, since they are not furnished more than other animals with the power of breathing both air and water in the same stage of their existence. They feed principally on fishes, but they sometimes prey on the smaller mammalia, which inhabit the banks of lakes and streams. The flattened tail of these animals appears to be rather an organ of ascent and descent than a propelling organ, and the forward motion is effected chiefly by strokes of the feet. The otter's tail is covered with longer and coarser fur than the body, but there are, generally speaking, two kinds of fur, one consisting of long shining hairs, mostly of a brownish colour, the other woolly, much shorter and thicker, and generally of a greyish hue. The character of the fur, however, differs with the climate: the farther north the animal is found, the more valuable, because the more dense and silky is its fur. Otters are in a great measure indifferent to cold and moisture. Their fur has the same property as the feathers of diving birds in not becoming wetted. On the occasion of a rapid frost in cold countries, they are sometimes driven out from their recesses, and are then hunted with much success.

The Common Otter (*Mustela Lutra*) is found in all parts of Europe, and in the colder parts of Asia and America. It averages about two feet in the length of its body from the nose to the tail, and the tail itself is sixteen inches long. It is very short on the legs, and has a singular aspect, owing to its large flat head and short ears. The eyes are very small, and placed near the nose; the neck is thick; the general colour of the animal is blackish brown, with a white spot under the chin and a small one on each side of the nose. The nostrils are provided with an apparatus which prevents the water from entering when the animal moves speedily along.

"The otter," says Pennant, "shows great sagacity in forming its habitation; it burrows under-ground in the banks of some river or lake, and always makes the

entrance of its hole under water, working upwards towards the surface of the earth, and before it reaches the top, it adopts the fashion of builders of houses for ourselves, who make several floors to accord with the necessities and conveniences of the occupants. It finishes its lodge by making a minute orifice for the admission of air, and the more effectually to conceal its retreat it contrives to make even these little air-holes in the midst of some thick bush." Though this dwelling of the otter is always in a moist situation, the animal takes care to have a dry place to which it can resort; and thus, when the water rises and overflows part of its habitation, it has only to take to an upper story. Though the limbs of the otter seem peculiarly adapted for the water, yet it moves with facility on shore likewise, and may even be said to run rapidly.

The young otters first make their appearance about the beginning of April. They are generally four in number, and are attended by the mother with great assiduity and caution. The affection of the female otter for its young is so great, that she will often suffer herself to be killed rather than desert her progeny. Professor Steller, informs us, that when the young ones are taken away from the mother, the latter will follow the person carrying them off, and manifest her sorrow by crying, almost like a human being, while the young otters also cry out for aid in a tone of voice very much resembling the crying of children.

On one occasion, (he writes,) when I had deprived an otter of her progeny, I returned to the place eight days after, and found the female sitting by the river, listless and desponding, who suffered me to kill her on the spot, without making any attempt to escape. On skinning her, I found she was quite wasted away with sorrow for the loss of her young. Another time I saw an old female otter sleeping by the side of a young one, about a year old. As soon as the mother perceived us, she awoke the young one, and enticed him to betake himself to the river; but as he did not take the hint, and seemed inclined to prolong his sleep, she took him up in her fore-paws, and plunged him into the water.

The otter is naturally of a very ferocious disposition, but when taken young, and properly treated, there have been instances of its becoming so tame as to be employed in fishing for its master. We find an allusion to the taming of the otter in the following lines.

Should chance within this dark recess betray
The tender young, bear quick the prize away.
Tamed by thy care the useful brood shall join
The watery chase, and add their toils to thine.
From each close lurking hole shall force away,
And drive within their nets the silver prey:
As the taught hound the timid stag subdues,
And o'er the dewy plain the panting hare pursues.

In taming the otter, the disposition of the animal seems greatly to depend on the sort of food with which he is provided. If he is supplied with animal food, especially his favourite food of fish, at too early an age, he becomes sulky, disobedient, and vicious; but if he is suckled along with young puppies, as is sometimes done, or fed upon bread and milk, he remains gentle and docile, and will even show considerable attachment, with some knowledge of places and persons. In proof whereof we give the following anecdotes.

A person near Inverness, procured a young otter, and brought it up on milk diet. It became so tame as to follow him wherever he chose, and, if called by its name, it immediately obeyed. When fearful of danger from dogs, it sought the protection of its master, and would seek to spring into his arms for greater security. It was frequently employed in taking fish, and would sometimes take eight or ten salmon in a day. If not prevented, it always made an attempt to break the fish behind the anal fin, which is next the tail; and as soon as one was taken away, it always dived in pursuit of more. It was equally dexterous at the sea-fishing, and took great numbers of

young cod and other fish there. When tired it would refuse to fish any longer, and was then rewarded with as much as it could devour. Having satisfied its appetite, it always coiled itself round, and fell asleep, in which state it was generally carried home. Another person kept a tame otter with his dogs, and the animals were upon the most friendly terms. It is not a little remarkable, that even dogs trained to hunt the otter would not offer this tame one the least molestation, and even showed no reluctance to hunt any other otter while their favourite was in their company.

Bishop Heber relates that in India he saw a number of otters tethered to stakes along the edges of the water and made use of as hunters of the fish, which they pursued so adroitly as to drive them into the nets and there only. The largest fish they laid hold of and brought to the shore.

FRESH-WATER FISH.

No. IV. THE JACK OR PIKE.

Our plenteous streams a various race supply,
The bright-eyed perch with fins of various dye;
The silver eel, in shining volumes roll'd;
The yellow carp, in scales bedropt with gold;
Swift trouts, diversified with crimson stains,
And pikes, the tyrants of the watery plains.—PONS.

“THE mighty Luce or Pike,” says Walton, “is taken to be the tyrant, as the salmon is the king, of the fresh waters.” The aspect of the pike is repulsive: it is a ragged, savage, ugly looking fish; the head large and very much depressed; the upper jaw broad and shorter than the lower, which turns up a little at the end, and is marked with minute punctures; the teeth are very sharp, disposed in the upper jaw only in front, but in both sides of the lower, as well as in the roof of the mouth and often on the tongue; the number being said to be no less than seven hundred, without reckoning the farthest of all, or those nearest the throat; those situated on the jaws are alternately fixed and moveable; the eyes are small; the gape very wide, so that the pike can seize and swallow large prey. The pectoral fins are situated immediately behind the gill openings; the ventral fins are about the middle of the body; and the dorsal and anal are far back near the tail, which is very stout, slightly forked or rather lunated. The whole structure of the fish shows that the posterior part of the body is the grand agent which enables it to rush with great velocity direct upon its prey. The usual colour of this fish is a pale olive gray, deepest on the back, and marked on the sides by several yellowish spots or patches; the abdomen is white, spotted slightly with black: when in its highest perfection the colours are often more brilliant, the sides being of a bright olive, with yellow spots, the back dark green, and the belly silvery: the gills too are of a very bright red, indicative of a vigorous circulation. The pike is said to occur in Holland of an orange colour, marked with black spots; with rather small, hard, and oblong scales. The stomach of the pike accords with its voracious habits, it being composed of membranous folds whereby it is capable of great dilation.

The names, Jack and Pike, applied to this fish, are mere verbal distinctions. The genus or rather family to which the pike belongs comprises three divisions, the individuals in one division being very unlike those of another. These divisions are *Esox*, the pike, properly so called; *Belone*, the garfish, and *Exocoetus*, the flying fish.

The most prevalent character of all the fishes that have been classed among the pikes, is that of the dorsal fin being placed very far backward, so as to be close to the caudal; while the anal fin is immediately below it. The unusual disposition of these fins influences that of the others: the ventrals are thus placed in the middle of the body, or about halfway between the pectoral and the caudal: the latter is

always forked; and the former, in general, pointed. The whole of these fishes are excessively voracious, and destructive to others: hence Lacepede has justly said of the common pike, that it is the shark of our ponds and rivers. We accordingly find the mouth to be particularly large, the snout often greatly lengthened, and the teeth, in nearly all instances, numerous and sharp. There is no instance of a second dorsal or adipose fin, as in the salmon; or of the belly being sharp or serrated, as in the herrings. As to other parts of their structure, it may be mentioned, that the margin or edge of the upper jaw is formed by the intermaxillary bones; or, at least, when this is not the case, the maxillaries are without teeth, and partially concealed. Excepting the common pike, and a few others nearly allied to it, the whole of the remainder are marine fishes.—SWAINSON.

In the *Saturday Magazine*, vol. ix., p. 153, several instances of the voracity of the pike are recorded, to which we may add a few more.

The following anecdote is related in Fuller's *Worthies*:—

A cub fox, drinking out of the river Arnus, in Italy, had his head seized on by a mighty pike, so that neither could free themselves, but were ingrappled together. In this contest, a young man runs into the water, takes them out both alive, and carrieth them to the Duke of Florence, whose palace was hard by. The porter would not admit him, without a promise of sharing his full half in what the duke should give him; to which he, (hopeless otherwise of entrance,) condescended. The duke, highly affected with the rarity, was about giving him a good reward, which the other refused, desiring his highness would appoint one of his guards to give him a hundred lashes, that so his porter might have fifty according to his composition. And here my intelligence leaveth me, how much further the jest was followed.

The voracious appetite of the pike causes it to fill its stomach with whatever it can find in the way of food: no sort of offal is refused; every kind of animal substance both living and dead is received; it will even swallow the plummet, and the clay and bran groundbait of the angler: it preys upon rats, mice, and frogs, as well as the young of ducks, geese, swans, and other aquatic birds. We read that

In the year 1798, as two gentlemen were angling in a pond near Warnham, in Sussex, a pike, of only about seven pounds weight, seized a dog that was lapping the water and was fairly landed, holding on by the dog; so also in the Blackwater, near Youghall, a yearling calf was seized by a pike, and succeeded in landing him: and there could be no greater proof of his voracity, than this attempt to swallow a calf, when his stomach, upon being opened, was found to contain a large perch and a water-rat, both entire.

The pike is so much accustomed to overcome and devour every other fish that it encounters, that it seems almost to have lost the instinct of discrimination, for it will devour its own progeny with as little reluctance as any other. It has also been known, when excited by hunger, to contend with the otter for its prey; but, as Walton says, “It is a hard thing to persuade the belly, because it has no ears.” The digestive powers, too, of the pike are as remarkable as its greediness. Walton says, that a pike will devour a fish of his own kind “that shall be bigger than his belly or throat will receive, and swallow a part of him, and let the other part remain in his mouth till the swallowed part be digested, and then swallow that other part, that was in his mouth, and so put it over by degrees.” It cannot perhaps be denied that the pike sometimes appears thus with the tail of a fish hanging from its mouth, for the portion that enters the stomach is quickly dissolved, and the rest soon follows; but still the act of respiration must be carried on, for which purpose sufficient space must be left within the mouth for its action to inhale the water, and to pass it through the gill-fringes with freedom, without which, strangulation would ensue. “We therefore conceive,” says Mr. Blaine, “that such a bait could be only thus partially swallowed, as would not obstruct the action of the mouth and gills. Indeed there are not wanting instances

in which both pike and jack have been effectually choked by too large a bait."

With abundance of food the pike grows rapidly; often attains an enormous size, and is scarcely injured by any foulness of the water. The famous pike caught by Colonel Thornton, in one of the Scotch lakes, in the year 1784, measured four feet four inches from eye to fork, and weighed nearly fifty pounds. The colonel had him upon the line for an hour and a quarter before his strength was exhausted, and the tackle would not have held him if the colonel had not been in a boat, so as to humour him by rowing: the colonel says, that on opening his jaws, "so dreadful a forest of teeth, or tusks, I think I never beheld." In some of the Irish rivers, pike of seventy pounds' weight have been caught. Major Bingham relates, that a pike was taken from the Shannon, which, when weighed, "somewhat exceeded ninety two pounds." But these and many other examples of extraordinary dimensions of pike are exceptions to the general average. The natural term of their lives is not known; but Mr. Blaine says, that individual fish have been familiar to persons forty or fifty years. Their majority, he adds, should be computed from the time they change their diminutive title of jack for that of pike, which is stated to take place when they have attained to a linear measurement of twenty-two inches, or to a bulk equal to three pounds; but it is more common among anglers to call all under five pounds *jack*, and all above *pike*.

During the summer months the digestive organs of the pike and jack are somewhat torpid; and their abstinence is no less singular at this time than their voracity at other times. It is remarkable too that this abstinence occurs at about the season of spawning; and the circumstance is fortunate, as Mr. Blaine remarks, for were the appetite as usual, few young fry could escape: "during the summer they are listless, and affect the surface of the water, where, in warm sunny weather, they seem to bask in a sleepy state for hours together; and at these times they frequently get snared by the wire-halter of the poacher. It is not a little remarkable also, that smaller fish appear to be aware when this abstinent state of their foe is on him; for they, who at other times are evidently impressed with an instinctive dread at his presence, are now seen swimming around him with total unconcern. At these periods no baits, however tempting, can allure him; but, on the contrary, he retreats from everything of the kind. Windy weather is alone capable of exciting the dormant powers; and thus, if a cool sharp breeze springs up, he may be sometimes tempted to *run*; but even then he will rather play with the bait, and may be seen even sailing about with it across his mouth; after doing which he commonly ejects it. This inaptitude to receive food with the usual keenness, continues from the time they spawn, until the time of their recovery from the effects of it; and thus pike and jack fishing are not often productive of much sport between March and October." Mr. Blaine is disposed to think that the decreased voracity of these fish during the heats of summer, is, in some measure, likewise influenced by the increase of temperature. The animal thrives best in frigid climes, and the further we proceed north within certain limits, the larger is his growth: thus, in the Canadian lakes, the pike exists in vast numbers, and grows to the length of four and five feet; and he does the same in the cold waters of Lapland also, disappearing, according to Wahlenburg, in geographical distribution with the spruce fir.

The spawning time of the pike and jack is March or April, according as the season is more or less advanced, and depending also on the situation of the water. They proceed in pairs from the rivers to the creeks and ditches: but when confined in still water they seek the most retired part, often a weed-bed, or remain near the shallows and deposit their ova among aquatic plants,

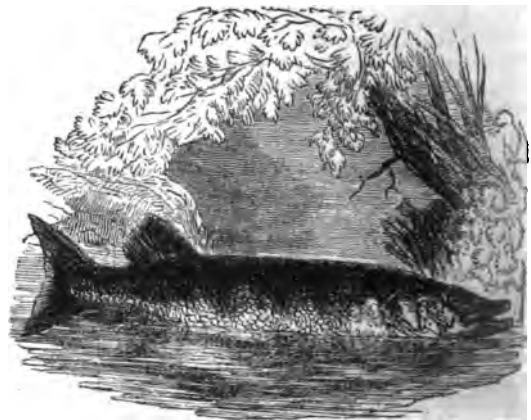
such as the reed and the rush. When the operation is complete they retire to the deeper waters, leaving their spawn to supply new races of their kind, or as a prey to many aquatic animals such as the duck, which is particularly fond of the spawn of the pike. It is said that this bird not only consumes great quantities of it, but carries it off adhering to the feathers, without its being injured or having its vitality destroyed; by which means pikes have often appeared in ponds where there were none before; a fact which gave rise to many conjectures before this simple explanation was discovered.

The pike are fond of dull, shady, and unfrequented waters, with a sandy, chalky, or clayey bottom. In summer they are found among or near flags, bulrushes, and water docks. They seldom seek a rapid stream; their favourite retreat being in the vicinity of a whirlpool or sharp bend of the stream. In winter they retire into the depths, under clay banks, or under a projecting stone or stump of a tree.

The young fry grow rapidly and are said to attain the weight of two pounds during the first year, and to gain a pound or more every subsequent year. This may perhaps be true up to a certain stage of growth; but so plentiful are tales of wonder in Natural History that it becomes necessary to exclude a variety of newspaper and other relations of pike, as well as of other animals remarkable for size and weight as well as extraordinary age or sagacity. This exclusion may, it is true, make us often lose a good story, which, however, unless accompanied with a caution, (and this generally spoils the story,) had better be left untold. The story told by Gesner is often repeated, that a pike was once caught at Heilbrun, in Germany, which had a brass ring attached to it, intimating that it was put into the lake in the year 1230; so that being captured in 1497 it must have been 267 years old.

One would have been incredulous on this subject, (says Mr. Swainson,) but Gesner further asserts that the skeleton, nineteen feet in length, was long preserved at Manheim as a great curiosity. It would be well worth the trouble of inquiry, if any fragments of this gigantic monster are yet in existence, or if any records regarding it exist at that place: for ourselves, we confess our entire disbelief that such a pike, and of such an age, ever existed.

There is a curious method, according to Pennant, of taking pike in the fens of Lincolnshire. The fishermen use a basket open at the top and bottom; this they plunge down behind the stern of their punts or fen-boats, and by poking with a stick, ascertain whether there is a fish or not; if there is one they immediately raise the basket, and, throwing the fish into the punt, lower the basket to catch another.



THE PIKE, *Esox Lucius*

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THE BANKS OF THE THAMES.



THE SOURCE OF THE THAMES.

Thou, too, great father of the British floods!
With joyful pride survey'at our lofty woods,
Where towering oaks their growing honours rear,
And future navies on thy shores appear,
Not Neptune's self from all her streams receives
A wealthier tribute than to thine he gives.
No seas so rich, so gay no banks appear,
No lake so rich, and no spring so clear,
Nor Po so swells the fabled poet's lays,
While led along the skies his current strays,
As thine.—*FORB.*

How many and varied are the associations which the name of the river Thames suggests to the mind! How proudly may we compare this river with those which water foreign lands, and point to its commercial importance as a compensation for its comparatively limited size! It is no exaggeration to say, that more wealth floats on the bosom of this river than on any other in the world, and that no other river is visited by the natives of so many climes.

But it is not only in a commercial point of view that the Thames demands our notice. Its banks are studded with beautiful towns, villages, fields, gardens, and country residences, giving to the scenery all those characteristics which mark a highly cultivated country. These objects are well worthy of a little attention, and we propose, in the course of a series of articles, to take a rapid glance at the chief objects of interest which present themselves, from the source of the river, in Gloucester-

shire, to its termination in the English Channel, as also the associations connected with places situated on its banks.

The general course of the Thames is from west to east, passing through or between the counties of Gloucester, Wilts, Berks, Oxford, Buckingham, Surrey, Middlesex, Essex, and Kent. It derives its origin from a copious spring, called the *Thames Head*, about three miles south-west of the town of Cirencester, in Gloucestershire. The river is generally known by the name of the Isis, until it receives the waters of the Thame in Oxfordshire, after which it is called the *Thames*,—a name supposed to be compounded of the other two. From its source it flows as a small rivulet to Cricklade, in Wiltshire, near which it receives several tributary streams, from whence its course leads towards Lechlade, a town situated near the confines of Berkshire, Gloucestershire, and Oxfordshire, where it receives the waters of the Lech and the Colne, and becomes navigable for vessels of a hundred tons' burden, although at a distance, measured along the river, of a hundred and forty miles above London. The river then passes in succession the towns of Buscot, Farringdon, Stanton Harcourt, and Ensham, until it reaches the city of Oxford, its course hitherto having been somewhat northward. It then takes a sudden bend towards the south; and, after passing near Ifley and Nuneham, receives the river Thame on its

northern shore. Forming the boundary between the counties of Buckingham and Berks, it passes through a beautiful country, approaching more or less near to the towns of Wallingford, Mapledurham, Reading, Henley, Great Marlow, Cliefden, Maidenhead, Windsor, Eton, Staines, &c. We then come to the counties of Middlesex and Surrey where the banks of the river show us in succession Chertsey, Sunbury, Hampton, Kingston, Twickenham, Richmond, and Kew. From this point may be said to commence the commercial character of the river, its banks being occasionally diversified with mills and manufactories of various kinds, till we arrive at the Metropolis. Passing the forest of masts and the dense masses of houses which here present themselves, we come in succession to Deptford, Greenwich, Woolwich, Erith, Purfleet, Gravesend, and a few other towns,—till at length the river, now presenting a majestic breadth, pours its waters into the sea, after a course of somewhat more than two hundred miles. Such being the course which the river pursues, we proceed to notice the objects met with by the way.

The spring to which the river owes its origin rises in a field in the parish of Cotes, Gloucestershire. The infant rivulet flowing from the spring passes under the road leading from Cirencester to Bath, and is joined by several other springs similar to itself, by which its width is increased to about twelve yards, and at the village of Cotes it is crossed by the first bridge, formed of a few large stones, laid in piles.

A course of about ten or twelve miles brings the stream to Cricklade, a pleasant town, containing about sixteen hundred inhabitants, and rendered famous by many contests which took place near it in the times of the Saxons: it consists principally of one long street, in the midst of a level country on the south side of the stream. A further course of about eight miles brings us to Lechlade, or Leachlade, a spot described by Leland as a "praty old village, with a stone spire to the church." The name is compounded of two Saxon words, *lech* and *ladian*,—the former signifying a stone, and being the name given to a small river which flows into the Isis at this part, and the waters of which have a slightly petrifying quality,—the latter being the Saxon verb *to empty*, in allusion to this confluence. The town is situated on the margin of the river, is neatly built, and consists principally of one long and wide street, inhabited by about twelve hundred persons. The river begins to be of importance at this place, for Lechlade is a stopping-place for wagons, laden with cheese and other commodities from Wiltshire and Gloucestershire, the rest of the transfer to the Metropolis being effected by navigation. Vessels of sixty tons' burden are capable of reaching this spot, but the frequent deficiency of water in the summer, as well as the floods in winter, have rendered the navigation of the river rather uncertain, and not so valuable to the inhabitants as it would otherwise have been. About half a mile on the London side of the town is St. John's bridge, considered to be one of the most ancient bridges on the Thames, and built at the time when a priory was flourishing in the immediate neighbourhood, several centuries ago; the bridge is of very curious form and of great strength.

Still continuing our course, pretty nearly in an eastern direction, we pass about midway between the towns of Farringdon and Bampton, the former lying southward, in Berkshire, and the latter northward, in Oxfordshire. Farringdon is a very ancient town, small, neat, well-built, and paved, and the navigation of the neighbouring river furnishes a medium for the conveyance of coal and other heavy articles from Gloucestershire and Somersetshire to London. The Great Western Railway, however, which has a station near Farringdon, is likely to affect considerably the navigation of the Thames at this part. Farringdon is not far from the celebrated Vale of the White Horse, a name derived from the figure of a

white horse, cut in the chalky soil, and kept clear from grass. The popular opinion respecting this figure is that it was formed in commemoration of a victory obtained by Alfred the Great over the Danes.

Bampton, situated on the opposite side of the river, is a very ancient town, containing about fifteen hundred inhabitants, and situated near the banks of the river, on which there are many convenient wharfs.

The road from Farringdon to Bampton crosses the Thames at Radcote bridge, an object not only picturesque in appearance, and curious from its antiquity, but interesting also from historical recollections. It was the scene of a remarkable battle, fought, in the year 1387, between the Earl of Derby, afterwards King Henry the Fourth, and De Vere, earl of Oxford. The latter was defeated, but saved his life by plunging on horseback into the Thames, and swimming to the opposite bank,—an exploit which has been commemorated in the following stanza of the poem of *The Thames and the Isis*.

Here Oxford's hero, famous for his boar,
While clashing swords upon his target sound,
And showers of arrows from his breast rebound,
Prepared for worst of fates, undaunted stood,
And urged his beast into the rapid flood:
The waves in triumph bore him, and were proud
To sink beneath their honourable load.

Mr. Ireland, who described the Thames half a century ago, when projects of canal-cutting were as much in favour as the construction of railroads at the present day, regretted the deserted appearance presented by the Thames, in consequence of the removal of its traffic to the canals. He says,—

Useful to the commerce of the country, and laudable as the enterprise of forming navigable canals all over the kingdom must be acknowledged to be, it is still with some regret we view the old stream falling almost into total neglect and disuse. Such, however, in this neighbourhood, [i.e. near Radcote Bridge,] during the summer months is the situation of this noble river, which is then shallow in water, and overgrown with osiers and weeds; its locks and weirs are fast falling into decay; and in many places we find only a few old timbers remaining, to mark where such aids to navigation were once thought of utility.

The *weirs* here alluded to are a primitive kind of lock-gates, frequently seen in the higher parts of the Thames. They are artificial dams or banks, carried across the river in order to pen up the water to a certain height, for the services of the mill, the fishery, or navigation. A large range of frame-work, which resembles the railing of a bridge, rises from the bank below, and supports a number of small flood-gates, sliding in grooves, and connected with a sill in the bottom. When these are drawn up, the whole body of the stream, being collected into a narrow space, rushes through with great rapidity, and gives a temporary depth to the shallows, or, by the power of the current, forces the barges over them. These weirs add much more to the beauty of the landscape than the more still and mechanical locks of a canal. They are generally connected with various accessory and diversifying circumstances: a mill, a fisherman's hut, or the cottage of a toll-collector, sometimes embowered in trees on the bank of the river, heighten and vary the beauties of the scene. The weir, in its most simple state, breaks the line of the river, produces a kind of waterfall, and gives activity and eddy to the current; but when the river is high, the overflow of the water forms a large cascade. The upper stream continuously forces its way onwards, "in some parts," as it has been observed, "spouting through the apertures of the flood-gates; in others fretting through the moss-grown timbers, or rushing over the aquatic plants that cling to the frame work; and thus, broken into a thousand various rills, falls into the lower water, and continues to enliven the course of the river."

We now arrive at a part of the river which receives the waters of the Windrush, a stream which traverses

Oxfordshire, and passes the town of Witney before discharging itself into the Thames. Witney has long been famous for the blankets manufactured there, and it has been supposed that the whiteness of these blankets is due to the large quantity of nitre which is found in the water of the Windrush. Farther on we come to Stanton Harcourt, a small town celebrated for the events which occurred there many centuries ago, and for the venerable residence of the Harcourt family. This mansion was in the possession of the Harcourts for more than six hundred years, the representative of the family being created a baron in the reign of Queen Anne, and an earl in the year 1749. The mansion has been greatly altered in modern times. A small chapel belonging to the building had a tower containing three apartments, the uppermost of which was called Pope's study, from the circumstance of the poet having occupied it during a whole summer which he spent at the mansion. Here he finished his translation of the fifth book of Homer's Iliad, which circumstance he recorded, with a diamond on a pane of red glass, subsequently preserved with great care by the owner of the mansion.

Proceeding further eastward on our journey, we come to Eusham Bridge, an object surrounded with picturesque scenery. The river expands considerably about this part, and meanders amid the neighbouring meadows, fertile in pasture, and screened by the contiguous hills, which form a gentle slope towards its margin. On the northern side the various breaks in the distant scenery, the happy combination of villages with pastoral country, give great beauty to the landscape.

A little eastward of this bridge, the river takes a very sudden bend towards the south near the town of Woodvercott; increasing both in width and depth towards Oxford, and, to use the words of an old topographer, "seems proudly urging its course, to pay its tribute to that ancient and noble seminary of learning, whose venerable towers and lofty domes all happily unite to form a general mass of objects superior to anything which this country can boast."

We have approached a part of the river nearly parallel with Woodstock and Blenheim, at a few miles from the northern bank; but these celebrated places, and their historical recollections, we must leave for our second paper.

ON OPTICAL ILLUSIONS.

No. I.

It would be a curious inquiry, and one fruitful in valuable information, to investigate the instances in which, and the causes by which, natural objects appear to be what they are not. Such an inquiry would lead to many remarkable results, and would serve to furnish some evidence of the manner in which our notions of form and configuration originate. We wish to draw the attention of those readers who have but recently entered on the study of science, to this subject, assuring them, at the outset, that they will be amply repaid for the time employed in the inquiry.

If we analyse our notions of form and figure, we shall find that we depend almost entirely on the kind and degree of light which is reflected to the eye from any object under consideration. If we have, for instance, a marble bust, and a chalk or Indian ink drawing of the same individual, how do we know, without touching them, (for that is a species of evidence, which we exclude from the present inquiry,) that one is a raised bulk, while the other is a flat surface? Principally from the degree of light which comes to the eye from the different parts of the object. We know—experience has taught us—that every projection or elevation reflects more light from that side which is nearest to a window, or to a lighted candle, than from the other side; and upon placing one

of the objects above alluded to in different positions with regard to the window, if we find that the dark side of every elevation in the face is directed from the window, we immediately conclude that that is the bust and not the drawing; but if we find that, when we place it at one side of the room, the shaded part of the nose, or of any other prominent part, is towards the window, but that when it is on the other side of the room the shaded part is from the window, we immediately conclude, without placing the hand on either object, that we are looking at the drawing, and not at the bust. And this would be the case if the drawing were coloured precisely to imitate the bust. This is a circumstance which should always be attended to in placing a portrait in a room; if the painted shadows do not correspond with the positions of the real shadows on that side of the room the illusion is greatly lessened.

These remarks apply to elevations above the common surface of an object, but our notions of depression are formed exactly in a similar way. We should find that if we could change the appearance of every spot in a raised object from light to dark, and from dark to light respectively, the mind would at once determine that we were then looking at a depressed or hollow cavity, the exact type of the raised object which we were before regarding; we should find that no other element would be called for in fixing our ideas.

Sir David Brewster has beautifully illustrated this singular fact by referring to the effect produced on the appearance of an intaglio (sunken device), or a cameo (raised device), when viewed through a microscope, or any assemblage of lenses which inverts the object.

If a common seal, or intaglio, be held near a window, the parts furthest from the window receive most light; while if the cast or impression produced from that seal, which may be regarded as a cameo, be similarly viewed, the parts nearest the window will receive most light; and it is in that way that we immediately know the elevated from the depressed image.

Now, the effect of viewing this same seal through a microscope, is to invert the position of the object; and consequently, if we confine our attention to any given depressed point of the seal, we should find that the light and the dark sides of that depression had changed places, and the shaded side of every little elevation and depression would be exactly in the same position as if we were viewing a cast of the seal without a microscope.

It will even be found that a very slight effort of the mind will be sufficient to produce this effect without any lenses whatever: suppose an intaglio be viewed at night, with a candle at the left of the observer; let him then fancy that the candle is on his right hand, and the idea that he is viewing a cameo will immediately impress itself on his mind. That the direction of the shadow is the real evidence on which we form our opinion as to the character of the surface which we are viewing, is farther borne out by this fact: that if we hold an intaglio and a cameo exactly opposite to the source of illumination, it is difficult to distinguish one from the other, as both sides of every elevation or depression are nearly equally illuminated.

If we consider for a moment, in what way we distinguish a concave from a convex surface, we shall find that it merely consists in a different distribution of light and shade: those parts which are light in the one, being shaded in the other and *vice versa*; the deception produced in objects of this form, by inverting the position of the image, is most striking, and affords one of the best instances of the fallacy of our reasoning, when we lose one of the data on which we ground our inferences.

If we take any bright convex or concave surface, no matter what the material, and place it between the window and the eye, so that the eye sees it by looking downwards at an angle of from 20° to 60°, there is a certain distribution of light and shade on the object,

which enables the eye, from habit, to determine whether it be convex or concave; if we can now invert the position of the edges of the object, with reference to the eye and the window, the shaded parts assume just the position which would be assumed by the opposite curvature. This inversion may be done without any lenses whatever. Take a common Wedgwood-ware evaporating-dish, or a common tea-saucer, a basin, or any object which is concave on one side and convex on the other—a watch-glass even will do,—and place it on a table between the observer and the window, with the concave side upwards; then hold a piece of common glass (with the under side blackened) in such a position that an image of the object will be reflected from its surface to the eye. The laws of optical reflection teach us, that the rays from the farther edge and those from the nearer edge cross each other in their passage to the eye, and assume an inverted position; and it will now be seen that the object has every appearance of being a convex surface, and if the angle of observation be well chosen, (which depends partly on the height of the window,) the illusion is so strong that it can scarcely be removed from the mind. If a convex mirror be substituted, and its position well adjusted, the distortion will present all the appearance of a concave mirror.

It is not essential to this experiment that the reflector should be black on its under surface, although it is more favourable for the purpose; any polished surface will suffice, provided it receives the rays at a large angle of incidence: it can be seen very well by reflection from one of the faces of a prism, and a singular effect is produced by a particular adjustment of the prism, by which two images of the same object may be conveyed to the eye within a short distance of each other; one is the regular refracted and transmitted image, and the other a reflection from one of the internal faces of the prism: one of these images will appear convex, and the other concave, and their juxtaposition forms a very remarkable appearance—one being prismatically coloured and convex, and the other of its natural colour and concave.

If the student in optics carefully considers the law that "the angles of incidence and reflection are always equal," and will carry out that principle to its fullest extent, he will find that every one of the phenomena of which we have been treating depends almost solely on the operation of that law; if he considers the position of the source of illumination, the degree of curvature of the surface on which any ray falls, and the angle at which the eye receives the reflection, he can clearly show that that law determines what part of the object will appear bright and what part shaded.

In a memoir submitted by Professor Wheatstone to the Royal Society, two or three years ago, he enters at considerable length into the causes and nature of many phenomena connected with vision; and among them are the relative appearances of an intaglio and a cameo. But the results to which that gentleman arrived, and which we shall briefly explain in a future paper, do not disturb the results described in the last few paragraphs: we are treating of that class of illusions arising from shadows, and their relative position with regard to the light parts of an object; but Mr. Wheatstone's experiments relate to a more extensive and highly curious comparison between the phenomena observed with one eye and those observed when both eyes are open. But more of this hereafter: the details of our present article are equally true, whether one eye or both eyes be employed.

The optical law to which we have alluded, namely, that "the angles of incidence and reflection are always equal," determines the production of another phenomenon, as remarkable and much more beautiful than the former. If we take a plate of looking-glass, and sprinkle a few grains of dust upon it, and view it perpendicularly with the eye at a few inches' distance, the dust appears

arranged in a most beautiful radiating star, of which the eye is the centre; it matters not how unequally it is scattered; the symmetry is invariable.

Now in such a case as this, before we begin to theorize, it is proper to extend the experiment to other objects; and in accordance with this, it will be found that if the object be a polished surface of steel, of silver, of mercury, or any substance but silvered glass, no such radiating appearance presents itself; if now the student reverts to the law above alluded to, he will at once detect the cause; when the dust is scattered on the surface of silvered glass, an image of each little particle is reflected from the *mercurial surface*, through the glass again to the eye; as the angle at which we view any particle increases, so must the apparent distance between it and its image increase, until we arrive at 45° , which gives the maximum of distance.

Now the particle and its reflected image are in the same vertical plane which passes through the eye and the image of the eye; the particle, its image, and the image of the pupil of the eye appear, therefore, to be in the same right line, and as the same applies to every particle, as the line which joins the particle and its image would pass, if produced, through the image of the pupil of the eye, wherever the particle be placed, the pupil appears to be a nucleus or centre from which all these double images extend radially outwards.

When, however, a polished metal is used, there is no reflecting surface from which a second image can be obtained, and we therefore see the particles themselves unaccompanied by any reflected image, and the symmetrical appearance is not then produced. The employment of a concave mirror affords an excellent proof that this beautiful radiating appearance is the effect of reflection. If we hold the eye at the focus of the mirror—that is, at the centre of the sphere of which the mirror is a section—we see none of these radial lines, but as we approach near to the mirror, they gradually develop themselves; this arises from the circumstance, that when the eye is at the centre of the sphericity, incidence and reflection are both perpendicular to the mirror, or rather, the reflected image is concealed by the particle itself, and therefore cannot reach the eye; but when we approach nearer, the images of the lateral particles become visible, and the starry effect begins to appear.

In a *convex* mirror the effect is very beautiful, on account of the increased obliquity which its curvature gives to the incident ray, and the non-existence of a focal point in front of the mirror.

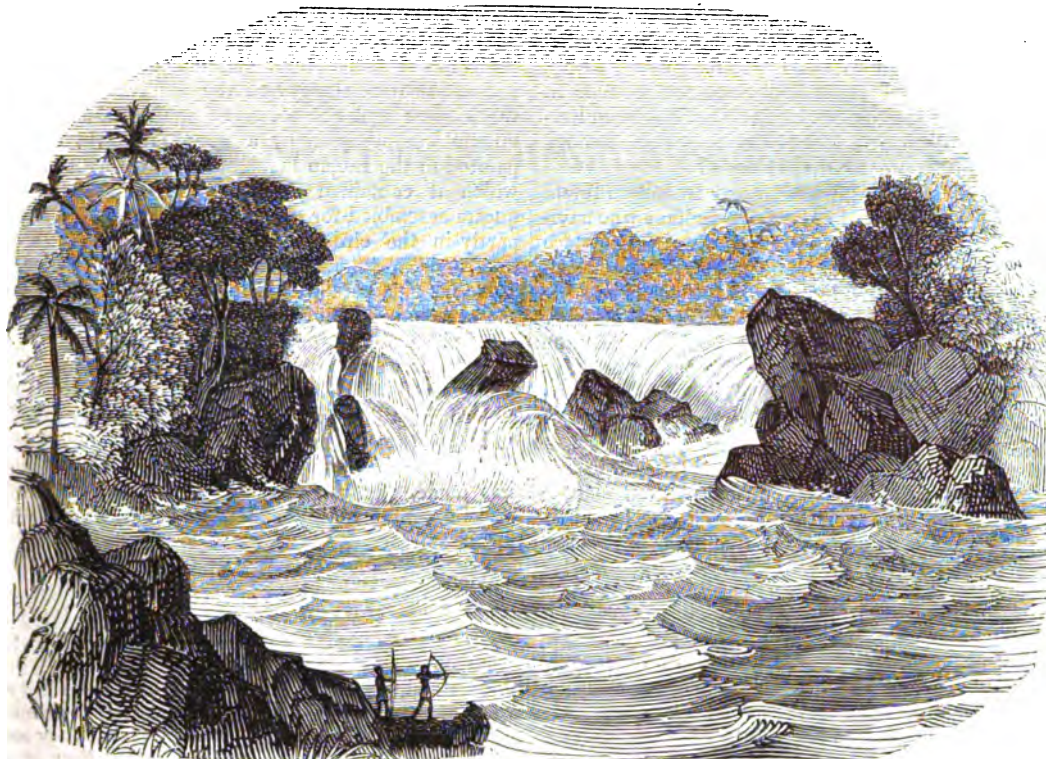
The effect is greatly heightened by mixing powders of two different colours,—red and green, or blue and orange, for instance,—as those colours which are complementary to each other produce a singularly pleasing effect by their juxtaposition. A very slight sprinkling of milk, or any coloured liquid, likewise produces this symmetrical effect.

Instead of using glass, we may use two fluids of different densities and different refractive powers, but the two which best answer the purpose are water and mercury; if a little powder be sprinkled on the water, it will be reflected from the mercury under the water, and the same effect produced as with glass, but the latter is the more convenient of the two.

If the eye be directed to one corner of the glass, the particles will have the appearance of an expanded fan, emanating from that corner.

Thus may the same simple law be brought to bear upon the whole of the appearances which we have now detailed: in all these instances an object, or an assemblage of objects, appear to be what they are not, simply from our neglecting to seek for an explanation from the only sources to which we should apply in such cases, namely, the unerring laws of Nature, the simplicity of which is as conspicuous as their beauty and their universal application.

BRITISH GUYANA.



KING WILLIAM THE FOURTH'S CATARACT ON THE ESSEQUIBO.

IV. ASCENT OF THE ESSEQUIBO.

IN our last paper on Guayana we traced the principal objects worthy of note on the river Massaroony. We now start from the point where that river enters the Essequibo, and accompany Mr. Schomburghk in the ascent of the latter river.

This gentleman was accompanied by two other Europeans, nine negroes, and ten Indians, who embarked in three *coorials*, or canoes. The party proceeded up the river, meeting with but few traces of man's works, but abundant examples of the beauties of natural objects. Here a rapid occurs,—there a sand-bank gives a tortuous course to the river,—farther on are banks covered with luxuriant vegetation. Opposite a small island in the river, called Hoobucuroo, there is one dense mass of foliage, arising from trees of almost innumerable growths; among which are the majestic *mora*, with its dark-leaved branches,—the mimosa, whose wood is almost equal to oak for ship-building,—the stately saouari, which bears a rich and nutritious nut,—the sirwabally, excellent for planking vessels and resisting the attack of worms,—the water guava, which replaces the mangrove of the seashore, and yields an aromatic leaf, useful as a medicine, and many others. Mr. Schomburghk also observed how frequently small parasitical plants had wound themselves round larger stems. The wild vine, or bush-ropo of the colonists is seen at times twisted like a corkscrew round the loftiest trees, intertwined like the strands of a cable, then drooping to the ground, and again taking root, and thus, as it were, securely anchoring the tree against the fury of the sweeping blast. Sometimes too may be seen the wild fig-tree, an unusual parasite, taking root in some of the topmost branches of the *mora*, deriving nourishment from its sap, and being, in its turn, entwined by varieties of the climbing vine.

Farther up the river the travellers met with a party of natives,—men, women, and children: the women were employed spinning cotton for hammocks, in a hut open

on all sides, and badly roofed with palm-trees. Cotton, dipped in bees'-wax, afforded artificial light in the evenings.

About twelve years ago Lieutenant Gullifer and Mr. Smith ascended the Essequibo, and met with some of the natives under circumstances which show how grievously low is the state of their civilization. We must remark, however, that the individuals to whom the following narrative relates, were not the regular American Indians of Guyana, but belonged to the more fierce tribes called Caribs.

The travellers being received courteously by the chief of the tribe, a dish of fish, with savoury sauce, was placed before them, which being removed, two human hands were brought in, and a steak of human flesh. The travellers, as may be supposed, declined to eat of such food, but the chief picked the bones of the hands, apparently with great relish; and he afterwards said to his visitors—"Human flesh makes the best sauce for any food: these hands and the fish were all dressed together. You see these Macooshee men, our slaves; we lately captured these people in war, and their wives we eat from time to time." The travellers were horrified, but thought it prudent to conceal their feelings, and before they retired for the night they remarked that the Macooshee females were confined in a large logie, or shed, surrounded with a stockade of bamboos; and the whole aspect of affairs afforded reason to believe that the sickening recital was but too true.

It is instructive to observe how generally and almost universally prevalent is the idea that at some past period in the history of the world the surface of the globe was inundated by a deluge. An instance of this kind is furnished by the Arawaks of Guyana. Their tradition of the Creation is that the Great Spirit sat on a silk cotton-tree, and cut off pieces of bark, which he threw into the stream below him, and, becoming animated, they assumed the forms of all animals; that man was last of

all created; that a deep sleep fell upon him; that he was touched by the Great Spirit, and found, when he awoke, a wife by his side. The world becoming desperately wicked, was drowned by a flood, only one man being saved in a canoe, from which he sent out a rat, to discover if the waters had subsided, and it returned with a head of Indian corn. Such is the strange manner in which the Mosaic account of the Creation has been mutilated and mixed up with absurdities, and thus handed down as a tradition among these people!

In proceeding up the Essequibo our travellers found a curious custom to prevail among the Indians who navigated the canoes. Whenever they came to a place which the Indians had not visited before, they had tobacco-juice squeezed or squirted into their eyes,—to avert the Evil Spirit! This was done on the occasion of arriving at a remarkable pile of large granite boulders, near the banks of the river. The boulders rise perpendicularly to the height of about a hundred feet, and appear to enclose a large cavity, partly covered by a square mass of granite.

Among the numerous trees and plants found in this neighbourhood, is that which produces the gum elastic; the wood of which has much the appearance of the sycamore. The gum is contained in the bark; and when the latter is cut through, the gum oozes out very freely: it is quite white, and looks as rich as cream. It hardens almost immediately on issuing from the tree; so that it is very easy to collect a ball, by forming the juice into a globular shape as fast as it comes out. It turns nearly black on being exposed to the air, and becomes real Indian rubber without any farther preparation.

Waterton speaks in enthusiastic terms of the scenery on the banks of the Essequibo. At one spot is a savannah at the edge of a forest, which he thought excelled in beauty any park in England. It consists of about two thousand acres of grass, with here and there a clump of trees, and a few bushes and single trees, scattered up and down by the hand of nature. The ground is diversified with moderate undulations; and near the middle is an eminence, gradually rising from every side, and occupied by Indian huts:—

This beautiful park of nature, (says he,) is quite surrounded by lofty hills, all arrayed in superb garb of trees; some in the form of pyramids, others like sugar-loaves, towering one above the other, some rounded off and others as though they had lost their apex. Here, too, hills rise up in spiral summits, and the wooded line of communication betwixt them sinks so gradually that it forms a crescent; and there the ridges of others resemble the waves of an agitated sea. Beyond these appear others, and others past them; and others still farther on, till they can scarcely be distinguished from the clouds.

Amid scenes such as these, diversified with rapids, falls, shoals, and small islands, the traveller up the Essequibo finds himself; seeing no relics or traces of the "white man," but meeting here and there with small parties of the natives. At one part of his voyage Mr. Schomburghk met two canoes full of natives going to trade at the Demerara river. Their canoes were loaded with hammocks, large balls of spun cotton, bows, tobacco leaves, parrots, macaws, and other articles for barter. The chief, as a distinguishing mark, wore a crown of macaw feathers; and trafficked with the travellers, exchanging some of his commodities for scissors and knives.

When we arrive at a distance of about two hundred and forty miles from the mouth of the river, we meet with the river Rupunoony, which empties itself into the Essequibo. Up this river Mr. Schomburghk proceeded, and met with many picturesque groups of natives. At one spot, in a fine savannah, he saw a dome-shaped hut, and two smaller open ones, which were prepared for a piwarry feast among the natives. The men all came forward, and greeted him by waving the hand. He then looked in at one of the open huts, where he saw women and children occupied in baking fresh cassava

bread. At his appearance, children, dogs, fowls, parrots, all set up a cry of affright; so he left them and went to inspect the dome-shaped hut. It consisted of palm leaves plaited neatly together, with a plastered entrance. The interior resembled a cupola or dome, supported by three beams and several oblique posts. Around it the hammocks were slung, and the different implements of the kitchen and chase ranged against the walls. The middle was occupied by a wooden trough, carved and painted in the Indian fashion, and filled with piwarry, of which it contained as much as sixty gallons. The guests assembled for the feast had slung their hammocks partly in the circular hut, partly in one of the open huts, while others stood outside, each party being attended by a person highly painted and ornamented for the occasion, to bring them the intoxicating liquor when wanted. On a signal given by the host, or one of the guests, the calabash was filled and handed to the person who desired it: it was then given to his next neighbour, and so on till emptied; after which it was filled again, and the same found occurred. This was continued until the trough was emptied, after which a new supply was made, and the men continued drinking until they became,—first highly elated and boastful,—and then torpid and sleepy.

Mr. Schomburghk, after speaking favourably of the behaviour of the Indians towards their children, says,—

They show much more attention to their wives than I should have expected from what I had read. I allude to the Caribbees, where the women appear to be considered more as companions than slaves. They certainly must work hard; the men clear the ground, and the women have to cultivate it, and to bring in the crop; but they are by no means the low slaves and drudges which they have been represented. There is one great failing which unfortunately appears to prevail among all the tribes—neglect of old persons, and the sick: they are stowed away in a small corner of the house, neglected, and left to themselves; and where weakness keeps them to their hammocks, perhaps often without the necessaries of life.

During the journey, the travellers occasionally crossed the savannahs, hills, and forests, to visit any remarkable spot, and on some of these occasions they had opportunities of seeing the mode of march known as "Indian file." The party, on one occasion, consisted of eighteen individuals; and as the path leading through the savannahs was not more than six or eight inches wide, each person had to follow closely in the footsteps of the one before him. Sometimes the path was lost, or became still narrower than that here indicated, but this was immaterial to the Indians; for their peculiar method of walking with the toes inward enables them to walk the smallest path with ease. They ridicule the European mode of walking, observing that in a wood we take up too much bush-room.

The exploring party ascended the Essequibo to a point where a fine cataract became visible, which, according to the opinions of all the Indians present, had never before been visited by a white man. The river contracted considerably at this part: the hills approached each other from both sides; and the indentations of the opposite shores were so exactly matched, that the channel appeared to have been the work of art. After paddling up the river in canoes, the cataract was seen by the travellers. Numerous conical hills of granite, about three hundred feet in height, and covered with luxuriant verdure, contract the river to a width of fifty yards, where the whole body of water dashes down a precipice of fifteen feet; then foams over a rugged bed of rocks for about twenty yards; and again precipitates itself, ten feet, to the basin below. The rich vegetation luxuriating in all the fertility of a tropical climate,—the masses of granite projecting into the river, and hemming it in to its narrow limits,—and the foaming waters in the background, bearing away everything opposed to their progress,—combined to form a scene, more picturesque and beautiful than had been met with by the

travellers in any part of their journey. Mr. Schomburgk named this cataract after King William the Fourth, who was at that time patron of the Royal Geographical Society, by whom this expedition was planned, and to whose valuable Journal we are indebted for the illustrations to the present series.

When the travellers had returned nearly to the point whence they set out, many of their specimens of Natural History were lost by the upsetting of a boat; respecting which Mr. Schomburgk observes,—

This is too frequently the lot of the traveller. After having amassed treasures of Natural Science, and having taken every pains to preserve them, weather, accident, negligence, and malice, often conspire to deprive him of them. How frequently was I obliged to use every persuasion to induce the Indian to carry the Geological specimens collected during our pedestrian tours! I might have loaded him with provisions, wearing apparel, &c., and he would not have objected to it; but to increase his burden, by adding rocks, he thought, could only be done out of mischief; therefore I had been more than once under the necessity of carrying the specimens myself.

Nearly all the specimens here alluded to, as well as many specimens of plants and animals, were lost or spoiled by the disaster with the boat.

We need not trace the route of the travellers to the sea shore. Suffice it to say, that the banks of the Esse- quibo and the Rupunoony present dense forests, rich savannahs, a luxuriant display of animal and vegetable life; but that the few inhabitants consist wholly of the coloured races.

EULER, THE MATHEMATICIAN.

THERE are but few chapters in Biography more strikingly illustrative of the ardent love of knowledge, and its pursuit under circumstances of pain and difficulty, than that supplied by the life of Leonard Euler the mathematician.

This great man was born at Basle, in Switzerland, on the 15th of April, 1707. His father was minister of the village of Riechen, where Euler passed his earliest years. After receiving a good education from his father, he was sent to the university of Basle, where he soon became distinguished for his extraordinary memory and the uncommon celerity with which he accomplished his academical tasks. He devoted all his leisure to geometry, which was his favourite *pastime*. His progress in this noble department of science, gained for him the notice of John Bernoulli, then the first mathematician in Europe, as also the friendship of Daniel and Nicholas Bernoulli who were already emulous of the fame of their illustrious father. In 1723 Euler delivered a discourse in Latin on the occasion of taking his degree as Master of Arts, and the subject of his theme was the philosophy of Newton in comparison with the Cartesian system. This effort gained its author great applause. He afterwards applied himself to the study of theology and the oriental languages with considerable success; but as his ruling taste led him to prefer geometry to all other pursuits, he obtained his father's consent to adopt this in preference to any other. He continued on terms of friendly intimacy with the Bernoullis, and one consequence of this connection was his subsequent removal to the Academy of Petersburg, an institution projected by Peter the Great, and executed by Catherine the First. The two young Bernoullis being invited to Petersburg in 1725, promised Euler, who was anxious to accompany them, to exert themselves to obtain for him a settlement in that city. In the mean time he adopted their advice, and applied himself with ardour to the study of physiology and several branches of physical science. He also wrote a memoir on the propagation of sound; and an essay in answer to a prize question concerning the masting of ships, to which the Academy of Sciences, in 1727, adjudged the second rank.

The splendid talents of Euler would easily have procured for him an honourable preferment in his native city, had it not been that both civil and academical honours were distributed there by lot. Having failed in his attempt to obtain a certain situation at Basle, he went to Petersburg, where he became joint professor with his countrymen, Hermann and Daniel Bernoulli, in the university of that city. He soon added many valuable memoirs to the academical collection; and this excited a noble emulation between him and the Bernoullis, which always continued without the least interference of envy or the disturbance of their friendship. In 1730 he became professor of natural philosophy; and in 1733 succeeded Daniel Bernoulli in the mathematical chair: about this time also he married a Swiss lady named Gsell. In 1735 the academy proposed a problem, to which a speedy solution was required, but for which several eminent mathematicians had required several months. To the astonishment of every one, Euler solved it in three days; but the effort produced a fever which deprived him of the use of his right eye and nearly of his life. The Academy of Sciences at Paris, in 1738, awarded the prize to Euler, for his memoir on the nature and properties of fire; and proposed for the year 1740 the important subject of the tides; a problem the solution of which required the most arduous calculations, and included the theory of the solar system.

Euler's discourse on this question was considered as a master-piece of analysis and geometry; and it was more honourable for him to share the academical prize with such illustrious competitors as Colin Maclaurin, and Daniel Bernoulli, than to have carried it away from rivals of inferior reputation. Rarely, if ever, did such a brilliant competition adorn the annals of the academy; and no subject, perhaps, proposed by that learned body, was ever treated with such accuracy of investigation and force of genius as that which here displayed the philosophical powers of these three extraordinary men.

In 1741 Euler received an invitation from the king of Prussia to visit Berlin; and being anxious to escape from the scene of those political intrigues which under a suspicious and tyrannical government then agitated Russia, he gladly accepted it. When he was introduced to the Queen Dowager she was so surprised at his taciturnity, that she required an explanation of it, and he told her that he had just come from a country where those who spoke were hanged. He contributed five memoirs to the "Berlin Miscellanies," and a large number on important subjects to the transactions of the Prussian Academy on the deepest parts of mathematical science, always containing new views, often sublime truths, and frequently important discoveries. At the same time he did not neglect to contribute largely to the memoirs of the Academy of Petersburg, which in 1742 granted him a pension. He also acceded to the request of the princess of Anhalt Dessau, to write for her own use a work on Natural Philosophy. On his return to Petersburg in 1766, he published his celebrated *Letters to a German Princess*, in which he discusses with clearness the most important principles of Mechanics, Optics, Sound, and Astronomy.

In the midst of all these absorbing pursuits, Euler did not neglect the ties of kindred, nor cease to be a dutiful son as well as an affectionate husband. On the death of his father he went to Frankfort, in 1750, and returned with his widowed mother to Berlin, where she lived until 1761, enjoying, with the feelings of a parent, the high distinctions which her son had attained by his genius and untiring activity. In 1760 a circumstance occurred which shows how greatly Euler was esteemed. The Russians having entered Brandenburg, proceeded to Charlottenburg, where they plundered a farm belonging to Euler. When General Tottleben was informed of the name of the owner, he ordered immediate reparation to be made to an amount far above the injury

sustained, to which the Empress Elizabeth added the additional sum of 4000 florins.

In 1766 Euler accepted the invitation of the Empress to return to Petersburg; but he experienced no small difficulty in obtaining permission from the king of Prussia to quit his territory, so much was he esteemed by that sovereign, who, although he spoke of Euler as being "only a mathematician," yet had sufficient discrimination to perceive that he added lustre to a court which aspired to science and literature. On his return to Petersburg, Euler was afflicted with a severe illness which terminated in the total loss of his sight. A cataract formed in his left eye which he had injured by too severe mental application. In this distressing situation he dictated to his servant, a tailor's apprentice and quite ignorant of mathematics, his *Elements of Algebra*, a work as admirable for clearness and method, as for the distressing circumstances under which it was composed. The amanuensis is said to have acquired a good knowledge of Algebra, in the course of merely taking down what Euler spoke.

The Academy of Sciences of Paris elected Euler to the honourable post of foreign member of their body, and adjudged the prize to three of his memoirs, "Concerning the Inequalities in the Motions of the Planets." The two prize questions proposed by that academy for 1770 and 1772 were designed to obtain from astronomy a more complete theory of the moon. With the assistance of his son, Euler competed for these prizes, and obtained both. In his last memoir he reserved for further consideration several inequalities of the moon's motion, which he could not determine in his first theory, on account of the laborious calculations in which his method had involved him. But, with the assistance of his son and two other gentlemen, he carefully revised his theory, constructed tables, and published the whole in 1772.

All these means of investigation, employed with such art and dexterity as could only be expected from analytical genius of the first order, were attended with the greatest success; and it is impossible to observe without admiration such immense calculations on the one hand, and on the other the ingenious methods employed by this great man to abridge them, and to facilitate their application to the real motion of the moon. But this admiration will become astonishment when we consider at what period, and in what circumstances, all this was effected. It was when he was totally blind, and, consequently, obliged to arrange all his computations by the sole powers of his memory and his genius; when he was embarrassed in his domestic circumstances by a dreadful fire, which had consumed the greater part of his substance, and forced him to quit a ruined house, every corner of which was known to him by a habit that in some measure supplied the place of sight;—it was in these circumstances, and under these privations, that Euler composed a work, which alone is sufficient to render his name immortal. The heroic patience and tranquillity of mind which he displayed need no eulogy here: and he derived them not only from the love of science, but from the power of religion. His philosophy was too genuine and sublime to stop its analysis at mechanical causes; it led him to that divine philosophy of religion which ennobles human nature, and is alone capable of forming a habit of true magnanimity and patience under suffering*.

After this great work was completed, Euler was couched by the celebrated oculist Wenzell, and restored to sight; but the delight occasioned by this successful operation did not long continue. Partly by the neglect of his medical attendants, and partly by his own impatience to exercise his re-acquired powers he again became totally blind, and the relapse was accompanied by intense pain. This misfortune, however, did not check the ardour of his genius. He had engaged to supply the academy of Petersburg with a sufficient number of memoirs to complete its Transactions for twenty years

after his death, and, accordingly, with the assistance of his son and two other gentlemen, he sent to the academy seventy memoirs within the space of seven years, and left above two hundred more, which were revised and completed by the biographer of Euler, from whom we have just quoted.

If we consider the great extent to which Euler carried his researches in mathematics and astronomy, we shall be surprised to find that he was also skilled in the sciences of medicine, botany, and chemistry; that he was moreover a good classical scholar, and had read with attention and taste not only the principal Latin authors, but had made himself familiar with the civil and literary history of all ages and all nations. We learn also that intellectual foreigners, who had previously become acquainted with his mathematical and physical researches and discoveries, were astonished on visiting him to find that he also possessed an extensive acquaintance with the most interesting branches of literature. This wonderful memory doubtless made the acquisition of every kind of knowledge easy to him: as an example of the powers of his memory it is stated that he could repeat the *Æneid* of Virgil without hesitation from the beginning to the end, and even name the first and last line of every page of the edition which he used.

In September, 1783, he made some calculations on the motions of balloons, then newly invented. On the 7th day of that month he dined with Lexell and conversed on the subject of the newly discovered planet Herschell, and while his grandchild was at tea, he began to play with it, when he was struck with apoplexy, and died without pain.

Condorcet has left an eloquent and just summary of the character of Euler, which is thus quoted in the article before referred to:—

Euler was one of those men whose genius was equally capable of the greatest efforts, and of the most continued labour; who multiplied his productions beyond what might have been expected from human strength, and who, notwithstanding, was original in each; whose head was always occupied, and whose mind was always calm. The nature of his pursuits, by withdrawing him from the world, preserved that simplicity of manners for which he was originally indebted to his character and his education; and he employed none of those means to which men of real merit have sometimes recourse, in order to enhance the importance of their discoveries. It is true that fecundity such as his renders unnecessary all the little calculations of self-love; but still great lucidity of mind, and uprightness of character, are necessary to trace, as he has done, the history of his thoughts, even when his investigations have proved fruitless, or the results disappointed the expectations which he had formed. Euler's constitution was uncommonly vigorous; his health was good; and the evening of his long life was serene, being sweetened by the fame which follows genius, the public esteem and respect which are never withheld from exemplary virtue, and several domestic comforts, which he was capable of feeling, and therefore deserved to enjoy.

Pleasures are like poppies spread,
You seize the flower, its bloom is shed;
Or like the snow-falls in the river,
A moment white—then melts for ever;
Or like the borealis race,
That flit ere you can point their place;
Or like the rainbow's lovely form
Evanishing amid the storm—
Nae man can tether time or tide.

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* *Encyclopaedia Britannica.*

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OVERLAND JOURNEY FROM INDIA TO ENGLAND.



A RAJAH AND HIS VASSALS.

THIRD ROUTE.

BY WAY OF LAHORE, CAUBUL, BALKH, BOKHARA, TOORKMANIA, KHORASAN, AND PERSIA, TO THE BLACK SEA.

WE now invite the reader to accompany us in our third overland journey from India, during which we propose to traverse some of the countries of Central Asia, situated between Hindostan and the Caspian Sea. Our fellow travellers will be principally Sir Alexander Burnes, Mr. Elphinstone, and Colonel Conolly.

If we examine a map of Asia we find that the river Indus forms a general boundary between Hindostan and the countries westward of it. Beginning from the south, where that river discharges itself into the Indian Ocean, we find that both sides of the river are in the dominions of Sind, which is bounded on the east by Rajpootana, or the country of the Rajpoots, and on the west by Beloochistan. But when we ascend higher up the river we find that it forms a general boundary between the Punjaub,—recently under the rule of Runjeet Singh,—and Caubul or Afghanistan.

Now, every British officer who crosses the Indus in his way overland to England, must pass through territories not belonging to the British crown before he reaches the Indus. In discussing the political relations of Asia it would undoubtedly appear advantageous to England, if the banks of the Indus were in her possession; but this is a matter with which we have nothing here to do, and shall therefore merely state the fact. After crossing the Indus, some travellers proceed directly through Caubul and Khorasan, to the Caspian Sea; but we shall find more objects of interest

by taking a more northerly route through the north-east part of Caubul, and thence through Balkh to Bokhara; from whence we shall proceed by Mushed and Astrabad, to the Caspian.

On leaving Delhi, the former capital of Hindostan, but now under British dominion, our route takes us north-west towards the river Sutledje, the eastern boundary of the Punjaub. This name, "Punjaub," is singularly expressive of the nature of the country to which it is applied. It means, in Oriental language, "five rivers," and designates a triangular district watered by five rivers, which ultimately combine and form the Indus. Alexander the Great traversed this country in his career of conquest, and his historians speak of it in these terms:—"The greater part of this country is level and champaign, which is occasioned chiefly, as some suppose, by the rivers washing down quantities of mud during their overflowings, insomuch that many countries have borrowed their very names from the rivers which pass through them." This country is inhabited chiefly by Seiks or Singhs, the descendants of a sect of priests established in the fifteenth century. These Seiks were energetic men; and Mr. Forster, writing in 1783, said: "Should any future cause call forth the combined efforts of the Seiks, to maintain the existence of empire and religion, we may see some ambitious chief, led on by his genius and success, absorbing the power of his associates, display from the ruins of their commonwealth the standard of monarchy." This sagacious remark has been amply justified in the subsequent career of Runjeet Singh, who was born about the time that Forster made this prediction. The powerful kingdom or

chieftom raised by this extraordinary man, as well as the personal qualities of the ruler, have already occupied our attention in a former volume*.

Through this country, then, we proceed. On crossing the river Sutledge, the mighty Himalaya mountains are dimly visible, at a distance of one hundred and fifty miles, clothed in snow almost from base to summit, and forming a striking contrast with the pleasing verdure of the plains of the Punjab. Near the banks of the river are numerous villages, the houses of which are terrace-roofed, and formed of sun-dried brick on a wooden frame-work. The inhabitants are chiefly Hindoos, but among them are a small number of Mohammedans. In the upper parts of the river the inhabitants are exclusively agricultural; but lower down their habits are more predatory. When Sir Alexander Burnes entered the first Punjab village, he was met by a crowd of females and children who approached to welcome him, and who had perhaps never before seen an European. The boys of the village also assembled to gratify their curiosity: while the party was approaching they were silent and looked with attention; but when it had passed, all was bustle and uproar, running and falling, jumping and laughing, till the head man and his troopers called the urchins to order. The first town beyond this village is Puttee, containing about 5000 inhabitants. The houses are constructed of brick, as are also the pavements of the streets.

On the eastern bank of the river Ravee, some distance west of the Sutledge, stands Lahore, the capital of the Punjab. Lahore is distinguished into the old and new cities, of which the former extended from east to west for a distance of five miles, and had an average breadth of three. The mosques and tombs, which were more substantially built than the houses, remain in the midst of the cultivated fields, as caravanserais for travellers. The modern city occupies the western angle of the ancient capital, and is encircled by a strong wall. The houses are very lofty, and the streets, which are narrow, are rendered dirty and unpleasant by open gutters which run along them. The king's mosque is a capacious building of red sandstone, which had been brought by Aurungzebe from near Delhi. Its four lofty minarets are still standing; but the temple itself has been converted into a powder magazine. On the opposite side of the river Ravee is the Shah Dura, or tomb of the emperor Juhangeer, a monument of great beauty. It is a quadrangular building, with a minaret at each corner rising to the height of seventy feet; it is built chiefly of marble and red stone, which are alternately interlaced in all parts of the building. The sepulchre is of chaste workmanship, with its inscriptions and ornaments arranged in beautiful mosaic. The garden, which once belonged to the same emperor, is a magnificent remnant of Mogul grandeur. It is about half a mile in length, with three successive terraces, one above the level of the other; a canal, which is brought from a great distance, intersects this beautiful garden, and throws up its water in nearly five hundred fountains, to cool the atmosphere.

Referring to the articles before alluded to, for further information respecting the dominions of Runjeet Singh, and the character of the inhabitants, we will proceed in our journey, in a north-western direction from Lahore. Sir A. Burnes was treated with the greatest kindness and hospitality by General Allard, and with magnificent familiarity by Runjeet, who detained the party for a few weeks, which were devoted to sport and merriment. He then proceeded on his journey, and fell in with an Eastern philosopher, who harangued the travellers in the following terms: "The world possesses three different atoms, all excellent, and all of which enter into the noblest work of God,—man. Neither the gem nor the precious metals can multiply or increase their size or number; in their beauty we find their excellence. In the vegetable kingdom, we see the trees and plants sucking moisture from the earth, and moulding it to their nature, increase in size and glory. In the animal kingdom we see the beasts of the field cropping those plants which afford them nourishment, and avoiding those which are noxious. In man alone have we every excellence; he possesses the beauty and ornament of the gem; understands and wields the properties of the vegetable kingdom; and, to the instinct of the animal creation, he adds reason and looks to futurity."—This philosophical disquisition was of a character to gain the Eastern sage a very high place in the estimation of his countrymen.

The traveller whom we have had occasion to name, and a few companions, travelled in 1832, through the Punjab and

Caubul to Bokhara; and it may be interesting to state the provisions they made to avoid danger in passing through these half-civilised countries. They decided that the best chance of safety was an appearance of poverty. They put away all their European clothing, and adopted the costume of Asiatics: a flowing Afghan robe, saah, sword, shaved head, ponderous turban, and slippers. They gave away tents, beds, and boxes; knowing that a hut, at best, would generally be their bed-room, and a coarse carpet or mat the bed. A blanket served to cover the saddle by day, and to sleep under by night: and a saddle-bag, thrown across a horse, was the depository of the wardrobe. All the little comforts to which Europeans are accustomed, were dispensed with, and it was remarked,—“It is, nevertheless, a curious feeling to be sitting cross-legged, and to pen a journal on one's knees. Custom soon habituated us to these changes; and we did not do the less justice to our meals, because we discarded wine and spirits in every shape, and ate with our fingers from copper dishes without knives and forks.”

The five rivers which give the name to the Punjab are successively crossed, in proceeding towards Caubul; and on the banks of the one of them, the Jelum,—called, when Alexander the Great crossed it, the Hydaspes,—is a very remarkable salt mine. It is situated near the outside of a range of hills, in a valley cut by a rivulet of salt water. The entrance to the mine is at the side of a hill, about two hundred feet above its base. After proceeding in an inclined direction three or four hundred yards into the body of the hill, we arrive at a cavern of irregular dimensions, excavated entirely in salt. The mineral is deposited in strata of the utmost regularity, occurring in vertical layers. None of the layers exceed a foot and a half in thickness, and each is distinctly separated from its neighbour by a deposit of argillaceous earth about an eighth of an inch thick, which lies like mortar between the strata. Some of the salt occurs in hexagonal crystals, but oftener in masses; the whole of it is tinged with red, varying from the slightest shade to the deepest hue. When our travellers visited this mine, there were about a hundred persons, men, women and children, at work there; and their small dim lamps were reflected with a glittering lustre from the sides. The salt is hard and brittle, so as to splinter when struck with the sledge-hammer and pickaxe. The rock is never blasted with gunpowder, from fear of the roof falling in, and accidents of this kind sometimes happen even in the present simple mode of excavation. The miners live in villages among the hills; and receive a rupee for every twenty maunds of salt brought to the surface, a task which may be performed by a man, his wife and child, in two days. In those parts of the mine where the mineral is near the surface, it is hewn into blocks of four maunds, two of which load a camel; but it is usually broken in small pieces. This salt holds a high reputation throughout India with native practitioners, from its medical virtues. It is not pure, having a considerable mixture of some substance (probably magnesia) which renders it unfit for curing meat.

The country near which we have now arrived is the immediate scene of the conflicts between Alexander and Porus. Our traveller remarks:—“In our search for the remnants of Alexander's cities, we are led into reflections on the state of the country in those days; and it is curious to compare them with our own times. We are informed that Porus, with whom Alexander fought on the banks of this river (the Hydaspes), maintained a force of 30,000 infantry, and 4000 cavalry, with 200 elephants, and 300 war chariots, and that he had subdued all his neighbours. Now, if we change the war chariots into guns, we have precisely the regular force of Runjeet Singh, the modern Porus, who has likewise overwhelmed all his neighbours. The same country will generally produce the same number of troops, if its population be not reduced by adventitious circumstances.”

We now enter the country of Potewar, inhabited by a tribe of people called Gukers, famed for their beauty, and claiming a Rajpoot origin. “The credulity of these people is as great as in other parts of India. A grave and respectable man assured me, (says our traveller,) that he had seen a lake, called Ruwaesir, in the hill district of Munde, on the Sutlege, which had three small islets floating upon it. These are a place of Hindoo pilgrimage; and my informant assured me that they approach to receive the votaries who embark upon them, and are floated out with their offerings. It is obvious that there must be some delusion or deception, which is practised with no small dexterity, as the place retains its character. A native told me that he had heard it

* Saturday Magazine, Vol. XII., pp. 289, 247.

was an artificial heap of soil placed over reeds; but he had not visited the spot, and seemed to proffer his information from hearing my doubts as strongly expressed as I felt them. In the valley of Cashmeer there are moveable beds of melons, which, in some degree may be considered in the light of islands. The ingenious people of that valley spread a thick mat on the surface of their lake, and sprinkle it over with soil: it soon acquires a consistency from the grass growing upon it. On the following year they sow melons and cucumbers, and reap the harvest from a boat; and thus turn to account the very surface of the lake in their rich country. The melon islands of Cashmeer may have supplied a hint to the Hindoo priests of Mundee."

Proceeding onwards, through a country replete with associations of other times, we come to the fortress of Rotas: "As we wound through the dismal defiles, and might be ruminating on the various expeditions which had traversed this very road, the fort burst upon our view like the scene of a magic lantern. It had been hidden from us by towering precipices. We approached its ponderous walls by a straggling path which time had chiselled in the rock, and soon reached its lofty gateway. The black, hoary aspect of the fort, and the arid sterility of the surrounding rocks, inspired us with no favourable idea of the neighbourhood, which has been the resort of many a desperate band." From Rotas we enter into a mountainous and rugged country, of great strength, and the road is among ravines. The chaos of rocks, their vertical strata, terminating in needles from decomposition, the round pebbles that lay imbedded in the sandstone, and the wild scenery, make this an interesting neighbourhood.

We pass through the village of Manikyala, which stands on a spacious plain with a remarkable funeral monument, called a "tope," distinguished at a distance of sixteen miles, and arrive at the town of Rawil Pindee: this is pleasantly situated within twelve miles of the snow-covered mountains. "We were now fast leaving Hindostan, and its customs, behind us. The dandelion had become a common weed. At Manikyala, we halted next door to a bakery, where the whole bread of the village is cooked, and we were glad to be considered customers of the village oven."

About fifteen miles from Rawil Pindee we pass the defile of Margulla, and gain a view of the mountains beyond the Indus. This is a narrow pass over the low hills, and is paved with blocks of stone for 150 yards. A Persian inscription let into the rock, commemorates the fame of the civilized emperor who cut the road. The defiles continue for about a mile, when a bridge across a rivulet conducts the traveller to the next capavanserai. "We continue our march about twenty miles, and arrive at Osman, which stands on a plain at the mouth of a valley close to the base of the outlying hills. Its meadows are watered by beautiful crystal rivulets, flowing from the mountains. Some of them are conducted by artificial means through the village, and turn little water-mills that grind flour. Up the valley stands the fort of Khanpoor, with some beautiful gardens; and over its snow-clad mountains rear their peaks. The fields of this fruitful valley lie neglected, from the exorbitant assessment of the person who farms it. The peasants have no hope of redress but by such an expedient; and this entire suspension of the labours of the husbandmen may open the understanding of the misguided governor."

We now approach towards the fortress of Attock: a place deriving its importance from several circumstances; it is on the banks of the Indus, forming the north-western extremity of Hindostan; it is on the great road from India to Tartary; and it is situated at the boundary between the Punjab and Afghanistan. The Indus is here divided into three branches; and our travellers determined to ford across it on the back of an elephant, which had been placed at their disposal for this purpose by Runjeet Singh's officers. "We mounted one of the chief's elephants, and, accompanied by himself and 200 horsemen, passed a few miles down the river to the village of Kyrakhuel. I did not like the appearance of the torrent; and though I said nothing, would have willingly turned back; but how could that be, when I had been the foremost to propose it? The chief rallied his escort round him, threw a piece of silver money into the river according to custom, and dashed into it. We followed, and the whole of our party reached in safety." Some stragglers who attempted to follow them met with a melancholy fate. Instead of crossing at the exact point where the others had effected the passage, they passed a few yards lower down, with the water but knee-deep; yet very rapid. The whole seven were unhorsed in a moment, and swept

into the stream. The ferryman ran to their assistance, and extricated them all but one man and two horses.

We have now arrived in the country of Canbul, inhabited for the most part by Afghans; but the region a short distance on either side of the Indus is governed by the Punjab ruler. Runjeet Singh had a curious method of crossing the Indus at Attock with his army. He kept there a fleet of thirty-seven boats; which, when required to be used, were anchored in the stream, at a short distance from one another. A communication was then made from one to another by means of planks. Skeleton frame-works of wood, filled with stones, to the weight of 25,000 lbs., and bound strongly by ropes, were let down from each boat, to the number of four or six: these served as anchors, to prevent the boats from being carried down by the rapidity of the stream. It is not a little remarkable, as indicating the similarity of Oriental customs in different ages, that Alexander the Great, more than two thousand years ago, crossed the Indus at this very place in a manner almost exactly resembling that here described.

We are now quitting the territories of Hindostan, and entering on a land where covetousness of a neighbour's goods is the ruling passion. Our travellers therefore marched with their baggage, and divided their few servants into regular watches for the night. "We were now living as natives, and had ceased to repine at the hardness of the ground and the miserable hovels in which we sometimes halted. I had also disposed of my own valuables in what then appeared to me a masterly manner: a letter of credit for five thousand rupees was fastened to my left arm, in the way that the Asiatics wear amulets. My polyglot passport was fixed to my right arm, and a bag of ducats was tied round my waist. I also distributed a part of my ready money to each of the servants, and so perfect was the check that had been established over them, that we never lost a single ducat in all our journey, and found most faithful servants in men who might have ruined and betrayed us. We trusted them, and they rewarded our confidence. One man, Ghoolam Hoosun, a native of Surat, followed me throughout the whole journey, cooked our food, and never uttered a complaint at the performance of such duties, foreign as they were to his engagements." This man remained in England with Sir A. Burnes.

Afghanistan, on the western side of the Indus, is a large country inhabited by a vigorous and warlike race, but distracted and torn by internal dissensions. At the time when Mr. Elphinstone visited this country, in 1809, it was wholly under the rule of a powerful monarch, Ahmed Shah Doora nee. But since that time, through the contests of rival claimants to the throne, the monarchy has been utterly dismembered; one chieftain seized on this province; another on that; the ruler of the Punjab on a third, and so on, till it is now scarcely possible to say whether there is an Afghan kingdom or not. When Sir Alexander Burnes visited the country in 1832, the more valuable part of the country were in possession of four chieftains, who assumed sovereign authority over the territories which they seized, and who made their respective capitals at the cities of Peshawar, Canbul, Candahar, and Herat. At a still later period, the British government in India found it necessary to interfere in the political relations of this country; and the events of the year 1839, which shed such lustre on the British arms, had immediate reference to the contests between rival claimants for the Afghan throne. The reader will therefore see reason why we should pass over briefly the general character of the Afghan nation. Our route takes us only across the north-eastern part of the country, and we shall soon get into other dominions.

The first town of importance, after crossing the Indus at Attock, is Peshawar. At this place, Sir A. Burnes was received with much attention by the chief, who sent out his son, on an elephant, to welcome the English travellers; and afterwards invited them to a feast. "I need not state," says our traveller, "that we ate with our hands; but we soon ceased to wonder at a nobleman tearing a lamb in pieces and selecting the choice bits, which he held out for our acceptance. A long roll of leavened bread was spread in front of each of us as a plate; and, since its size diminished as the meat disappeared, it did its part well. Pilae and stews, sweets and soups, filled the trays; but the *donne bouche* of the day was a lamb, that had never tasted aught but milk. A bitter orange had been squeezed over it, and made it very savoury. Four trays of sweetmeats followed with fruit; and the repast concluded with sherbet, mixed with snow, the sight of which delighted us as much as our

new friends." On the day following this repast, many of the most distinguished persons in Peshawar paid visits to the travellers, who found them rather intelligent persons, and of very buoyant spirits. During conversation, many of them rose up and prayed in the room, when the stated hours for Mohammedan worship arrived. The chief, or shah, would sometimes, during the month in which the travellers sojourned there, pay them an unexpected visit, and throwing off the restraints of state, enter into familiar conversation.

On the departure of the travellers, the shah adopted a line of conduct which places the Afghans in a favourable light as to generosity and courtesy. He sent a Persian gentleman to accompany them to Caubul; and gave them, in addition to letters of recommendation to distinguished persons on the route, six blank sheets of paper bearing his seal, which he begged them to fill up with the names of any persons whom they believed could assist them. In return for these favours he could scarcely be prevailed upon to accept the smallest present from the travellers.

In proceeding through the plains from Peshawar to Caubul, we pass through a plain where the pestilential wind called "simoom" is frequently experienced. The natives of this country say that the simoom is generally fatal. Travellers, who have recovered, remark that it attacks them like a cold wind, which makes them senseless. Water, poured with great violence into the mouth, sometimes recovers the patient; and a fire kindled near him, has a good effect. Sugar and the dried plums of Bokhara are also given with advantage. Horses and animals are subject to the effects of the simoom as well as man; and the flesh of those who fall victims to it is said to become so soft and putrid, that the limbs separate from each other, and the hair may be pulled out with the least force. It is as malignant in its effects during night as in the day; and in summer no one ever thinks of travelling while the sun is above the horizon. In a party of thirty or forty individuals, one only may be attacked, nor are those who escape sensible of any change in the atmosphere.

After passing through a country varied by alternate hills and plains, we arrive at Caubul, the nominal capital of the whole country, though of late years shorn of some of its importance by the establishment of independent governments at Peshawar, Candahar, and Herat. Caubul is a busy and populous city. There is a hill near the Emperor Baber's tomb, from the summit of which a very extensive view of the city and its environs can be obtained. A plain, about twenty miles in circumference, laid out with gardens and fields in pleasing irregularity, intersected by three or four rivulets, which wind through it by a serpentine course, and wash innumerable little forts and villages, presents itself before the view. The great bazaar of the city is an elegant arcade, six hundred feet long, and divided into four equal parts. Its roof is painted, and over the shops are the houses of some of the citizens. In the evening it is said to present a very interesting appearance: each shop is lighted up by a lamp suspended in front, which gives the city an appearance of being illuminated. The number of shops for the sale of dried fruits is remarkable, and their arrangement tasteful. At some of the shops may be purchased pears, grapes, apples, melons, quinces, and other fruits; at others, snipes, partridges, ducks, plovers, and game; in a third range, books, and Russian paper; and many others. In the month of May, a favourite white jelly, called *falodeh*, is sold in great abundance at the bazaar: it is strained from wheat, and drunk with sherbet and snow: a pillar of snow stands on one side of the sellers, and a fountain plays near it, which gives these places a cool and clean appearance. In the most crowded parts of the city there are generally story-tellers amusing the idlers, or dervishes proclaiming the glories and deeds of the prophet. There are no wheeled carriages in Caubul; but as the streets are kept in a clean state in dry weather, and are intersected by small covered aqueducts of clean water, the city is much more cleanly in its appearance than the generality of Oriental towns. Most of the houses are built of sun-dried bricks and wood, and few of them are more than two stories in height. Caubul is particularly celebrated for its fruit, which is exported in great abundance to India. Its vines are so plentiful that the grapes are given, for three months of the year, to cattle. There are ten different kinds of grapes grown there; and the people apply them to many uses, besides making wine of the juice. They use its juice in roasting meat; and during meals, use grape-powder as a pickle: procured by drying the grapes before they get quite ripe, and grinding them: this powder

has the appearance of Cayenne pepper, and has a pleasant acid taste.

From Caubul our route takes us in a north-westerly direction, over the mountains of Hindoo Coosh to the city of Balkh, between two and three hundred miles from Caubul. These mountains are very lofty, and being covered deeply in snow through many months of the year, afford a formidable barrier to the passage of the traveller northward. On the road, we come to Bameean, once a celebrated city, but now celebrated only for the colossal idols which are presented to view. A hill in the middle of the valley of Bameean is quite honeycombed by excavated caves, which ramify in every direction. The hills on both sides of the valley are formed of indurated clay and pebbles, which render their excavation a matter of little difficulty; but the great extent to which it has been carried, excites surprise. The excavated caves have no pretensions to architectural ornament, being nothing more than holes dug in the hills. But the gigantic idols are, indeed, astonishing monuments of ancient times. They consist of two figures, a male and a female, cut in alto relievo on the face of a hill; the larger of the two being a hundred and twenty feet high. The male figure is mutilated; both legs having been fractured by cannon, and the countenance above the mouth is destroyed. The lips are very large; the ears long and pendant; and there appears to have been a tiara on the head. The figure is covered by a mantle, which hangs over it in all parts, and has been formed of a kind of plaster. The figure is without symmetry, nor is there much elegance in the drapery. The hands, which held out the mantle, have both been broken. The female figure is much smaller than the other, but similar to it in most respects. At the lower part of each figure are openings which lead to different caves or excavations in the hill; and through these there is an ascending road, which leads to the upper parts of the figures.

In travelling across the Hindoo Coosh range, Sir A. Burnes and his companions were frequently in danger of being robbed and seized by the rude inhabitants, who,—half Afghans, half Tartars,—owned no legitimate ruler, and lived in a predatory manner. Yet the buoyancy of an enterprising spirit enabled that officer to overcome all difficulties. He says: "The life we now passed was far more agreeable than a detail of its circumstances would lead one to believe, with our dangers and fatigues. We mounted at daylight, and generally travelled without intermission till two or three in the afternoon. Our day's progress averaged about twenty miles; but the people have no standard of measure: and miles, cosses, and fursukhs, were equally unknown, for they always reckon by the day's journey. We often breakfasted on the saddle, on dry bread and cheese; slept always on the ground, and in the open air; and after the night's march, sat down cross-legged, till night and sleep overtook us. Our own party was everything that could be wished, for the Nazir and his amusing fellow-traveller were very obliging. We were quite happy in such scenes, and at the novelty of everything; and it was also delightful to recognise some old friends among the weeds and shrubs. The hawthorn and sweet briar grew on the verge of the river; and the rank hemlock, that sprang up under their shade, now appeared beautiful, from the associations which it awakened. Our society, too, was amusing; and I took every favourable occasion of mingling with the travellers whom we met by the way, and at the halting-places."

Journeying on in this way, we suppose our fellow-travellers to have arrived at Balkh. This city, which gives its name also to a surrounding district, is of the highest antiquity. It was known to the Greeks in the time of Alexander by the name of Bactra; but it had been the capital of Persia at a far earlier period, having been fixed on as the royal residence by Khosroo, supposed to be the same as Cyrus the Great. All the Asiatics are impressed with the idea of its being the oldest city in the world, and, in consequence, distinguish it by the title of Omool Beland, the "Mother of cities." This ancient metropolis is now reduced to insignificance. Its ruins still cover a great extent, and are surrounded by a wall; but only one corner is inhabited.

Balkh is one of those cities which have become a sort of football among conquerors; now belonging to this nation, now to that. A century or two ago, it was under Persian dominion; then under that of the Afghans; afterwards under the chief of Khoondoo; and at the time when Sir A. Burnes wrote, it was included in the kingdom of Bokhara. The ruins of the city occupy an area of ground twenty

* A drawing of this colossal idol is given in *Saturday Magazine* Vol. IX., p. 295.



AFGHAN NATIONAL DANCE.

miles in circumference, and consist of fallen mosques and decayed tombs, built of sun-dried bricks. In its wide area the city appears to have inclosed innumerable gardens, which increased its size without adding to its population. It contains the remains of three large colleges, now in a state of decay, with desolate cells or rooms. A mud wall surrounds a portion of the town; but it must be of late age, since it excludes the ruins on every side for about two miles. The city, like Babylon, has become a perfect mine of bricks for the surrounding country; these are of an oblong shape. Most of the old gardens are now neglected and overgrown with weeds; the aqueducts are dried up; and the greater part of the city looks more like a monument of departed greatness, than an important Oriental town. The modern population and buildings of Balkh are not sufficiently of importance to need any descriptive details here; we will therefore proceed onwards.

Balkh is situated at some miles' distance from the Oxus, a river noted in the campaigns of Alexander, and moreover of commercial importance in our own day, as leading to Lake Aral, a little eastward of the Caspian Sea. Along the road leading from Balkh to the river our travellers proceeded in the following manner.—The horses were exchanged for camels, over each of which two panniers, called "kujawas," were thrown. One person got into one pannier, and one in the other, by which a balance was maintained,—a mode which was at first very incommodious to the travellers, for the panniers were but four feet long, and two and a half wide, so that it required some suppleness and ingenuity to place the body in a comfortable posture. At times they pitched their camp for the night on the ground, in the immediate vicinity of the Toorkman tents. "We had now no tents, nor shelter of any kind, but a coarse single blanket, which we used to stretch across two sets of panniers. Even this flimsy covering sheltered us from the sun's rays, and at night we had it removed, and slept in the open air. Our food now consisted of bread and tea, for the Toorkmans often object to dispose of their sheep, since it injures their estate; and we could only look on their countless flocks, with a desire to possess a single lamb, which often could not be gratified. Europeans, who are so much accustomed to animal food, are sensible of the change to a diet of bread, but we found it tolerably nutritive, and had much refreshment from the tea, which we drank with it at all hours. I found that abstinence from wine and spirits proved rather salutary than otherwise; and I doubt if we could have un-

dergone the vicissitudes of climate had we used such stimulants."

The river Oxus, at the part where it is approached from Balkh, is broad and noble, and is crossed in a curious manner. The travellers get into a boat, to which are yoked two horses by the hair of the mane. The bridle is then put on as if the horses were to be mounted; the boat is pushed into the river; and, without any other assistance than the horses, is ferried directly across the river. A man in the boat holds the reins of each horse, and allows them to play loosely in the mouth, urging the animal to swim, and, thus guided, he advances without difficulty. There is not an oar to aid in impelling the boat, and the only assistance from those on board consists in manœuvring a rough pole at the stern, to prevent the vessel from wheeling in the current, and to give both horses clear water to swim. They sometimes use four horses, in which case two are fixed to the stern of the boat. These horses require no preparatory training, since the natives yoke indiscriminately all that cross the river. By this ingenious mode a rapid river, nearly half a mile in width, is crossed in fifteen minutes.

On reaching the northern bank of the Oxus, we find ourselves in Toorkistan, the native country of the Uzbek Tartars, and the region from whence Genghis Khan and Tamerlane poured down their armies of rude barbarians on Southern Asia. The route to Bokhara, about half way between Balkh and the Aral Sea, lies not far from the northern bank of the Oxus, and along this route we proceed. The mode of travelling in this region, for persons going to Bokhara, is to start about six in the evening, and go over a stage of about twenty-five miles, by seven or eight in the morning, the camels moving at a steady pace, at the rate of about two miles an hour. At the rising and setting of the sun, the merchants who travel this route, and who, whether they belong to Bokhara, Persia, Balkh, or Afghanistan, are generally Mohammedans, halt to repeat their prayers. At other times also they halt to give drink to the camels.

Notwithstanding that the Oxus is so noble a river, the country on either side of it is little better than a desert, for a distance of a hundred miles, and over this desert not a town or a tree is to be seen. On the route from Balkh to Bokhara the first considerable town met with is Kurshee. It is a straggling place, a mile in length, with a considerable bazaar, and about ten thousand inhabitants, who live in flat-roofed, mean-looking-houses. A mud fort, surrounded by a wet ditch, forms a respectable defence on the south-west

side of the town. A river, which rises from Shuhur Subz, about fifty miles distant, and famous as the birth-place of Timour the Tartar, passes north of Kurshee, and enables its inhabitants to form numerous gardens, shaded by lofty trees.

The city of Bokhara, to which we at length arrive, is one of the most important cities of Asia, being situated in a central spot, having Russia on the north, the Caspian on the west, Persia and Caubul on the south, and the Chinese Empire on the east; thus forming a medium of communication for merchants trading from one country to the others. The city is of a triangular shape, and enclosed by an earthen wall, in which are eleven gates built of brick, with a round tower on either side. The widest street in the city measures but seven feet in width, and the narrowest only three or four. The houses are built of sun-dried bricks, on a framework of wood, and are all flat-roofed. They are arranged in the Oriental manner, presenting towards the street a mere wall, without windows, with a gate in the middle, leading to a court-yard, round which the rooms are placed, which, generally receive light through the doors. The town is intersected by canals, which receive water from a neighbouring river, the water being afterwards distributed to about seventy wells or cisterns, each a hundred and twenty feet in circumference. The Royal Palace stands on a conical hill, and is inclosed by a wall sixty feet high, which has but one gate, opening into a large corridor. This corridor, built over vaults, leads to the flat top of the hill, where the buildings stand in which the king and his court are lodged. These edifices consist of a mosque, the dwellings of the king and his children, the harem,—surrounded by a garden and concealed by trees,—and the vizier's house. Bokhara contains three hundred and fifty mosques, the principal of which stands opposite the royal palace, occupying a square of three hundred feet, with a dome a hundred feet high. The bricks forming the front are of different colours, and are so disposed as to form different designs of flowers tied together. Attached to this mosque is the minaret of Mirgharab, nearly two hundred feet in height, with a base seventy feet in circumference.

The city contains a great number of colleges, amounting to about sixty, of which one third contain upwards of seventy students each. These edifices are generally in the form of a parallelogram, two stories high, and inclose a spacious court-yard. In each story are two rows of chambers, one having its windows towards the court-yard, and the other towards the street. These chambers are sold to the students, who in this manner acquire a claim to a certain yearly maintenance from the college. The colleges have considerable revenues, the whole of the bazaars and baths of the city having been erected by pious persons, and left for the maintenance of the colleges and mosques. The number of the baths here alluded to is eighteen, some of which are of large dimensions, and consist of several vaulted chambers, built round a large basin filled with warm water.

There are fourteen caravanserais in Bokhara, all built on a similar plan, each consisting of a range of square buildings of two stories, inclosing a court yard, and having rooms round the court yard used as warehouses, and let to merchants. The bazaars are numerous and extensive, some of them being upwards of a quarter of a mile in length. In the shops with which they are lined on both sides, every sort of merchandize is exposed for sale, with the exception of woven goods, which are sold in large edifices built for that purpose; several of these edifices, each consisting of some hundreds of small shops, contain only the silk goods, which are manufactured in the town; while others contain the cottons, linens, and brocades of England, Russia, Persia, and India. The number of shops in the great square of the city is very considerable. Tents of different colours are filled with the more common manufactures of the country, but the greater part of this open square is a market, in which the fruits of the country, consisting of grapes, melons, apricots, apples, peaches, pears, and plums, are sold, as well as the more important necessaries of life. This great square is a place of great bustle and animation, where a stranger may meet with Persians, Jews, Turks, Russians, Chinese, Toorkmans, Mongols, Cossacks, Hindoos, Afghans, and Uzbecks. These are principally merchants carrying on the extensive trade of which Bokhara is the centre; importing tea, porcelain, silk goods, raw silk, rhubarb, and silver, from the Chinese dominions; cochineal, spices, sugar, tin, sandal-wood, woollen-cloth, leather, wax, iron, copper, steel, small looking-glasses, otter-skins, pearls, cast-iron utensils, needles, coral, cotton-velvet, and numerous other articles, by way of Russia; shawls, girdles, carpets,

and turquoise stones, from Persia; and shawls, brocades, muslins, pearls, precious stones, indigo, and other articles, from India.

Sir Alexander Burnes resided some time at Bokhara, and appears to have been much struck with the bustling appearance of the city. He says: "In every part of the open square there are people making tea, which is done in large European urns, instead of teapots, and kept hot by a metal tube. The love of the Bokharees for tea is, I believe, without parallel, for they drink it at all times and places, and in half a dozen ways: with and without sugar, with and without milk, with fat, with salt, &c. Next to the vendors of this hot beverage one may purchase 'ratrut-i-jau,' or the 'delight of life,'—grape jelly or syrup, mixed up with chopped ice. This abundance of ice is one of the greatest luxuries in Bokhara, and it may be had till the cold weather makes it unnecessary. It is pitted in winter, and sold at a price within the reach of the poorest people. No one ever thinks of drinking water in Bokhara, without icing it, and a beggar may be seen purchasing it as he proclaims his poverty and entreats the bounty of the passenger. It is a refreshing sight to see the huge masses of it, with the thermometer at 90°, coloured, scraped, and piled into heaps like snow."

The king of Bokhara is a more enlightened man than the generality of Asiatic monarchs; yet he is not free from that painful distrust which arises from fear of poisoning or assassination. The water which he drinks is brought in skins from the river, under the charge and seal of two officers; it is opened by the vizier, first tasted by his people and then by himself, when it is once more sealed and despatched to the king. The daily meals of his majesty undergo a like scrutiny; the minister eats, then gives to those around him who wait for an hour to judge of the effect of the food; after which the viands are locked up in a box and forwarded to the king. His majesty has one key of the box, and the vizier another.

We now leave the city of Bokhara, and proceed towards Mushed, on the frontiers of Persia. From the city to the Oxus is a sandy desert, which can only be crossed by caravans, supplied with the means of support and of defence against marauders. A great part of the distance is occupied by vast fields of soft sand, formed into ridges which bear some resemblance to those on many sea shores. The belt of these sand ridges, lying between Bokhara and the Oxus, is about twelve or fifteen miles in width; they are utterly destitute of vegetation, and present a remarkable uniformity of shape, generally that of a horse shoe. On the southern side of the Oxus, likewise, a similar character pervades the country. Here few towns, and those far between, are met with; and the traveller has but a weary time of it. While Sir A. Burnes and his companions were travelling across this sandy tract they met seven Persians, who had been captured by the Toorkmans, and who were then on the road to Bokhara to be sold as slaves. Five of them were chained together, and trod their way through the deep sand. There was a general expression of compassion among the travellers in the caravan; and the sympathy did not fail to affect the poor creatures themselves. They cried, and gave a longing look, as the last camel of the caravan passed onwards toward Persia, their native country. They had been seized by the Toorkmans near Mushed, a few weeks before, when the culture of their fields had led them beyond the threshold of their homes.

The arrangement of the numerous persons and camels forming a caravan through the Toorkman desert gives occasion for the display of much kindly feeling, which is almost universally shown. If a single camel throws its load, all the caravan waits till it is replaced. It has been observed, "A caravan is an interesting scene at all times; and the shifts of the pious to prevent its detention in the Toorkman desert are not unworthy of notice. The line is generally too extensive to sound a halt for prayers, but at the appointed time, each individual is to be seen on the back of his camel, or in his pannier, performing his orisons, in the best manner which he could accomplish them."

After passing through these sandy deserts, we come to the town of Merve, and next to Shurukha. Those towns being situated on the frontiers of the Persian empire, have often suffered from the incursions of the ruthless Toorkmans in the north, and the inhabitants seized and sold as slaves. The Toorkmans are divided into several tribes, but they all pursue nearly the same course of life. In small parties or gangs, they approach Persia by short and easy stages, and after reaching the frontiers, they will hover for days in

sight of a fort, watching for a favourable opportunity of capture. If none present itself, they make a dash upon the fields in the morning, while the shepherds and husbandmen are pursuing their occupations, and bear off with speed whoever they may be able to seize. If hotly pursued, they relinquish a spare horse with which every two individuals are provided, and gallop off to a place of safety. In such expeditions, the fleetness of his horse is the chief guarantee which the Toorkman has for his success, and he accordingly bestows the utmost attention on his beast. The Toorkmans are accustomed to subject the horses to severe exercise after a long abstinence from food and water, which brings the animals to a state of great hardihood. They are coarse-looking animals, with none of the sleekness seen in European horses; but the manner in which they are trained enables them to bear great fatigue. On one occasion, the inhabitants of the town of Merve were attacked, and Bairam Khan, with 700 followers, were captured by a large troop and carried to Bokhara; upon which the wives and daughters of the prisoners embodied and appeared in the field as soldiers, performing such feats as have caused their names to be handed down in songs and legends.

Shurukhs is a Toorkman settlement, consisting of a small and weak fort, situated on a hillock, under cover of which most of the inhabitants have pitched their tents. There are a few mud houses, which have been built by the Jews of Mushed, who trade with this people. But the Toorkmans themselves live in the conical houses peculiar to their tribe: they are constructed of wood, surrounded by a mat of reeds, and roofed with felts, blackened with soot. Two thousand families are here domiciled, and about an equal number of horses. If their town be attacked by a force, either from Persia on the south, or from Khiva on the north, which they are unable to resist, they flee to the desert, and remain there till the storm is over. Sir A. Burnes heard of an incident at Shurukhs, which illustrates the dreadful state of enmity between the people on either side of this frontier. A Persian youth, who had been captured by the Toorkmans, dragged out a miserable life of servitude at Shurukhs. He was resolved to be free, and chose the opportunity of his master being at an entertainment, to effect his object. He saddled the best horse in the stable; and on the very eve of departure was discovered by his master's daughter, who attempted to give the alarm. He drew his sword, and put the girl to death. Her cries alarmed the mother, whom he also slew: and as he was bidding his final farewell to Shurukhs, the master himself arrived. The speed of the horse, which had so often been employed in the capture of his countrymen, now availed this fugitive, who was pursued, but not overtaken: and thus, by an exertion of desperate boldness, did he regain his liberty, leaving the master to deplore the loss of his wife and his daughter, his slave and his horse.

As we shall soon leave the Toorkmans, we will give a brief description of one of their entertainments when guests are invited. Cakes are baked, about two feet in diameter, and an inch thick, of the coarsest flour, mixed up with slices of pumpkin. When the party assembles, a cloth is spread, and each person crumbles down the piece of cake which is laid before him. The meat is then brought, which generally consists of one entire sheep, boiled in a huge Russian pot. They separate the flesh from the bones, and tear it into as small pieces as the bread, with which it is then mixed. A dozen or more onions are then shred, and the whole, including meat, bread, and onions, is thrown into the hot liquor, or soup in which the sheep was boiled. The mess is then served out in wooden bowls, one of which is placed before every two persons. Each guest then fills his open hand from the bowl, and commencing from the wrist, licks up the soup like a dog, holding his hand and head over the bowl, which receives all that falls. Each of the two in his turn fills his hand, and holds his head over the bowl. Melons follow, and the banquet concludes with a pipe of tobacco. Such is an example of the manners of these children of the desert.

We now reach Mushed, the capital of Khorasan, and one of the most important cities in the Persian empire. The whole city is surrounded by a wall, which is said by the inhabitants to be twelve miles in circumference; but Mr. Fraser does not estimate it at more than one-half that extent. The wall, however, incloses many vacant spaces, which reduce the parts actually inhabited, to a much smaller limit. The whole city appears from the first to have been built of sun-dried bricks or mud, so that everything assumes the monotonous gray earthy colour common to all Persian towns. The approach to the houses is generally through

dark lanes and narrow alleys, "guiltless of the smallest attention to cleanliness or convenience." Most Oriental towns are deficient in broad streets, and Mushed is not an exception to this rule. The only street, worthy of the name, is that which extends from north-west to south-east. In the centre of this street runs a canal, the edges of which were once faced with stone; while large slabs of the same material were laid across at intervals as bridges: but many of them have fallen in, and the whole is greatly out of repair. A few trees are ranged along at the sides of the canal, and houses occupy both sides of the street.

The most important public building in Mushed is the Mausoleum of Imaum Reza, described as being one of the most splendid structures to be found anywhere in the East: it is situated in the centre of the city, and the roads leading from all parts of the adjacent country, meet at this spot. The first thing that strikes the eye on arriving at this point, is a noble oblong square, inclosing an area a hundred and sixty yards in length, and seventy-five in breadth, built in the manner of a caravanserai, having two stories of apartments all round, which open in front into a handsome arcaded gallery. In the centre of each side and end, there is a magnificent and very lofty gateway, serving as entrances. The large square inclosed in this manner, which is called the *Sahn*, is flagged with grave-stones, which form almost a continuous pavement, and under which lie the bodies of Persians of noble birth. Three of the gateways lead from the city itself, while the fourth, on the south-west of the square, is the entrance to the grand mausoleum.

This mausoleum comprises a mass of buildings of an octagonal form, and covers an area not much less than that of the *Sahn*. A silver gate admits the devotee into a passage which leads to the chief apartment, beneath a gilded cupola.

This apartment is of magnificent dimensions, rising into a lofty dome above, and branching out below into the form of a cross, the whole being ornamented with polished tiles, covered with azure and gold. The four lateral archways from this central apartment lead to shrines of most costly character. The arch at the north-west leads to a richly-carpeted room, in one corner of which is the shrine containing the ashes of the Caliph Haroun-al-Raschid: the shrine is surrounded by a massy grating of fine-wrought steel, within which is a railing of solid gold, and a door leading to the shrine is plated with gold and covered with jewels. Opposite to this jewelled door, an archway, screened by a curtain, leads to another octagonal apartment, domed, and lined with coloured tiles. This contains the bones of many great men. From the south-west archway in the great central chamber a broad passage leads to a court belonging to a very beautiful mosque. Both sides of this court are formed of buildings similar to those of the *Sahn*, having two stories of niches or compartments: it is paved with flag-stones, and in the centre is a small tank, which, with several jars in different corners, is kept full of water, for the purposes of ablution, or for quenching thirst. The mosque in the middle of this court has but one dome and one archway, which rises to a great height, in a noble screen, that conceals the neck of the dome. At either end of this screen rise minarets of a beautiful form, and the whole is richly decorated with coloured tiles. On each side of the space beneath the dome there are arcaded apartments, with matted floors, for the use of the moolahs, and those who retire to pray or to read the Koran: there is also before the archway a large platform, matted for the convenience of devotees, but the greatest number of these pray under the opposite archway of the mausoleum, or the niches on either side, which are fitted up for the purpose.

But it is necessary now for us to leave Mushed and its gilded mausoleum, and proceed on our journey.

Mushed is situated south-east of the Caspian Sea, and the route by which Europe may be reached is generally by way of Astrabad, on the shores of that sea. This distance is passed through a country beset with dangers of the same kind as those which occur north-east of Mushed. The Toorkmans of the Caspian, as they are called, have nearly the same love of plunder as their brethren, and the traveller has to look sharply about him while on this route. Sir A. Burnes had, through an interview with the Prince Royal of Persia, at Mushed, gained the assistance of a large escort in his future journey. Some Toorkmans had entered the Persian service, and the following incident, related by that traveller, will farther illustrate the manners of this people. "On winding through the valley we had an opportunity of witnessing an interesting sight, in the welcoming of a chief, or 'Aksukal,' who had accompanied us from Koochan. We

had only known him as a wild Toorkman, and, for my own part, I had scarcely noticed him; but here he was a noble, and what is greater, a patriarch. He had been summoned by the Prince Royal, and now returned to his home. For miles before reaching the camp the Toorkmans crowded about us to bid him welcome: all of them were on horseback, men, women, and children, and several of them cried as they kissed his hand. At length, in a shady and picturesque part of the valley, a party which appeared more respectable than the others, had dismounted and drawn up. This was the family of the chief: he leaped upon the ground with the enthusiasm of a youth, rushed forward, and kissed in succession four boys, who were his sons. The scene was pathetic, and the witty Persians, who had before been imitating some of the actions and exclamations of the Toorkmans, were silenced by this fervent flow of affection. Three of the boys were under ten years of age, yet they mounted their horses with spirit, and joined the cavalcade."

Through a country inhabited by Toorkmans, but subject, nominally at least, to the power of Persia, we travel onward to the shores of the Caspian; during the course of which route we pass through a few towns, but none of importance till we reach Astrabad.

Astrabad is the capital of a small province, bounded on the north by the Caspian Sea and the Toorkman Desert, on the south by the Elburz mountains, on the west by Mazanderan, another Persian province, and on the east by the river Gourgan. The capital is not above ten miles from the shores of the Caspian, and is believed to owe its origin to Yezid ibn Mehloob, an Arab general, who built it towards the end of the first century of the Mohammedan era. The circumference of the town is about three miles and a half, the whole being surrounded by a high and thick wall, which is now in a ruinous condition. The streets are generally paved, and their cleanliness is promoted by a drain which runs through the centre of them. The town contains but few public buildings worthy of note. When Sir A. Burnes passed through it, he found it devastated by the plague which had visited it a short time before. Half the shops and houses were closed, literally for want of masters; and the whole town presented a very dreary and desolate appearance.

From Astrabad we proceed through the provinces of Astrabad and Mazanderan, to Teheran, the present capital of Persia. This district, like many others in the East, is frequently attacked with the plague, which produces sad devastation. An English traveller was informed by an inhabitant of one of the towns that he had lost a son by the disease, and that he and his wife had both been attacked. She was nursing a child at the time; and though she continued to suckle it, the infant escaped the danger. The man stated that he had had the horror to see his own child dragged to the door by eight or ten cats, whom he with difficulty scared away; and affirmed it as his belief, that more people were killed by dogs and cats on the occasion, or died from hunger, than from the disease itself.

Teheran is approached from the east either by horses or mules, through a country which presents few natural points of interest.

Here we take leave of our journey. We have before described Teheran, and on two former occasions have traced the overland route from about Teheran to Europe, 1st.—through the provinces between the Caspian and Black Seas, and thence through Russia; and 2nd.—along the northern shore of Asia Minor to Constantinople. It will not be necessary, therefore, to go again over this ground. The countries through which we have passed have been very rarely indeed visited by Europeans, and are inhabited by nations possessing, generally speaking, considerable vigour of character. The Seikhs of the Punjab, the Afghans of Caubul, the Uzbeks of Balkh and Bokhara, and the Toorkmans of the sandy desert forming the northern boundary of Caubul and Khorasan, are all distinguished by such characteristics as make a journey among them no light matter. The overland journey is sometimes made in a direction somewhat more southerly, from Delhi towards Moultan near the Indus; thence to Candahar, in the middle of Caubul; thence to Herat, at the boundary between Caubul and Persia; and from Herat to Mushed. But the nature of the travelling along this route, and the objects met with by the way, do not differ much in character from those which have here engaged our attention.



A TOORKMAN CAMP.



BRITISH GUYANA.



NATIVE HUT AND CANOES.

V. THE DEMERARA AND BERBICE RIVERS.

HAVING described the scenery and chief points of interest on the Essequibo river and its tributaries, we shall be able to dismiss in a narrower space our notice of the remaining rivers.

The river Demerara is situated between the Essequibo and the Berbice, and is navigable for ships of burden to a distance of about one hundred miles. For thirty miles from the mouth the country on the banks consists of extensive level meadows; then succeed numerous sand-hills; and lastly a hilly region occurs, which gives rise to cataracts and rapids, at a distance of about a hundred miles from the source. The banks of the river present nearly the same appearance as those before spoken of, and the white inhabitants become more and more scattered the farther we ascend the river. The natives have many habits and usages peculiar to this part of the country, and among them we may mention the remarkable mode of catching birds by the "blow-pipe."

A reed grows in Guyana to the length of twelve or fourteen feet, perfectly straight and uniform throughout its whole length, hollow, free from knots or joints, of a bright yellow colour, and perfectly smooth inside and out. Another kind of reed or stem also grows there, which is brown, knotted at intervals, and susceptible of a fine polish. The natives collect one of each of these kinds, extract the pith from the larger stem, and insert the

reed within it, thus giving strength to the reed. This forms the blow-pipe of the Indian, into which he inserts a short arrow, and applies one end to his mouth, to blow the arrow out. The arrow is about ten inches long, and is made out of the leaf of a species of palm-tree, hard and brittle, and pointed as sharp as a needle. The middle of the arrow is bound round with cotton, to make it nearly fit the tube: one end is scorched, to make it harder, and the other end is poisoned. A quiver is provided which will hold five or six hundred arrows.

With a quiver of poisoned arrows slung at his back, and the blow-pipe in his hand, the bird-hunter advances cautiously to the woody region where the birds are located. When he espies a bird within arrow-distance, he takes a poisoned arrow from his quiver, puts it in the blow-pipe, directs the tube towards the bird, applies it to his mouth, and blows strongly and suddenly through it. Seldom does he miss the object of his aim. If the bird be struck, or if the skin merely be pierced, it is generally dead within three minutes afterwards. The bow and poisoned arrows are also employed by the natives in their search for large birds and quadrupeds.

The river Berbice, which is eastward of the Demerara, was but little known until explored by Mr. Schomburghk, in 1836-7. When this part of the colony was in the hands of the Dutch East India Company, there were settlements on the banks of the river to a distance of

sixty miles from the sea, but now, from various causes, there are but few white inhabitants met with above the town of New Amsterdam. At one spot Mr. S. met with a neat cottage, the proprietor of which (a Dutchman) cultivated rice, and received the travellers very kindly. Farther on he met with a large wood-cutting establishment, belonging to a Mr. M'Cullum, and employing about two hundred Indians and fifty negroes: these men fell the trees, and square the timber. The Indians were kindly treated by their employer, and are said to be excellent working servants, but there are some proprietors of land who act unfairly and ungenerously towards these tribes: they supply an Indian with articles on credit, sometimes to a large amount, provided he is able to work, being aware that the Indian deems himself in duty bound to work for his creditor until the debt is paid: but many wood-cutters use every means to prevent his getting out of debt, by constantly supplying him with more goods and large quantities of rum, whereby the poor Indian is kept in a state of bondage. To lessen this evil, a protector of Indians has been appointed.

The natives pass on the shallow parts of this river in very flat, shallow, light canoes, called woodskins. They are made of a single piece of the tough bark of the *muriana* tree, which grows to a very large size: an incision is made in the bark to the extent required, and it is then removed by driving in wedges: when loosened from the wood the bark is kept open by cross-sticks, and is supported at the extremities upon two beams. Vertical incisions, about two feet asunder, and a few inches in depth are then made, and the parts secured by overlapping. This frail boat, although one man can carry it with ease on his head, frequently holds three persons and a quantity of luggage, in passing through the shallow parts of the Berbice river.

High up the river the party came to a spot where the contracted stream forms an entrance to a natural basin, bordered by hills, and here occurred a fall, not very deep, but of too great rapidity to permit the canoes and boats to be forced up it, which was done in many other instances. The party therefore hauled up, and conveyed the baggage by hand to the head of the fall, but the large canoes, or *corials*, were forced through the rushing water. Hendrick, a courageous Indian, gained one of the rocks in the middle of the cataract, and seized the end of a boat-rope which was thrown to him. He then carried it to a less dangerous place, to which some of the other Indians had arrived by swimming; and the whole party then drew the corial by main strength up the opposing current. In effecting the same object with another corial Hendrick lost his footing in the middle of the cataract, and was swept away, but being just enabled to grasp tightly a rope thrown out to him, he was fortunately saved.

This part of the river abounds in *kaymans*, or large alligators, animals which appear to be very tenacious of life. On one occasion a *kayman* was shot, the ball taking off the end of the snout: another ball was lodged in the hinder part of the skull; and after the Indians had beaten the animal till life appeared to be extinct, it was lifted out of the water, and placed in the bow of the corial. When, soon afterwards, the corial had to be drawn up a rapid, the *kayman* was in the way, and two men took it up, to move it to a more convenient place; but scarcely had they done so when it suddenly leaped into the water. On another occasion, when a *kayman* had been shot and taken, a piece of the windpipe three inches in length was cut out, to ensure the death of the animal, but it was still found living the next day, and was only finally despatched by piercing the brain with a sharp knife.

Snakes of rather a fearful size are found on the banks of the river. One measuring sixteen feet in length and twenty-eight inches in circumference was seen by the party close to the shore. Hendrick jumped ashore, and

dexterously slipped a noose round its head, and was on the point of securing it, when the snake turned round and made a motion as if to dart at him. At this attack all his courage forsook him, and he retreated with precipitation over bushes and rocks into the water. The other Indians stood petrified, and could not be persuaded to put a finger to the rope by which the snake was held. At this juncture a timely shot from one of the party despatched the snake and redeemed the rope.

It was on the 1st of January, 1837, that Mr. Schomburghk, somewhat dispirited at the toils and difficulties which he had encountered, met with that wonderful flower which, at his request, was named after Her Majesty, and which the reader will call to mind as the *Victoria regia*. He says:—

Some object on the southern point of the basin attracted my attention: I could not form any idea of what it might be, and I hurried the crew to increase the rate of their paddling: in a short time we were opposite the object of our curiosity,—a vegetable wonder. All calamities were forgotten; I felt as a botanist, and felt myself rewarded. A gigantic leaf, from five to six feet in diameter, salver-shaped, with a broad rim of a light green above, and a vivid crimson below, rested upon the water: quite in character with the wonderful leaf was the luxuriant flower, consisting of many hundred petals, passing in alternate tints, from pure white to rose and pink. The smooth water was covered with them, and I rowed from one to the other, observing always something new to be admired.

Mr. Schomburghk then proceeds to describe more minutely the botanical features of the flower, but this description we must pass over.

Our travellers espied a large herd of *kairounies*, or Indian hogs, and, as their stock of provisions was getting low, an attack on the herd was resolved on. The hogs were wallowing in a pool of muddy water, one being left as sentinel to give the alarm if an enemy approached. This sentinel was fired at, and immediately the whole herd of two hundred scampered off in an opposite direction. The party dispersed in various directions to shoot some of the hogs during their retreat, but it so happened that the Indians unintentionally drove the herd towards the spot where Mr. Schomburghk was standing alone.

I heard a rushing noise (he says) like a whirlwind, approaching through the bushes: the peculiar growl, and that awful clapping of the teeth, did not leave me long in doubt as to its cause: it was evident that the herd had divided, and were coming directly towards me. I stood alone, unarmed, and had not even a knife to defend myself. I know not yet how I climbed the lower part of a mora tree, when by they rushed, their muzzles almost sweeping the ground, and their rough bristles on the back standing erect. They came past like a whirlwind, and before I had recovered from my astonishment I heard them plunge into the river, and swim over to the opposite bank.

When the party had explored the river Berbice almost to its source, they returned, and on approaching near the settlements Mr. Schomburghk lost by death an enterprising young companion who had shared his dangers and toils. On February 11 this gentleman, Mr. Reuss, suddenly became low-spirited, and said "he knew he should die young." On the following day the corials had to be directed down a rapid and cataract by the skill of some of the Indians. Mr. Reuss determined to make one of the party, against all the solicitations of Mr. Schomburghk. The corial was launched down the rapid, Mr. Reuss standing when he ought to have been seated, and, by some bad management the corial became upset, and all the crew precipitated into the river. Mr. Reuss was drowned, and his companions had the melancholy task of interring him on the banks of the river.

The travellers had not seen a human habitation of any kind for the space of two months, when, on the 20th February they arrived at some Indian huts. From thence they proceeded to the European settlements, and finally came to New Amsterdam, from whence they started.

We now conclude our notice of British Guyana. There are one or two other rivers which we have not particularly noticed, but the notable objects presented by them so nearly resemble others which have already engaged our attention, as to preclude the necessity for farther description. The reader will gather from these details, that British Guyana is a beautiful and fruitful country, abounding in animals and plants of various kinds,—thinly inhabited by dark-skinned natives, who are generally of a peaceful character,—and by colonists at a few towns situated near the mouths of three or four rivers flowing northward into the Atlantic.

DO STONES GROW?

THE opinion that stones grow and increase in size is very popular, and very erroneous. We hear it stated by many persons with all the certainty of a well attested fact, and yet there are few vulgar errors which rest upon a more flimsy foundation.

A writer, who, by the ease and familiarity of his style first attempts to render a very difficult subject popular, often runs the risk of diffusing error as well as truth. M. de Tournefort, the immediate predecessor of Linnæus, deprived botany of much of its forbidding aspect, and greatly promoted its study by a new system of classification and a new and easier method of description. In 1702, after returning from his travels in the Levant, he wrote an account, among other objects, of the botanical productions which he had examined during his travels. In surveying the labyrinth of Crete he observed that the names which visitors had engraved upon the rock were not formed of hollow but of prominent letters, like basso-relievos. He supposes that these letters were at first hollowed out by knives; that the hollows have since been filled up by the growth of the stone; and hence he indulges in the fancy that stones increase in size like the productions of the vegetable world which constituted his favourite study.

The pleasing style of Tournefort's Travels caused his book to be much read, and hence arose the popular error that stones grow. It would be satisfactory to be well assured that the letters were at first hollowed, before attempting to account for their prominency; but assuming the fact to be as he states it, we proceed to state a few of the conditions necessary to the growth or enlargement of matter.

The various objects of the material world are conveniently arranged into two great classes, the organized and the unorganized: the former includes animals and plants, and the latter minerals. In animals and plants we observe a system of organs, gradually rising from a very simple to a very complex method of arrangement, and destined to the performance of certain vital functions. In minerals we find none of these organs, and consequently there cannot exist in them the vital principle which is the distinctive character of the former. We readily admit also that vitality was not present in minerals during their formation; but the slightest trace of organization in any natural body is a clear proof that life does exist or has existed in it. Unorganized bodies are made up of elementary atoms, or of proximate principles, in which elementary atoms are united in certain definite proportions. When these are brought together in a gradual manner by the force of affinity from a state of solution or of fusion, they assume various geometric forms called crystals. These crystals can only increase in size by the addition of other atoms to their external surfaces, and it often happens that this increase goes on to an indefinite extent; the original crystalline form being constantly maintained. Should the circumstances under which these crystalline forms are produced cease to operate, the atoms may still unite and form shapeless masses which, however, possess the same definite character of composition as if they had

been recently crystallized. Rocks and stones, the ocean and the atmosphere, are mixtures of simple minerals, or of the simple substances of which the latter are formed. The earth itself, and probably the various heavenly bodies, are regarded as large masses of mineral or unorganized matter.

Although an animal or a plant is in substance composed of the same simple atoms as those which compose minerals, yet they are eminently distinguishable from the latter by the manner in which they increase in bulk. The various organs of such bodies are not, as in the structure of minerals, similarly composed throughout; they increase by the assimilation of food, which being received into the system through certain cavities or vessels, is formed by peculiar processes into specific compounds, adapted to the nutrition and growth of the animal or plant. Now, in the example furnished by Tournefort, the protuberancy of the characters cannot be called growth, nor, as he terms it, vegetation; because it is, in no respect, effected by a process similar to the vegetation of a plant. Vegetation supposes vessels containing fluids and growth by expansion; but would any one contend for a moment for the existence of vessels in a stone; of fluids moving in them; or of the different parts expanding and swelling like the branch or trunk of a tree? Even the fact, as stated by Tournefort, proves nothing; for he does not pretend that the rock itself is increasing in bulk, but only that a few insignificant hollows have become filled up with fresh stony particles which project a little beyond the general surface of the rock. This filling up may be explained by referring to the process by which stalactites are formed. When water saturated with calcareous matter is exposed to the air, the water evaporates, and the calcareous earth remains behind and gradually hardens into stone.

The popular notion that stones grow, has led to the practice of watering coals and keeping them wet for a long time before they are used. The effect of this practice is simply this: When the wet coals are thrown upon the fire they cannot burn until the greater part of the moisture is converted into steam, and thus dissipated; a large portion of the heat which would otherwise warm the apartment is now lost; for it combines with the water to form steam, which, with the smoke, ascends the chimney instead of radiating into the apartment.

The distinctions which we have pointed out between organized and unorganized matter will be sufficient to show that a negative answer must be given to the question, "Do stones grow?" The precise limits between minerals and organized bodies may be considered as ascertained; but the line of demarcation between the two kingdoms of organized nature is by no means precise. However simple the questions may appear, "What is a plant?" and, "What is an animal?" naturalists have found great difficulty in answering them in such a manner as to satisfy all the conditions under which organized matter is found. For a long time it was considered satisfactory to define a plant as "a being with life and without the power of locomotion," and an animal as "a being possessing life and the power of locomotion;" but such definitions lost their value when it was found that some of the lower tribes of animals had not the power of moving about from place to place; and that some plants could do so to a certain extent. Perhaps the most constant distinction between these two great classes is the presence in animals of internal *sacs* or *stomachs* for the reception of food; organs with which plants are not furnished.

There is no difficulty in admitting that plants, in common with animals, possess vital energy, which distinguishes them from inert matter, and displays itself by its effects. If we would extend the inquiry beyond the examination of these effects, and seek to know what *vitality* is, we are soon brought to a pause, and admit the inefficiency of our means to penetrate those mysteries

which the Almighty has concealed from us. We see that vitality and organization accompany each other; but vitality does not depend on mere structure; it is not produced by respiration alone, although this process seems necessary to it; it is not heat, for this is only an effect of vitality, although a certain degree of temperature favours it; our most refined chemistry scarcely leads us one step nearer to the cause of this wondrous principle; vitality resists those combinations in organized bodies which so unerringly occur when life is extinct. The flights of imagination as well as the sober reasonings of philosophy, fail to inform us of its nature: we can only regard its effects in silent admiration, and think of it as that divine emanation from the Almighty, first communicated to man when "He breathed into his nostrils the breath of life."

ON CHESS.

XI. CHESS-WRITERS AND PLAYERS, (continued.)



CHESS-PAWN, AS DESIGNED BY FLAXMAN.

Bright in the front the dauntless soldiers raise
Their polished spears: their steely helmets blaze.
Prepared they stand, the daring foe to strike,
Direct their progress, but their wounds oblique.

SIR WILLIAM JONES.

In the early part of the eighteenth century Captain Joseph Bertin obtained a distinguished rank among chess players. He seems intitled to the merit of having invented the "Three pawns' gambit:" which being afterwards adopted by the celebrated player Cunningham, it was named by Philidor "the Cunningham gambit," by which term it has since been known; but, as Mr. Walker remarks, from its construction involving a sacrifice of three pawns, it is more correct to term it the *Three pawns' gambit*. In 1735 Captain Bertin published a small work, entitled "The noble Game of Chess." "Printed for the Author, and sold only at Slaughter's Coffee-house, in St. Martin's Lane." This work contains the laws, twenty-six games, and twelve endings. Among his rules, the author makes a remark which every chess player will appreciate:—"I wish I could give rules to avoid oversights."

Mr. Cunningham, the critic and editor of Horace, a gentleman of taste and learning, had moreover the reputation of being the first chess-player in Europe. His acquirements gained him the friendship of many distinguished persons. It is said that while Lord Sunderland and Mr. Cunningham were at the Hague, they frequently played at chess, and after continuing to play for some time his lordship discovered that if either one before playing was jolted in the carriage, in passing over the rough streets of the Hague, he was generally the loser. For this reason his lordship discontinued going to Cunningham, but for some time sent for him. Under this new arrangement Mr. Cunningham found, to his no

small astonishment, that he lost most of his games; and when the plan was at length revealed, he insisted that the visits should be reciprocated. This new arrangement is said to have restored the former ratio of success between them; but, as was remarked to Mr. Twiss, those who believe in this anecdote must think that the head of a chess player, before he plays, must be moved as carefully as a bottle of old port before it be decanted.

During Mr. Cunningham's residence at the Hague, a German prince, having heard of his great skill at chess, sent him an invitation to go and play on a certain day. Mr. Cunningham, who had acquired an European reputation in chess, did not choose to risk it against a stranger, and therefore asked Mr. Ogilvie, a Scottish gentleman in the Dutch service, to pay a visit to the prince as Mr. Cunningham's pupil. This was agreed to, and Mr. Ogilvie waited upon the prince with a note from Mr. Cunningham to the effect that he could not avail himself of the honour of accepting the prince's invitation for the hour named, but that he had sent one of his pupils to attend in his place, and in the event of his being beaten, Mr. Cunningham would himself attend and play with the prince. Mr. Ogilvie beat the prince in every game; which so greatly mortified him, that, thinking the master would vanquish him still more easily than the pupil, left the Hague on the following morning without even waiting to see Mr. Cunningham.

This distinguished player died in his native country, Scotland, in 1732, more than eighty years of age.

The next player of eminence is Philippe Stamma, who styles himself "native of Aleppo in Syria, and interpreter of the oriental languages to the King of Great Britain." He published at Paris in 1737 a small work containing a hundred situations or ends of games: many of these are very instructive, and ought to be known by every chess student: others, says Sarratt, there is every reason to believe, never occurred in the course of a game, and it may be doubted whether they could occur. We may add that the same remark also applies to many of the chess problems of our own day.

In an edition of this work in French, published by Stamma at the Hague in 1741, and dedicated to Lord Harrington, we find the following amusing anecdote among the rules and cautions which he gives to the chess student:—

Be very careful how you capture a piece which your adversary offers you for nothing: for he intends either to win one of your superior pieces, or to give you check-mate. This stratagem is frequently practised among good Arabian players.

It is related that a young man of this country, still under paternal authority, having learnt the game of chess, took so much pleasure in it that he neglected everything else. His father having often reprimanded him without effect, became at last so angry that he threatened one day to kill him. The son fell on his knees, demanded pardon, and stated that this game was more useful than his father seemed to think it; but that he would continue to play no more. After a moment's reflection the father demanded the use of such a game, for he could see none, except it were to encourage idleness. "My father," replied the son, "this game teaches me many things that will be very useful to me during my future life. If for the good of my country I were required to go to the wars, this game teaches me how to fight with advantage. If I were on a journey, and robbers were to attack me, I should know better how to defend myself than one who has not acquired skill in this game."

"Tell me how this is possible," said the father. "You must put me to the proof;" responded the son. The father did so: he sent his son on a distant journey, with a large sum of money to buy merchandise.

When the young man was on his road, the father sent four men after him to rob him. When the son found himself opposed to these robbers, he dismounted quickly, abandoned his horse, and taking refuge behind walls and hedges, escaped. He then accomplished the object of his journey, and succeeded in bringing his merchandise safely home.

He then related to his father what had happened. "As

soon as I was attacked," said he, "I bethought myself of an expedient frequently adopted at chess, viz., to sacrifice my horse to save my life and my money; in the same way as at chess I sometimes sacrifice my knight, in order to save my king or my queen."

The father was so much pleased with the skill and address of his son, that he not only forgave him, but determined to learn the game. This little story, says Stamma, is far more pleasantly related in the Arabic, in which language the knight is called the horse.

Stamma was in London in 1745, and published an improved edition of his treatise, which has since been edited with notes by Mr. Lewis. In 1747, Stamma tried his skill against Philidor in a match of *en games*; Philidor giving him the move, and allowing a drawn game to be a lost one. With these advantages Stamma won only two games, of which one was a drawn game.

As it is our intention to *conclude* these brief notices of chess players and writers with an account of Philidor, we proceed to notice a few of the principal satellites which, during a considerable portion of the last century, hovered round the greatest luminary that ever threw lustre on the science of chess.

In 1750, a treatise entitled "Practical and Theoretical observations on the Game of Chess," was published at Modena. "The author," says Sarratt, "chose to conceal his name, and it is difficult to assign a satisfactory reason for his diffidence, for it is unquestionably a publication of great merit and real utility." For many years the author of this book was referred to as "The Anonymous Modenese," but it is now known that Dr. Ercole del Rio was the author. In 1820, Mr. Bingham published "The incomparable Game of Chess developed after a new method of the greatest facility, from the first elements to the most scientific artifices of the game." This high sounding title, which, like all such, promises more than it performs, is applied to a work which professes to be a translation from the Italian of Del Rio, whereas the real author is Domenico Canonico Ponziani, an advocate in the Ecclesiastical Courts, and a friend of Del Rio, who was an advocate in the Civil Courts. Mr. Bingham has translated the third edition of this book, published at Venice in 1812, which is greatly inferior to the second, published at Modena in 1782, the third, as Mr. Cochrane thinks, being probably a reprint of the first. In the advertisement to the second edition, Ponziani is distinctly stated to be the author, and is said to have been assisted by his friend Del Rio, in the composition of the work.

The work of Del Rio received a commentary from the labours of Lolli in 1763. This commentary, (a folio volume of 632 pages,) "like that of Coke upon Littleton, or of a Dutch scholiast upon a classic, exceeds a hundred-fold the bulk of the original work." The size of this book, adds Mr. Cochrane, was, on its first publication, ridiculed in Baretti's *Frusta Literaria*. It is, however, the most complete and valuable treatise on chess which has hitherto appeared. This high praise was given by Mr. Cochrane in 1822, and although many valuable works on chess have appeared since that time, Mr. Walker, in the third edition of his excellent treatise, (1841,) does not hesitate to pronounce Lolli's "the most classical work on chess extant."

We conclude the present article with an amusing anecdote, related of the Duke de Nivernois:—

When this accomplished nobleman was ambassador to England, he was going to Lord Townsend's seat, at Rainham in Norfolk, on a private visit, *en déshabille*, and with only one servant, when he was obliged by a very heavy shower to stop at a farm-house in the way. The master of the house was a clergyman, who, to a small curacy, added the care of a few scholars in the neighbourhood; which in all might make his living about eighty pounds a year: this was all he had to maintain a wife and six children. When the duke alighted, the clergyman, not knowing his rank, begged him to come

in and dry himself; which the other accepted, by borrowing a pair of old worsted stockings and slippers, and warming himself by a good fire. After some conversation, the duke observed an old chess-board hanging up; and, as he was passionately fond of the game, he asked the clergyman whether he could play. The latter told him, that he could play pretty tolerably; but found it difficult in that part of the country to get an antagonist. "I am your man," says the duke. "With all my heart," answers the clergyman; "and if you will stay and take pot-luck, I will see if I cannot beat you." The day continuing rainy, the duke accepted his offer; when his antagonist played so well, that he won every game. This was so far from fretting the duke, that he was pleased to meet a man who could give him so much entertainment at his favourite game. He accordingly inquired into the state of his family affairs; and making a memorandum of his address, without discovering his title, thanked him, and departed.

Some months elapsed, and the clergyman thought no more of the matter, when, one evening, a footman rode up to the door, and presented him with a note.—"The duke de Nivernois' compliments wait on the Rev. Mr. ———; and as a remembrance for the good drubbing he gave him at chess, begs that he will accept the living of ———, worth 400*l.* per annum; and that he will wait upon his Grace the Duke of Newcastle on Friday next, to thank him for the same."

The good clergyman was some time before he could imagine it to be any more than a jest, and hesitated to obey the mandate; but as his wife insisted on his making a trial, he went up to town, and, to his unspeakable satisfaction, found the contents of the note literally true.

ON THE PRESERVATION OF TIMBER.

WHEN we consider how large a quantity of timber is necessary to the construction of a ship, and when it is stated that the average durability of the vessels of the Royal Navy does not exceed fifteen years, we readily admit the vast importance of any successful means of counteracting those deteriorating influences to which large combinations of wood-work are peculiarly liable.

Vegetable matter, in common with all organic substances, is subject to decomposition and decay, as soon as life becomes extinct; and although the process is comparatively slower in its commencement and progress in vegetable than in animal matter, it is not under ordinary circumstances, the less certain. During the existence of a plant, its various organs, under the influence of the mysterious principle of life, perform their respective functions in a manner similar to that of which we are more readily conscious in the animal frame. The plant absorbs its food from the soil and the surrounding air; it digests that food under the influence of respiration, and prepares rich and nutritive juices which circulate throughout its whole vegetable frame, and deposit materials of growth wherever they are wanted; it sheds its leaves in Autumn, undergoes a season of torpor, and again becomes active and vigorous: thus it is clad in fresh leafy honours in the following Spring. All this is the effect, or rather the result, of vitality. The plant dies; and then its constituent parts gradually assert their individual existence, and resume their original affinities. Some pass into the air; some form new compounds; and others, which during the life of the plant ministered to its healthy action, now work energetically and destructively on each other: so that the original mass gradually decomposes under the influence of various causes. The first step to decay is a process of fermentation, which is more or less rapid, in proportion as heat and moisture are more or less present. In the absence of damp air, even the vegetable mass will of itself supply moisture; for, according to Count Rumford, the best seasoned timber retains one-fourth of its weight of water. A certain extent of moisture is

essential to vegetable fermentation; but a complete saturation appears inimical to it. A temperature not so low as to produce freezing, nor so high as to produce rapid evaporation, is also favourable to it. The humidity of the air in ships, and the difficulty of obtaining a free circulation of air, contribute greatly to this fermentative process.

The chemical constitution of the vegetable kingdom yields to analysis only three or four ultimate elements, viz., oxygen, hydrogen, and carbon; and sometimes nitrogen. The most active agent in the process of decomposition is the oxygen contained in the dead plant, whether such decomposition proceed under the rapid influence of fermentation, or be produced more slowly by the operation of the law which renders decay the necessary consequence of organization. As soon as the tree is felled the oxygen begins to be liberated and to act upon the woody fibre, combining with its carbon and producing carbonic acid gas. The tenacity of the several parts is thus gradually destroyed. After timber is felled, and during the process of seasoning, a gradual diminution of strength may be remarked. The effect, however, of seasoning is to deprive the wood of superabundant moisture, and of those vegetable juices which would otherwise induce a rapid decomposition.

In addition to the natural decay of timber, the decomposition is often accompanied by the apparently spontaneous vegetation of parasitical fungi, inducing a species of decay to which the term "dry rot" is applied, probably in consequence of the attendant phenomena; the wood being converted into a *dry* friable mass, destitute of fibrous tenacity. It is uncertain whether the seeds of these fungi exist in a dormant state in the juices of the timber, and wait only until the first stages of decomposition furnish them with a nidus favourable to their growth; or whether they float in the atmosphere and settle in places favourable to their vegetation. It is found, however, that badly seasoned timber is peculiarly subject to this species of decay; and hereby the former of the two suppositions just advanced is favoured.

From the moment when timber is felled the process of decay commences, and although so slowly in many cases that we are not conscious of it, yet there is a limit to the existence of the most durable articles of wood, however carefully preserved. Dryness, cleanliness, a free circulation of air, or the entire exclusion of it, are among the best checks to vegetable decomposition; while damp accumulations, and a vitiated atmosphere, rapidly induce it.

Unseasoned timber should never be used in ship-building, and the best seasoned timber should be used only in a dry state. Diseased and decayed portions of the wood should be cut out, together with the sap-wood, which, being more soft and porous than the spine, is more liable to fermentation.

The iron fastenings used about timber frequently cause its premature decay. Iron under the influence of moisture becomes rusty,—that is, oxygen, either from the air or from the wood itself, unites with the metal, forming an oxide, which, in its turn, acts upon the woody fibre, and gradually destroys its tenacity. The iron is further subject to attack from the acid juices of the wood: this effect, however, varies in different woods. Oak contains a smaller proportion of oily or resinous particles than many other kinds of wood; and, in addition to the usual vegetable acid common to most woods, oak contains an acid peculiar to itself, called *gallic* acid: in teak, on the contrary, the quantity of acid is not only smaller, but the resinous particles are very abundant, and these form a sort of protecting covering to the iron fastenings. Mackonochie states, on the authority of the shipping built in India and used in the India trade, that the average duration of an iron-fastened teak ship is thirty years; and that it is a misapplication of expense to use copper fastenings with teak, as the additional ad-

vantage gained is not at all commensurate with the additional expense. But it is different with oak: the action of oak on copper is by no means so destructive as on iron, and the reaction of the metal on the wood is not so destructive.

The methods which have been from time to time adopted for the preservation of timber are so numerous that a slight sketch of them would probably fill a good-sized volume. We will name a few of the most successful, and terminate this notice with a description of the method now in practice.

Mackonochie recommends all the iron fastenings to be provided with a protecting paint, and to impregnate the timber with some oily preparation, which he proposes to effect thus: the wood is to be placed in a steam-tight chamber, and subjected to the action of steam, by which the air will be expelled from the timber. Then by condensing the steam, and repeating the process until all the elastic fluids are withdrawn from the wood, and its juices converted into vapour, the wood becomes freed from them; and if plunged into oil, and subjected to atmospheric pressure, all the internal cavities of the wood will be filled with oil. In this way Mackonochie had in daily use a steam-chamber capable of containing twenty or thirty planks of timber, forty feet long, in which, while the planks were steaming, to render them flexible, they were impregnated with teak oil. He says the oil may easily be procured from the caips and saw-dust used for the fuel of the steam-boilers; for it has been ascertained that Malabar teak contains such a quantity of oleaginous (oily) or terebinthinous (turpentine) matter, that the chips from the timber and planks of a ship built of it will yield, by a proper process, a sufficient quantity of tar for all its own purposes including the rigging; and that, although oak timber does not contain so much of these substances, the chips of the fir alone consumed in the Royal Navy, would be more than sufficient to supply tar to saturate the oak.

There have been many other proposals to saturate timber with different substances; the most successful of which, up to the process of Mr. Kyan, was that of M. Pallas, whose plan was to saturate the timber in a solution of sulphate of iron, and then precipitate the salt by means of lime-water. About the year 1822 Mr. Bill produced samples of timber impregnated throughout with a substance resembling asphaltum. These samples were subjected to a trial of five years in the dry-rot pit at Woolwich, and withstood the fungus-rot perfectly. Sir John Barrow recommends kreosote, which he says "in a vaporous form penetrates every part of the largest logs, and renders the wood almost as hard as iron,—so hard as not easily to be worked."

Mr. Kyan's plan, now so universally adopted, is to soak the timber in a solution of bichloride of mercury, commonly called corrosive sublimate.

Aware of the established affinity of corrosive sublimate for albumen, Mr. Kyan applied that substance to solutions of vegetable matter, both acetous and saccharine, on which he was then operating, and in which albumen was a constituent, with a view to preserve them in a quiescent and incorruptible state; and obtaining a confirmation of his opinions by the fact, that during a period of three years the acetous solution, openly exposed to atmospheric air, had not become putrid, nor had the saccharine decoction yielded to the vinous or acetous stages of fermentation, but were in a high state of preservation, he concluded that corrosive sublimate, by combination with albumen, was a protection against the natural changes of vegetable matter. He conceived, therefore, if albumen made a part of wood, the latter would be protected by converting that albumen into a compound of protochloride of mercury and albumen; and he proceeded to immerse pieces of wood in this solution, and obtained the same result as that which he had ascertained with regard to the vegetable decoctions.—BIRKBECK.

It having been found that the precipitate caused by the Kyanization was soluble in salt water, Sir William Burnett has lately substituted chloride of zinc for corrosive

sublimate, and the resulting compound which this forms with the albuminous portion of the wood, effectually resists the action of salt water.

THE CADDIS, OR SPRING FLY.

GREAT is the variety of insects to be observed at this season of the year, in the vicinity of pools and shallow streams of water. The labours of naturalists have taught us to distinguish many of these beautiful forms, and to refer them to their respective families; but how impossible does it appear for an ordinary observer to attain to more than a very superficial acquaintance with them, or to view without bewilderment the diversified shapes and colours of aquatic insects only. Among their numerous tribes, few can be found more interesting to the angler, than the may-flies and caddis-flies which form some of his most important living baits: these insects are highly curious in their larva state on account of the singular nature of the covering with which they invest themselves. Some particulars relative to the *Phryganea* or caddis-fly will doubtless prove acceptable to many of our readers.

The larva of the caddis insect may be seen crawling upon subaquatic plants, or lying passive at the bottom of our clear streams, enclosed in a case of its own construction, the materials of which are very different in different species. In many popular descriptions of insects caddis-worms are spoken of as constituting but one species, and as selecting indifferently from the materials around them, those best adapted to form a protection to their bodies. The Linnæan genus *Phryganea*, has, however, been found to contain about two hundred British species, and it is little doubted by our best authorities but that each of these has its own method of working, and consequently its own particular form of case. Izaak Walton was not ignorant of this, for we find him speaking in his chapter on baits, of "divers kinds of *cadis* or *case-worms* that are to be found in this nation, in several distinct counties and in several little brooks that relate to larger rivers." Respecting these varieties of caddis he has many directions to give, and of three of them he enters into a particular description. The first he calls a *piper*, "whose husk or case is a piece of reed about an inch long, or longer, and as big about as the compass of a two-pence." This description of caddis-worm is commended by the worthy angler as a choice bait for chub or chavender, or indeed for any great fish. "There is also," he continues, "a lesser cadis-worm, called a *cock-spur*, being in fashion like the spur of a cock, sharp at one end; and the case or house in which this dwells is made of small husks and gravel and slime most curiously made of these, even so as to be wondered at, but not to be made by man, no more than a kingfisher's nest can, which is made of little fishes' bones, and have such a geometrical interweaving and connexion as the like is not to be done by the art of man. This kind of cadis is a choice bait for any float-fish. There is also another cadis, called by some a *straw-worm* and by some a *ruff-coat*, whose house or case is made of little pieces of bents and rushes and straws and water-weeds, and I know not what; which are so knit together with condensed slime, that they stick about her husk or case not unlike the bristles of a hedgehog."

The faculty is indeed worthy of our admiration which enables these little worms to provide for their own safety at a period of their being, when, their bodies being very soft and tender, they would be exposed to more than ordinary danger. The cases of all caddis-worms have one feature in common, that is, they consist of a cylindrical tube open at both ends. Some of these tubes are simply formed of a slender and narrow bit of grass, which is rolled in a beautiful spiral direction; others are

concealed by a drapery of leaves falling over them in a natural and graceful manner; and others are entirely covered with shells, some of which occasionally contain living snails fixed in that position without the power of moving. The worm keeps possession of its case by means of two hooks situated at the extremity of the body, and so firmly do these hooks maintain their hold, that it is almost impossible to separate the insect from its case without injuring it. The caddis-worm has a long body, and the legs, six in number, are situated on the first three segments near the head. These are the only portions which are generally exposed in walking, and they differ from the rest of the body in being firm and hard and little liable to injury. Mr. Rennie made repeated experiments with caddis-worms to ascertain their mode of building. He deprived them of their coverings and furnished them with materials for constructing new ones, watching their proceedings throughout. He describes them as working at the commencement in a very clumsy manner, attaching a great number of chips to whatever materials may be within their reach with loose threads of silk, and thus surrounding themselves with materials many of which are never used in the perfect building. Unskilful as their efforts may at first appear, there is much wisdom in this aggregation of all the substances within their reach, before their dwelling is actually commenced; for when these preparations are completed, they are able to devote their whole attention to the building, and to select the requisite materials from the heap close at hand. The natural cement used by the caddis-worm to unite together the rushes, sticks, stones, &c., of which its house is composed is said to be superior in standing water, to *pozzolana*, the celebrated cement prepared of volcanic earth, or larva. As soon as the dwellings are sufficiently advanced, the larvæ shut themselves up in them and do not again protrude more than the half of their bodies to procure materials. It is not to be supposed that the caddis-worm is regulated in its choice of a proper covering for its body, simply by the instinct of self-preservation from danger: this little creature has an instinctive knowledge that when the covering is made of stones, sticks, or shells glued together, the dwelling, owing to its specific gravity, remains at the bottom of the water, where the food of the species inhabiting these kinds of houses is mostly to be found; and again, other kinds of caddis are endued with instinct to choose materials that shall be lighter than water, to float on the top that they may seek their food from thence.

When the larvæ have attained their full size, they prepare for the change they are about to undergo, into the pupa state. In the first place, they make their cases secure from being carried away by the stream: this they accomplish by spinning threads from their bodies, and attaching them to the case, and also to some large stone. They likewise secure the mouth of the case from the entrance of insects by a beautiful net-work of these threads, the meshes of which are sufficiently close to exclude extraneous substances, but yet allow a free passage to water. This grating, or net-work, consists of a small, thickish, circular lamina, of brown silk, becoming as hard as gum, which exactly fits the aperture of the case, and is fixed a little within the margin. It is pierced all over with holes disposed in concentric circles, and separated by ridges which go from the centre to the circumference, but often not quite so regularly as the radii of a circle, or the spokes of a wheel. These radii are traversed again by other ridges, which follow the direction of the circles of holes; so that the two kinds of ridges crossing each other form compartments, in the centre of each of which is a hole. When the larva sheds its skin, it appears for a time as a quiescent pupa, inclosed in a distinct case: the head, however, is furnished with a pair of curved mandibles, which appear to serve no other use than that of making a

passage through the open-work grating of silk at the time the insect is about to assume its perfect state. When this time arrives the insect is endowed with power of motion far greater than are possessed by any other incomplete pupa; so that it not only cuts through the grating of silk, but creeps out of the case, leaves the water, and, throwing off its skin, appears as a caddis-fly.

The character of the tribe of insects to which the different species of caddis-fly belong, are as follows:—the mouth nearly obsolete, the mandibles being either entirely wanting, or minute and membranous, as are also the under jaws and lips; the palpi are however present, the posterior wings are generally larger than the superior, and folded longitudinally when at rest; the eyes are prominent and globular; the legs are long and slender. The whole insect is of a small or moderate size, and generally of an obscure pale brownish colour. The different species are found flying, chiefly after sunset, about streams, ponds, &c., and are very similar to each other in general appearance. Like the may-flies, these insects appear in successional groups, and though they are commonly called Spring-flies, some of their species are to be seen even in the autumnal season, thus affording food for fishes, birds, &c., all through the Summer months. The most prominent variety of caddis-fly is the *Phryganea grandis*, or stone-fly of anglers. Cotton, the friend and disciple of Walton, gives a description of this insect as follows:—"His body is long and pretty thick, and as broad at the tail almost as in the middle: his colour is a very fine brown ribbed with yellow, and much yellower on the belly than the back: he has two or three whisks also at the tag of his tail, and two little horns upon his head; his wings when full grown are double, and flat down his back, of the same colour, but rather darker than his body, and longer than it, though he makes but little use of them, for you shall rarely see him flying, though often swimming and paddling with several feet he has under his belly, upon the water, without stirring a wing." This fly is much recommended by anglers as a bait both for trout and grayling, but is more successfully used late in the evening than at mid-day. Some of the caddis-flies are remarkable, like certain moths, for their long antennæ, and these are often actively employed when the insects are at rest. These organs have been observed moving about in all directions, as if by their means the fly was exploring everything that occurred in its vicinity. Caddis-flies may be distinguished from the lesser moths by the curiously wrought reticulated structure of their wings, generally destitute of the powdery appearance of the moth; also by their palpi, or feelers, and by the stemmata on the top of their heads.



THE SPRING FLY.

FORGET-ME-NOT,
OR MOUSE-EAR-SCORPION-GRASS,
(*Myosotis palustris*.)

THIS beautiful little flower, which enamels the brinks of our rivers with its corollas of celestial blue, has become celebrated by a German tale, full of melancholy romance. It is related, that a young couple, who were on the eve of being united, whilst walking along the banks of the Danube, saw one of these lovely flowers floating on the waves, which seemed ready to carry it away. The affianced bride admired the beauty of the flower, and regretted its destiny, which induced the lover to precipitate himself into the water to secure the flower. He had no sooner done so, than he sank into the flood, but making a last effort, he threw the flower upon the shore, and, at the moment of disappearing, exclaimed: *Vergiß nicht nicht*; since which time this flower has been made emblematical, and taken the name of "Forget-me-not."

The *Myosotis palustris* is seen nowhere in greater perfection and abundance, than on the banks of a stream in the environs of Luxembourg, which is known by the name of the Fairies' Bath, or the Cascade of the Enchanted Oak. The romantic banks of this stream are covered with these pretty blue flowers, from the beginning of July until the end of August, and being reflected in the pure waters, appear more numerous than they really are. To this favourite spot the young girls often descend from the ramparts of the town to spend the leisure hours of their holidays in dancing on the borders of this stream, where they are seen covered with the flowers which the waters afford them. The stream is called the Cascade of the Enchanted Oak, from the circumstance of the spring's escaping, with a murmuring noise, from the root of an oak, of great antiquity.

For some years past this little flower has been cultivated in France with the greatest care, and when sent to the Parisian markets, it finds a more ready sale than any exotic plant. The pots being filled with young cuttings, that readily take root and blossom, present such a mass of these delicate little flowers, as must surprise those who have not seen them thus treated.

The generic name of this plant is derived from that given it by the ancients, who called it Mouse-ear, from the form of the leaves; and the French, on the same account, call it *Oreille de Rat*, Rat's-ear. It frequently flowers in May, and continues to give out a succession of blossoms until the end of August. It is increased by separating the roots, and planting them in a moist but free earth; and when planted thickly on the banks or borders of streams or ornamental lakes, it is seen to peculiar advantage. When cultivated in pots, it should be shaded until the slips have taken fresh root; after which the pots should be placed in an open and free air, giving them water when the weather is dry. When in blossom, they may be taken into the house, where these elegant little blue flowers, with their bright yellow eyes, cannot fail to attract all the admirers of nature's charms.

We earnestly recommend the cultivation of this little beauty, and particularly so to those cottagers who live near towns, as, by transplanting the trailing branches from their borders into small pots, they would find it profitable to send them to market; for few people would withstand the temptation of purchasing these alluring flowers.

In the Netherlands, it is common to make a syrup of the juice of the myosotis; which is given as a remedy against consumptive coughs.

[PHILLIPS' *Flora Historica*.]

LONDON:

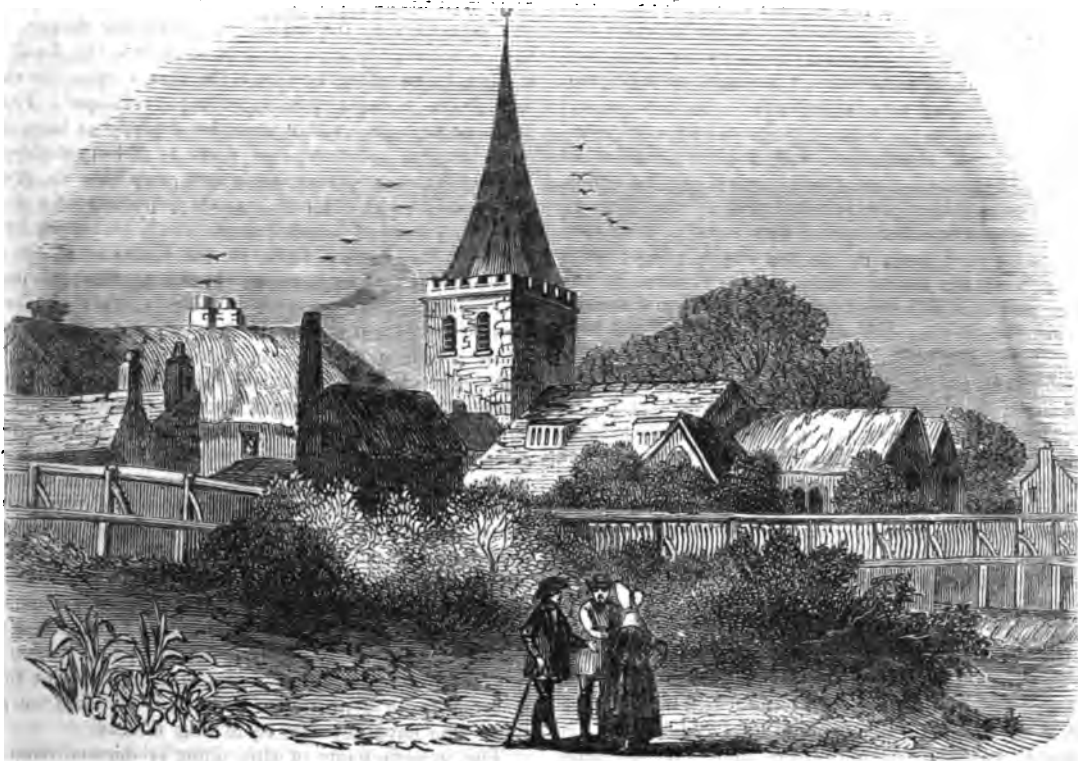
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THE BANKS OF THE THAMES. II.



VIEW OF GREAT MARLOW.

Of in her glass the musing shepherd spies,
The headlong mountains and the downward skies,
The watery landscape of the pendant woods,
And absent trees that tremble in the floods:
In the clear azure gleam the flocks are seen,
And floating forests paint the waves with green,
Through the fair scene roll slow the lingering streams,
Then foaming pour along, and rush into the Thames.

POPE.

In our first article on this subject, we conducted the reader to a part of the Thames nearly parallel with the ancient town of Woodstock, and the magnificent seat of Blenheim;—the one carrying us back, in imagination, to the days of the Edwards and Henrys, and the other to the times of Queen Anne.

The town of Woodstock, considered in a commercial point of view, is not of much note; but the records of English history make frequent mention of it. It is said that Woodstock Park was a royal residence as early as the time of King Alfred, and that this monarch resided there while translating Boetius. Camden states, that in the time of King Ethelred, father of Edward the Confessor, it was so considerable a place, that he there held a convention of the states, and enacted several statutes. The park is supposed to have been enclosed by a stone wall in the time of Henry the First; and in the reign of Henry the Second, Woodstock was the scene of Fair Rosamond's brief but eventful history. The story of this maiden, of the monarch's affection for her, and of Queen Eleanor's revenge, have been woven into a kind

VOL. XVIII.

of romantic legend, the truth of which cannot now be determined; but it is probable that, like the story of Joan of Arc, the maid of Orleans, the groundwork is correct, but the details have been highly coloured during the lapse of time. Be that as it may, of the bower and the mazy labyrinth, furnishing the scene of the story, no vestiges now remain. It has been asked—

What art can trace the visionary scenes,
The flowery groves and everlasting green,
The babbling sounds that mimic Echo plays,
The fairy shade and its eternal maze?

In Woodstock Park, Geoffry Chaucer, the "father of English poetry," is said to have been born in the early part of the fourteenth century; and to have resided there a considerable time, in a house near the area before the grand entrance to the palace.

Here he dwelt—

For many a cheerful day these ancient walls
Have often heard him, while his legends blithe
He sang, of love, or knighthood, or the wiles
Of homely life, through each estate and age,
The fashions and the follies of the world
With cunning hand pourtraying.

Woodstock Palace, two centuries afterwards, was the scene of the imprisonment of Elizabeth, during the reign of her unnatural sister Queen Mary, and it is said that the royal prisoner wrote the following lines, with charcoal, on the window-shutter of her apartment:—

Oh, Fortune! how thy restless wavering state
Hath fraught with cares thy troubled witt,
Witness this present prisoner, whither Fate
Could bear me, and the joys I quit.
Thou caus'dst the guilty to be loosed
From bands wherein are innocents inclosed,
Causing the guiltless to be straites reserved,
And freeing those that death well deserved,
But by her malice nothing can be wrought,
So God send to my foes all they have thought.

Anno Dom. 1586.

ELIZABETH, PRISONER.

In the reign of Queen Anne, Woodstock Manor, together with the dilapidated palace, were granted to the Duke of Marlborough, as an acknowledgment for his brilliant services in the continental wars. The nation also built for him the splendid palace of Blenheim, named after a village in Germany, near which he had gained a splendid victory. To describe this mansion at length, would be out of place in our present course of papers; but we may say that, in spite of numerous architectural defects, it forms one of the most magnificent residences in the kingdom. The grand entrance from Woodstock is through a triumphal arch; and Mr Ireland says:—

It is from this distance the stately pile is most happily viewed; its various towers, rising into the horizon, beautifully break the massy and more ponderous form it wears on a nearer approach. The verdure of the swelling lawn on which it stands, the spacious and easy slope inclining towards the rich valley below, aided by a fine expanse of water, wearing the appearance of a noble river, terminated by a spacious stone bridge, (the centre arch of which is of superior dimensions to the famed Rialto at Venice, being a hundred and one feet,) with a happy assemblage of rich groves and plantations in the distance, form a beautiful coup d'œil, surpassing anything I remember to have seen in this or any other country.

The expanse of water, here alluded to, was artificially formed; and Brown, the landscape-gardener who planned it, was so proud of its beauty, that he was wont to say, "that the Thames would never forgive him for what he had done at Blenheim."

We must now leave Woodstock and Blenheim, and return to the Thames, which flows past Oxford at a distance of eight or nine miles from Blenheim Palace. If we were unable to enter minutely into the details of this noble building, how much less can we do justice to this seat of education, with its numerous colleges and halls, and the associations with which it is so intimately connected, and by which we can trace back its existence for more than a thousand years.

Oxford is situated at the confluence of the Isis and the Chârvell, the latter of which rivers flows southward through Oxfordshire to the point of junction with the former. The united streams wind their way through verdant scenery to the village of Isley, about a mile and a half below the city. This village is situated on a beautiful eminence, commanding a distant prospect which includes almost every building in the university.

The river now flows almost directly southward, from Oxford to Nuneham Courtenay, a distance of about six miles; and, at the last-mentioned spot, we meet with the seat of the Earl of Harcourt, the representative of a very ancient family. The heiress of this manor married, in 1214, Robert de Courtenay, baron of Okehampton, and the manor thence acquired the name of Nuneham Courtenay. The estate afterwards came into various hands, until it finally became the property of the Earl of Harcourt. Of the ground surrounding the house, Mr. Brewer remarks:—

The park contains nearly twelve hundred acres, and vines, in every division, great richness of natural circumstance, improved by the hand of reverential rather than of presumptuous art. Perhaps the talent of Brown*, who assisted in the arrangement of the grounds, was never dis-

* This individual was a celebrated landscape-gardener, employed in the early part of the last century in laying out the grounds belonging to many distinguished English mansions.

played to greater advantage. Each artifice to heighten pictorial effect is so judiciously concealed, that the whole seems graceful in the simplicity of nature, though no superabundance obstructs the wishes of refined taste. From various points are obtained views of the Witenham hills, of a part of Buckinghamshire, and the high elevations above the vale of White Horse. A drive is formed which conducts to the chief objects of interest in the park; and continues through a wood that falls with a steep descent to the river Isis, the bank of which is here very abruptly and finely broken by steep and bold projections.

In the grounds of Nuneham Courtenay, is a tree known to the country people by the name of *Bab's tree*, the history of which marks the kind and considerate feeling which so often exists between the country nobility and their tenants. This tree was planted by one Barbara Wyatt, who was so much attached to it and to her humble residence near it, that when the village of Nuneham Courtenay was removed to its present site, some generations back, she petitioned for leave to remain in her old habitation. Her request was complied with, and her cottage not pulled down till after her death. A poem was written on this subject by Whitehead, and placed on a seat beneath the tree.

From Nuneham Courtenay, a distance of about four miles brings us to Abingdon, a considerable town on the Berkshire side of the river. This town is said to trace its records as far back as the time of the ancient Britons, when it was a town of considerable importance, and distinguished as a royal residence; whither the people resorted to assist at the great councils of the nation. We next learn, that it acquired the name of Abendon (the town of the Abbey,) on the removal hither, in the year 680, of a monastic institution, to which the town belonged. Abingdon afterwards became a favourite residence of some of the Saxon monarchs; and William the Conqueror placed his son Henry under the care of the monks of the abbey, for his education. The subsequent history of the town was of that fluctuating character, which so frequently resulted from the politics of the period; but we need not trace it further.

Abingdon is pleasantly situated at the junction of the small river Ock with the Thames, or, rather, the Isis: it is handsomely built, consisting of several spacious streets, diverging from a central market-place; well paved and lighted, and amply supplied with water. The manufacture of woollens, formerly carried on here to a great extent, has quite declined. Malting is now the principal business, and, together with the dressing of hemp, and the making of sacking and sail-cloth, constitute the chief employment of the labouring classes. The number of inhabitants is between five and six thousand.

King Henry the Fifth, about the beginning of the fifteenth century, built two bridges over the Thames near Abingdon, at Culham and at Burford; and these bridges added much to the commercial importance of the town. Ashmole gives a translation of some Latin lines relating to these bridges:—

King Henry the Fifth, in the fifth of his reign,
At Burford and Culham did bridges build twain;
Between these two places, but from Abingdon most,
The king's highways now may be easily past;
In one thousand four hundred, and ten more by six,
This so pious work did his Majesty fix;
Ye passengers now who shall travel this way,
Be sure that you mind for the founder to pray.

The following appears to relate to one of the bridges, but is in English of a more ancient date:—

King Henry the Fift, in his fourth yere,
He hath y'found for his folke a bridge in Berkesshire,
For cartis with earriage may goo and come clere,
That many wynters afore were maied in the mire.
And som ouk of her sadels fleets to the grounde
Went forthe in the water wist no man where.
Five wekys after, or; they were y'founde,
Her kyn and her knowlech caught hem tip with cart.

The appearance which the river presents depends a good deal on the proximity of considerable towns. In the open country, where green fields descend nearly to the water's edge, and country residences are seen at a distance, many picturesque and beautiful scenes present themselves, which have often formed studies for the landscape painter. In these parts, on the contrary, where a market town stands on the banks of the river, the Thames voyager sees wharfs and other commercial indications, whereby the thoughts of a miniature London are presented to his mind. Abingdon, Reading, Henley, Great Marlow, and other towns, occur, in this way, at intervals along the route; but it cannot be doubted that the occasional view of commercial industry, alternating with more serene natural objects, give a variety to the scene which greatly enhances its interest. We cannot fully appreciate the beauty of nature's productions, unless we occasionally compare them with the suder works of man.

WAXEN FRUIT.

HAVING shown in a former article* the method of preparing artificial flowers in wax, we propose here to disclose the usual process of producing Fruit and other objects in WAX. We must, therefore, speak first of the moulds;—secondly, of the casting;—and thirdly, of the colouring.

1. Before we can proceed to work in making the moulds, it is necessary to have the following articles at hand:—a little grease and some superfine plaster of Paris, together with a basin, a spoon, a table-knife, a pot full of damp sand, some thin tinned iron, which must be cut into strips of three inches wide, and some string.

Now, if we wish to make a mould for an apple, for instance, we of course take a real one to mould from. We press down the apple into the damp sand, until nearly one-half of it is buried,—that is, until the sand reaches the thickest part, which, in an apple, is near the middle; and in a pear, near one end. A pear may be inserted sideways; but an apple must not: because the latter would not then *deliver*;—that is, when the upper part is surrounded with the hardened plaster, as it soon will be, it cannot be drawn out, on account of the depression at the stalk and eye of the apple; but, by placing it with the stalk or eye end downwards, this difficulty is avoided. In making moulds of every description, it is necessary above all things to set out with precautions of this nature.

When the apple is nearly half sunk in the sand, bend one of the pieces of tin into a hoop, so as to be an inch or thereabouts larger across than the apple; tie a piece of string round it, and place it over the apple, forcing its lower edge into the sand, so as to hold it firmly. Put water to some plaster of Paris in the basin, so as to make the mixture of the consistence of thick cream;—it will thus run into every minute depression, and completely cover up the half of the apple exposed above the sand, while it will be prevented from flowing away by the rim of tin around.

In a minute or two the plaster will become sufficiently set, or hardened, to be handled. When this is the case, remove the tin, and take up the fruit out of the sand altogether, there being now one half of the mould cast. This must be trimmed with a knife, for the sake of appearance; and particularly where the sand has touched, cut carefully smooth at the exact half of the fruit; for it will have been observed, that, as the apple was not quite half buried in sand, the part of the mould now cast will be rather more than half, a small part being allowed for cutting away evenly. Now make a hole or two, or a few notches, on one side of the cast, where the other is to join it; grease this part well, holes and all, and tie round it tightly one of the pieces of tin: the

fruit will now be in the same position, in respect to the half-mould, as it was when in the sand, except that it is now the other end upwards. Now pour plaster upon this other end, and the mould will be complete, except a little trimming, which it will require. The parts will easily separate at the joining, and, on taking out the real fruit, a cavity will of course be found of the exact size and shape, ready for filling up with wax.

Those fruits which have hard or rough skins, require greasing, to prevent the plaster from sticking to them: this is the case with the peach, apricot, and walnut,—the almond, &c. A few fruits require the mould to be in three pieces,—such as the melon, mulberry, and blackberry. Other fruits are never thus imitated in wax; as grapes, currants, and many more of the smaller kinds, on account of the trouble of joining them together afterwards in bunches.

2. In order to enter upon the process of casting, it is necessary to have in readiness several small pipkins, some white wax or spermaceti, a basin of cold water, and the following colours:—the palest chrome yellow, Prussian blue, burnt umber, red lead, flake white, and lake, all in powder, or rather, ground up with oil, as used for painting.

The process of casting all of the larger fruits is the same: but, as we may suppose our apple-mould to have been prepared, we will proceed with the process of casting the wax.

Melt some of the wax slowly over a small fire; and when melted, add a little chrome yellow, and, if we would choose to have a green apple, we must put a very little Prussian blue along with it. While this is going on, the mould should be soaking in the basin of water. When the wax is ready, take the mould out of the water and wipe the inside of it dry with a cloth. Pour the melted wax into it, holding one half of the mould in the hand, until it is nearly full; put the other half-mould over in its exact position, which will be indicated by the various notches or holes cut in the sides. Next, hold the two parts tightly together, and turn them over and over, until the melted wax within has spread itself on every part of the inside of the mould. Thus continue it in motion, until the wax is completely set, or congealed, which will be after a minute or two, and may be known to be the case, when, by shaking the mould, no noise of a liquid is heard within. When thus partly hardened, it must be placed for some minutes in the basin of cold water, when most probably the mould will separate of itself; if it does not, very little trouble will suffice to remove it from off the apple, which, as to its casting, is now complete, and will of course be found more or less hollow in proportion to the quantity of wax employed.

In imitating large fruit, the hot air within the mould, having no vent, will sometimes make the wax spurt from the joint: this is to be avoided by holding the filled mould upright a few seconds before turning it about. The edge around the cast fruit where the two sides of the mould joined, must be pared off carefully with a knife. All the foregoing process may be followed up in casting oranges, lemons, eggs, yellow-plums, walnuts, pea-pods, capsicums, &c.

3. In the last-named fruits due regard must of course be had to the variation of colour. If the fruit be partly coloured in the process of casting, much care in after painting is requisite.

Suppose we wish to have a red blush on the apple, a little dry lake is taken up with a bit of flannel, and rubbed evenly on the side of the fruit. If a streaked apple be wanted, mix a little lake with spirits of turpentine; then, taking a small quantity in a short-haired, stiff brush, jerk it out of the brush on to the fruit, when it will run down the sides and produce the desired effect. If any peculiar marks are to be imitated, they may be painted with any of the above-named colours, mixed with

* See Saturday Magazine, Vol. XVII., p. 204.

mastic varnish. This varnish is also used, when it is desired that the fruit should be very shining, as cherries are: but, if rough-coated fruit be wanted,—as, for example, the peach,—it must be cast as usual, then coloured on one side with dry lake, varnished, and, immediately after varnishing, sifted over with paper powder. The bloom of red plums, and of dark grapes, is made by dusting over them powder-blue from a muslin bag.

Strawberries, cherries, and other small fruit, are always cast solid; that is, after the mould is made, instead of pouring in the wax to the one-half of the mould, and putting the other half on it, a hole is made at the crack between the two halves, and the mould being held upright, wax is poured in, until it is full.

Grapes are formed of glass globes made on purpose; these are of different sizes, and have each a small nozzle or mouth like that of a phial. To fit them up in bunches take some pieces of iron wire; twist a piece of sewing cotton near one end of each wire, so as to fit the mouth of a certain grape; dip it into melted wax, and insert it into the mouth, when it will become fixed there: then dip the grape thus formed into melted wax coloured lightly with green: by taking it out instantly it will dry, having a coat of the wax upon it, which makes it look very much like a real grape. These grapes should be tied together in bunches of about thirty in a bunch. Currants are made with smaller glass globes, but in a similar manner: to give them the peculiar appearance of the opaque lines seen upon them, a piece of sewing cotton is to be wound in sections round the fruit previous to dipping. The remains of the flower at the end of an apple, pear, &c., is imitated by a clove being thrust into the waxen image.

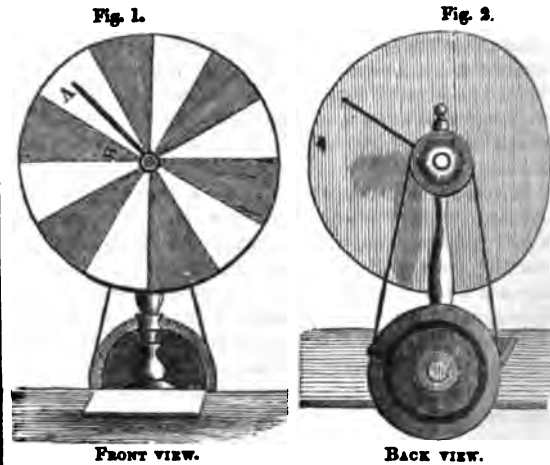
Anatomical preparations, of which many are so complex, and so finely illustrative of morbid anatomy, cutaneous disorders, &c., are all effected according to the directions given for waxen fruit, and coloured, after casting, with common oil colours by precise similar methods. Hence it is, that a consideration of the processes before described, cannot be deemed to be a waste of time.

The principal objects manufactured in wax for ornament, are fruits, various articles of pastry, eggs, peas in the pod, capsicums, dolls, miniature busts, flowers, leaves, &c. Miniature busts and wax dolls are coloured with flake white and lake; and they are also much better, if a little Canada balsam be mixed with the wax.

BODILY labour is of two kinds, either that which a man submits to for his livelihood, or that which he undergoes for his pleasure. The latter of them generally changes the name of labour for that of exercise, but differs only from ordinary labour as it rises from another motive. A country life abounds in both these kinds of labour, and for that reason gives a man a greater stock of health, and, consequently, a more perfect enjoyment of himself, than any other way of life. I consider the body as a system of tubes and glands, or, to use a more rustic phrase, a bundle of pipes and strainers, fitted to one another after so wonderful a manner as to make a proper engine for the soul to work with. This description does not only comprehend the bowels, bones, tendons, veins, nerves, and arteries, but every muscle and every ligature, which is a composition of fibres, that are so many imperceptible tubes or pipes interwoven on all sides with invisible glands or strainers.—**ADDISON.**

HAPPINESS and misery are the names of two extremes, the utmost bounds whereof we know not; but of some degrees of both, we have many lively impressions, by delight on the one side and sorrow on the other, and therefore we may distinguish them by the names of pleasure and pain. Happiness in its full extent, is the utmost pleasure we are capable of, and the lowest degree of it, so much ease from all pain, and so much pleasure, as without which one cannot be content, we therefore judge that whoever is contented is happy.—**LOCKE.**

OPTICAL ILLUSIONS. II.



WE resume our consideration of those curious phenomena connected with optical science, whereby objects are made to appear under a different form from that which we know they really possess. One remarkable class of such phenomena includes those in which a rapidly rotating body appears to be stationary.

Professor Wheatstone, in the *Philosophical Transactions* for 1834, describes a series of experiments by which it appears probable that the electric fluids in passing through a conducting wire from one side of a charged jar to the other, rush through the conductor with a velocity equal to about 576,000 miles in a second of time. This velocity is so great that the most rapid motion which can be produced by art appears to be actual rest when compared with it. A wheel revolving with celerity sufficient to render its spokes invisible, when illuminated by a flash of lightning, is seen for an instant with all its spokes distinct as if it were at rest; because however rapid the rotation may be, the light has come, and has already ceased before the wheel has had time to turn through a sensible space. Any one who has an electrical machine may perform a similar experiment. Provide a disk, similar to that shown in Fig. 1, the surface of which is divided into black and red spaces. If this disk be connected with a multiplying arrangement, as shown in the same figure, and be rotated rapidly, the black will vanish and the disk appear entirely red; for the black reflects no light, and the reflection proceeds only from the red. If the disk be made to rotate before a Leyden jar in such a manner that it may be viewed by the light of the electric discharge, the black and red spaces become as apparent as when the disk is perfectly stationary. It matters not, of course, what device is painted on the disk, nor how rapidly soever it is turned round; it appears to be quite motionless whenever the electric flash illuminates it. We have performed the experiment during a thunder storm by night, when the broad and distinct flashes of lightning caused a series of rapidly rotating disks to appear quite stationary, to the admiration of those who witnessed this remarkable experiment. These results are better appreciated in a darkened room; but the presence of natural or artificial light does not interfere with their production.

Mr. Tomlinson has found that similar effects can be produced with phosphuretted hydrogen, exhibited in bubbles from phosphuret of lime, in water. These bubbles produce a sudden and transient light, and when they come up slowly without interrupting each other, the light which they shed on the rotating disk causes the latter to appear stationary; but when the bubbles come up too quickly, the black and red spaces exhibit a sort of dancing motion, sometimes two black spaces seeming to be joined into one, to the exclusion of the intervening red, and vice versa. So also with a disk on which words, such as AT REST, are inscribed; if the bubbles of gas start up regularly and slowly, the words are presented

to the eye in their proper form; but if too quickly the words seem to cross each other in various directions, and confusion is excited, by a second impression being produced on the retina before preceding impressions have departed. A rapid succession of sparks from a magnet, as also a *stream* of electricity instead of a discharge, will similarly produce confusion in the appearance of the device or inscription.

Any chemical action by which a sudden and transient light is produced, will show similar effects. Soap bubbles, blown with hydrogen or the mixed gases, and fired by means of a filament of cotton passed through a small tube, and wetted with alcohol; gunpowder, wrapped up in the form of a common cracker; fulminate of mercury, struck on an anvil; and many other manipulations, will produce flashes of light fitted for this purpose.

In all these cases, the effect is produced by the following circumstance; that the light comes and goes in a space of time too short for the disk to have rotated through any sensible space. Supposing the disk to be six inches in diameter, and consequently about half a yard in circumference, and that it rotates twenty times in a second, then any point of the circumference will move through $18 \times 20 = 360$ inches in a second. And if we further suppose, for the sake of clearness, that a flash of light, produced in any of the ways explained above, has a duration of only $\frac{1}{1000}$ of a second; then any point in the circumference of the disk will only move through one-tenth of an inch during the existence of the light, a space too small to produce any considerable effect on the apparently stationary position of the disk. Now, small as is this fraction of a second, we know that the real duration of the flashes of light produced as above must be much smaller, for the disk may have a greater velocity given to it than that here supposed: indeed, so far as electrical light is concerned, Professor Wheatstone has shown that its duration cannot be so much as the millionth part of a second!

Mr. Tomlinson has also discovered a very curious and pleasing class of phenomena, (linked in some respects with those given above,) in which a rotating object appears stationary, and at the same time the straight lines occurring in the device appear curved.

There are two modes in which these experiments may be performed; 1st, Procure a circular disk of pasteboard, twelve or thirteen inches in diameter, and cut a narrow slit in it, extending from the centre nearly to the circumference. Fix this disc to a multiplying machine, and place a lamp behind it. Let the smaller machine, with the painted or written device, be placed in front of the larger, and while both are rotating, the light from the lamp passing through the slit once and only once in each revolution, will fall suddenly and transiently on the coloured disk, producing effects which we shall presently describe. 2nd, Dispense with the lamp, and stand behind the slitted disk; while in front of it, at a distance of two or three feet, place the radiated disk, and cause both to revolve. When the two disks are thus made to rotate, all the radii, excepting those which for the time being are vertical, appear curved,—*upwards* if the eye of the observer is above the axis of the slitted disk, and *downwards* if below. This effect takes place when the two disks are revolving in similar directions. The order will be inverted if the disks move in opposite directions, and a change will likewise take place in the direction of the curvature of the radii, according to the angle at which the eye is placed.

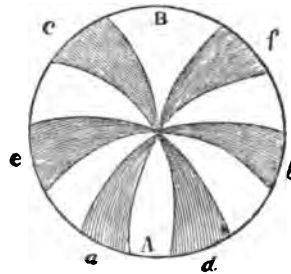
In order to convey to the mind of the reader a clear idea of the effects produced, it will be desirable to give illustrative figures; but here we meet with this difficulty, that the effects produced are different according to the relative sizes of the disks,—their relative velocities,—their respective rotations being in the same or in opposite directions,—the situation of the slit,—and the part of the slit to which the eye is applied. To give a determi-

nate character to the experiments, therefore, it will be better to make a slit in the disk which is the object of experiment, and to view, with the eye placed behind this slit, the image of the rotating figure reflected in a stationary plane mirror, placed in front of the disk, at a distance of about two feet. Thus, by considering the revolving image as a second revolving disk, the following conditions are fulfilled: 1, The two disks are of equal size: 2, They rotate with equal velocities: 3, They rotate in the same direction.

With such an apparatus as this many pleasing experiments may be performed, by fixing to the multiplying wheel disks having different devices. One which we have used is such as is represented in the disk, a front view of which is shown in the multiplying wheel at the head of this article. The disk is covered with a star, consisting of six black and six red radial bands, and a slit, A B, occupies nearly a semidiameter in the centre of one of the bands. The eye is placed behind the disk, so that the front of the disk may be seen reflected in the mirror, which occurs once during one revolution of the disk; and if the disk perform more than six revolutions per second, a tolerably uninterrupted view of the image is obtained, on account of the persistence of impressions on the retina.

Under these circumstances the disk assumes the appearance represented in the annexed figure, (Fig. 3,)

Fig. 3.



subject to variations in the curvature of each radius, according to the position of the eye with reference to the inner or outer end of the slit. When the eye is near the inner end of the slit, and consequently near the centre of the disk, the radii appear congregated much nearer the point A, while at and about B the interval between the two upper radii is greatly increased, but if the eye be held near the outer end of the slit, the radii appear less curved, and their distribution more equable. But at whatever part of the slit the eye be applied, this rule is constant,—that the point A, towards which the curves tend, is seen at the axial end of the slit, in consequence of the slit being only at one side of the axis, and the radial band occupying that position is of the same colour as that which contains the slit. If, however, the slit, instead of occupying the centre of one radial band, be on a line of division between two bands, a line of division will occupy the central position which in the former case was occupied by a band, and, in the latter case, the bands a b c, will be opposite in colour to d e f, as shown in the figure.

In another paper we shall show other curious effects produced on disks of various kinds.

As it is not enough for a man to have a diamond unless it is polished and cut out into its due angles, and a foil be set underneath, whereby it may the better transmit and vibrate its native lustre and rays; so it will not be sufficient for a man to have a great understanding in all matters, unless the said understanding be not only polished and clear, but underset, and holpen a little with those figures, tropes, and colours, which rhetoric affords, where there is use of persuasion.—LORD HERBERT.

ENCAUSTIC PAINTING.

THAT the ancients excelled the moderns in certain artistical pursuits, and that they were adepts in processes now lost, or imperfectly known, seems generally admitted. Among such pursuits, we may reckon the art of ENCAUSTIC PAINTING, which seems to have been completely lost during several ages between the time of Pliny and the eighteenth century.

The art of painting in *encaustic* is a manner of painting which is executed by the operation of fire. Ancient authors often make mention of this species of painting, which if it had been described simply by the word "encaustic," which, signifies *executed by fire*, might be supposed to have been a sort of *enamel-painting*. But, in the kind of painting which we are considering, wax was employed to give a gloss to the colours, and permanence to the work: these colours were fixed by fire, and preserved by means of the wax from being injured by the air. This mode of perpetuating colours in all their original splendour by heated or burnt wax, was practised in the fourth and fifth centuries, and is said to have been in use at Venice even to the time of Titian. By one writer we are told that various specimens of ancient encaustic painting have been preserved in the East: while another says that we have no ancient pictures of this description; but the questions here probably are,—what *species* of pictures are meant? and beyond what point of time does *antiquity* refer?

We must not, however, omit to notice three species of encaustic painting, described by Pliny, who flourished in the first century of the Christian era:—

1. That in which they used the graver, and painted on ivory or polished wood; for which purpose they drew the outlines on a piece of this wood or ivory, previously soaked or imbued with some certain colour: the point of the style or graver served for this operation, and the broad end to scrape off the small filaments that rose from the outlines; and they continued forming outlines with the point, till they were finished.

2. It seems, in this case, that the wax was previously impregnated with colour, and spread over the surface of the picture with the style; the colours thus prepared being formed into small cylinders for use. By the side of the painter was a brazier for keeping the styles continually hot, with the points of which they laid on the colours when the outlines were finished, and then spread them smooth with the broad end; and thus they proceeded till the picture was finished.

3. This process was by painting with a pencil in wax liquefied by fire: by this method the colours contained a considerable hardness, and could not be damaged either by the heat of the sun, or the action of seawater. It was thus that they painted their ships with emblems and other pictures; and therefore it obtained the name of *ship-painting*. The last process was to smooth and polish the picture.

The first persons of modern times who made experiments in this branch of art were Count Caylus and M. Bachelier. The former is spoken of in the letters of Lady Mary W. Montagu. These experiments were begun to be made about the year 1749. Some years after, Count Caylus presented to the Academy of Painting at Paris, his ideas and experiments on the subject of the ancient manner of painting in encaustic. In 1754 the count had a head of Minerva painted by M. Vien, after the process described by himself, and presented it to the Academy of Sciences in the following year. This success induced M. Bachelier to recommence his experiments, in which he succeeded better than before; but his manner of painting in encaustic differed from that of the ancients, as described by Pliny; and, therefore, he was unsuccessful, inasmuch as he did not discover the *real* ancient mode as used in all particulars for producing the desired effects. After this he made some other ex-

periments on the same subject, differing from the process as described by Caylus and others.

The process pursued by M. Bachelier for performing the operation of *inustion*, or burning in, which is the main characteristic of the encaustic painting, was as follows:—The cloth or wood designed for the basis of the picture, is waxed over, by merely rubbing it with a piece of bees' wax; the wood or cloth is stretched on a frame, and held before a fire, at such a distance that the wax may gradually melt, while it is rubbed on, diffuse itself, penetrate the body, and fill the interstices of the texture of the cloth, which, when cold, is fit to paint upon. But, as water-colours will not adhere to the wax, the whole picture must first be rubbed over with Spanish chalk or white, and then the colours applied to it: when the picture is dry, it is put near the fire, whereby the wax melts, and absorbs all the colours.

Several improvements in this art were proposed by Mr. J. H. Muntz. When the painting is in cloth, he directs it to be prepared by stretching it on a frame, and rubbing one side several times over with bees' wax, or virgin wax, till it is covered with a coat of considerable thickness. In fine linen this is the only operation necessary, previous to painting; but coarse cloth must be rubbed gently on the unwaxed side with a pumice-stone, to take off all those knots which would prevent the free and accurate working of the pencil. Then the subject is to be painted on the unwaxed side with water-colours; and, when the picture is finished, it must be brought near the fire, that the wax may melt, and fix the colour. This method, however, can only be applied to cloth, paper, or other substances, through which the wax can pass; but in wood, stone, metals, or plaster, the method before described, may be observed.

In the year 1787 Miss Greenland, an amateur of painting, communicated to the Society of Arts the knowledge of this art, which she had acquired during her residence at Florence, and at the same time made a present to the Society of a picture executed by herself, for which she received the honorary reward of a gold pallet. This picture is still preserved in the Society's rooms at the Adelphi, and is worth the attention of the artist. This clever and ingenious lady appears afterwards under the name of Mrs. Hooker, of Nettingden, in the county of Sussex. The following are her instructions:—

Take an ounce of white wax, and the same weight of gum mastic, powdered. Put the wax in a glazed earthen vessel, over a very slow fire, and when it is quite dissolved, throw in the mastic, a little at a time, stirring the wax continually until the whole quantity of gum is perfectly melted and incorporated: then throw the paste into cold water, and when it is hard take it out of the water, wipe it dry, and heat it in one of Mr. Wedgwood's mortars, observing to pound it first in a linen cloth, to absorb some drops of water that will remain in the paste, and prevent the possibility of reducing it to a powder, which must be so fine as to pass through a thick gauze. It should be pounded in a cold place, and but a little while at a time, as after long beating the friction will in a degree soften the wax and the gum, and instead of their becoming a powder, they will return to a paste. Make strong gum-arabic water, and when you paint take a little of the powder, some colour, and mix them together with the gum-water. Light colours require but a small quantity of the powder, but more of it must be put in proportion to the body and darkness of the colour, and to black there must be almost as much of the powder as colour. Having mixed the colours, and no more than can be used before they get dry, paint with fair water, as is practised in painting with water-colours, a ground on the wood being first painted of some proper colour, prepared in the same manner as is described for the picture; walnut tree and oak are the sorts of wood commonly made use of in Italy for this purpose. The painting should be very highly finished, otherwise, when varnished, the tints will not appear united. When the painting is quite dry, with rather a hard brush, passing it one way, varnish it with white wax, which should be put into an earthen

vessel, and kept melted over a very slow fire till the picture is varnished, taking great care that the wax does not boil. Afterwards hold the picture before the fire, near enough to melt the wax, but not to make it run; and when the varnish is entirely cold and hard, rub it gently with a linen cloth. Should the varnish blister, warm the picture again very slowly, and the bubbles will subside. When the picture is dirty, it need only be washed with cold water.

Nearly all the colours that are used in oil-painting may be employed in the encaustic method, and likewise many which cannot be admitted in oil-painting, as red lead, red orpiment, crystals of verdigris, and red oxide of mercury. The crayons used in this sort of painting are the same as those used in the common way of crayon painting, excepting those that are in their composition too tenacious, and the manner of using them is the same in both cases. Encaustic painting has many peculiar advantages; though the colours have not the natural varnish or shining they acquire with oil, they have all the strength of painting in oil, and all the airiness of water-colours, without partaking of the apparent character or defects of either. They may be viewed in any light and in any situation, without any false glare; the colours are firm, and will bear washing; and a picture, after having been smoked, and then exposed to the dew, becomes as clean as if it had just been painted. In re-touching, the new colours unite with the old ones.

The Chevalier Lorgna has deeply investigated the subject of encaustic painting. He seems to think that the part of the art in which the moderns fail relates to the wax used in the process. He thinks that we have never thoroughly known the nature of the Punic wax, which was anciently used, and which, after all, was the essential ingredient of the ancient painting in encaustic. Now Pliny describes the method of preparing this wax, but Lorgna says that the *nitre* which the Roman naturalist speaks of is not the modern nitre, properly so called, but the *natron* of the ancients, or the native salt which is found crystallised in the north of Africa, in Egypt, and in other hot countries, in sands surrounding lakes of salt water: it must not be mistaken for the *natron* of the new nomenclature of our College of Physicians, which is the new matter of the mineral alkali.

As the thing chiefly regarded in encaustic painting was the securing of permanence and durability by the application of fire, the word "encaustic" has been applied, in a very general sense, to other processes, in which both the material and the mode of applying the heat are entirely different from the ancient materials and modes. The word has been used, not only of wax-painting on earthen vessels, and on works in metal, where gold and silver were inlaid, melted, or laid on, and of everything which was gilt or silvered by fire, which was called *gold or silver encaustic*. The moderns have also used the term for painting on porcelain, and working in enamel, and in the same way it was given to the painting on glass in the middle ages, such as is now seen in the windows of Gothic churches. All these have nothing to do with the wax-painting of the ancients.

Many persons have made attempts in this art during the present century. J. G. Waltef, in Berlin, and Professor J. Roux, in Heidelberg, have recently given their attention to these wax-paintings, some of which are said to have been successfully executed. Mr. Peter Kraft, at Vienna, has also lately painted several pieces on walls, in which, however, only the warmed ground was covered with wax, and the colours mixed with oil of turpentine laid on it. Montabert's process is said to bear a greater resemblance to encaustic painting, properly so called. The laying on is nearly in the manner just mentioned, but a wax varnish is spread over the colours, and melted in by means of a kind of brasier. A series of paintings has been executed, after his directions, on the walls of the royal palace at Munich, since 1831, but even here, all the difficulties with respect to the durability of the ground and the colours have not been overcome.

Professor Reinagle is said to possess a painting of Cleopatra, executed in encaustic, which is valued at 2000*l*.

THE HORNBEAM, (*Carpinus betulus*.)

The *Hornbeam* is principally cultivated in Britain as a shrub and underwood, and is excellent for forming tall hedges or screens in nursery grounds or ornamental gardens. It is not commonly found as a timber tree, though it may be reared for this purpose, and will grow to a considerable height. It is a tree of quick growth, and has a glossy verdure which is very pleasing to the eye. Evelyn, speaking of the *Hornbeam*, says, that the wood is white, tough, and flexible, and that it is useful for mill-work, handles of tools, and various other purposes. He also says that,—

Being planted in small fosses, or trenches, at half a foot interval, and in the single row, it makes the noblest and the stateliest hedges for long walks in gardens, or parks, of any tree whatsoever, whose leaves are deciduous, and forsake their branches in winter; because it grows tall, and so sturdy as not to be wronged by the winds. Besides, it will flourish to the very foot of the stem, and flourishes with a glossy and polished verdure, which is exceeding delightful, of long continuance, and of all other of the harder woods, the speediest grower; maintaining a slender upright stem, which does not come to be bare and sticky in many years.

Boutcher, of Edinburgh, in his work on trees, minutely details the best mode of cultivating and propagating this tree, when intended to form a hedge. The common *Hornbeam* should be propagated by seeds, which, being ripe in Autumn, ought first to be spread in a loft till dry, and then mixed with sand till the following spring. They may then be sown thin on beds of fresh earth, three and a half feet broad, with paths or alleys eighteen inches wide between the beds; and covered three quarters of an inch deep with mould. These seeds will remain a year in the ground before the plants appear; during which time the earth must be kept clean. In the following February the surface of the beds should be loosened with a short-toothed rake, so as not to disturb the seeds, and a gentle covering of fresh mould thrown over them: in this state they may remain for two years, if not too thick; since the plants make slow progress the first season, and are naturally well rooted.

From the seed bed they are to be removed, about the month of October, into any fresh spot of ground, even of indifferent quality; the superfluous roots are then to be reduced, cutting away such as cross one another; and after this they are to be planted in rows, two feet and a half asunder, and a foot distance in the row. Thus they are to remain three years, digging the ground, between the rows, annually. By this time the plants will be in a fit state for hedges, in a spot where immediate shelter is required, or to be mixed with other young trees to form woods.

But if they are required for a hedge which is to form an ornamental boundary or enclosure, a different plan must be adopted. If the hedge is to be seven or eight feet high, remove the young plants from the former nursery to another, and place them in rows, the rows being ten feet asunder, and the plants five feet asunder in each row. These should then be trained annually in the regular hedge form, but always observing to keep them light and thin at the top. After remaining in this state about four years they may be taken out, and planted as a hedge at the spot where they are intended to remain: by this time they will have acquired such abundance of roots as to be able to defy the strongest winds; and they will now require no farther expense and trouble than to keep their roots clean for three or four years.

Those straighter plants which may be intended for single trees, may, at raising them from the first nursery, be separated from those for hedges, and planted in rows,

five feet asunder, and two feet distance from each other in the row: these are then to be annually pruned in their proper form, and from hence they may be removed to the places where they are intended to remain, after three or four years' standing. Mr. Boucher remarks,—

Though I am no advocate for the Hornbeam tree in ornamental plantations, or in generous soils and sheltered situations, yet its being one of the hardiest trees known, the many good qualities of the wood, and the sudden shelter and warmth which hedges formed of it are calculated to afford, appear to give it some claim to our attention, particularly in the cold exposed parts of the country. It will grow surprisingly on the coldest hills, and in the stiffest, barren and otherwise worthless ground; nor do I know any useful timber tree that maintains itself so stoutly against the winds; so that, being of quick growth, and clad in its numerous leaves all the winter, it is certainly one of the fittest plants to nurse and rear up other valuable or delicate trees. This likewise, of all trees yet known, best preserves itself from the bruttings of deer; so that clumps of them, in deer-parks, would be no small improvement, both in point of beauty, and for shelter to these animals.

The Hornbeam affords excellent stakes and posts; and the timber produced by it may be ranked with those of the beech and sycamore. It has been stated by other writers as well as Evelyn, that the wood of the Hornbeam is useful for many manufacturing purposes; but a French writer speaks of it as being too brittle for cabinet work. Its trunk, according to him, is seldom regularly grained, and still more rarely well rounded. The texture of its fibres is singular: its annual layers are not uniformly circular as in most other trees, but assume an undulated or zig-zag form: and its transverse fibres, which pass from the circumference to the centre, have considerable intervals between them; the wood is consequently refractory under the workman's tool, and apt to break into splinters. Its principal superiority is said to consist in its excellences for the purpose of screen fences for sheltering gardens, nursery grounds, plantations, &c., from the severity of bad seasons, &c. It bears cutting in, pruning, and clipping, extremely well; and, from its retaining its leaves during the winter season, becomes particularly close and impenetrable to winds and storms, keeping up a very steady temperature of the atmosphere about the plants which it shelters. On this account, also it is found beneficial to be planted in mixture, or in occasional rows, with many tender sorts of trees in high exposed aspects, in the manner of the birch, to which it is preferable, as affording greater warmth in the winter.

The botanical characteristics of the common Hornbeam are chiefly these:—*Trunk* tolerably straight, but often imperfectly cylindrical:—*Bark* even, whitish, marked with grey spots; branches numerous:—*Leaves* about three inches long and two broad, alternate, petioled, ovate, acuminate, doubly serrated, smooth, wrinkled above, with straight and parallel veins below, remaining on the tree in a withered state during the whole winter. *Male catkins* about an inch long, lateral, solitary, appearing in Spring a little before the leaves; scales ferruginous, concave, ciliated. *Female catkins* terminal, solitary, peduncled, loose; scales green, smooth, with three lanceolate lobes, of which the middle one is largest; *nut* small, ovate, lenticularly compressed, striated, with longitudinal, filiform ribs; crowned with six, or, according to Scopoli, four teeth, seated at the bottom of the permanent enlarged scale. Our cut represents that part of the plant connected with the flower, such as the male and female catkins (flower sheaths), &c.

Mr. Gilpin, who was accustomed to view trees with an eye always in search of the picturesque, did not think that the Hornbeam had much in its natural form to excite pleasing ideas; but he adds that still, as a botanical antiquary, he could not look upon it without a certain degree of pleasure, when he remembered that our ancestors used it for producing an artificial climate around their ancient

castles, by planting it in long lines, and trimming it into vegetable walls of the most mathematical exactitude.



I would advise all the professors of the art of story-telling, never to tell stories, but as they seem to grow out of the subject-matter of the conversation, or as they serve to illustrate, or enliven it. Stories, that are very common, are generally irksome; but may be aptly introduced, provided they be only hinted at, and mentioned by way of allusion. Those that are altogether new, should never be ushered in, without a short and pertinent character of the chief persons concerned; because by that means, you make the company acquainted with them; and it is a certain rule, that slight and trivial accounts of those who are familiar to us, administer more mirth than the brightest points of wit in unknown characters. A little circumstance in the complexion or dress of the man you are talking of, sets his image before the hearer, if it be chosen aptly for the story.—STEELE.

An obstinate man does not hold opinions, but they hold him; for when he is once possessed with an error, it is like a devil, only cast out with great difficulty. Whatsoever he lays hold on, like a drowning man, he never loses, though it do but help to sink him the sooner. His ignorance is abrupt and inaccessible, impregnable both by art and nature, and will hold out to the last, though it has nothing but rubbish to defend. It is as dark as pitch, and sticks as fast to anything it lays hold on. His scull is so thick, that it is proof against any reason, and never cracks but on the wrong side, just opposite to that against which the impression is made, which surgeons say does happen very frequently. The slighter and more inconsistent his opinions are, the faster he holds them, otherwise they would fall asunder of themselves: for opinions that are false ought to be held with more strictness and assurance than those that are true, otherwise they will be apt to betray their owners before they are aware. He delights most of all to differ in things indifferent, no matter how frivolous they are, they are weighty enough in proportion to his weak judgment; and he will rather suffer self-martyrdom than part with the least scruple of his freehold; for it is impossible to dye his dark ignorance into a lighter colour. He is resolved to understand no man's reason but his own, because he finds no man can understand his but himself. His wits are like a sack, which the French proverb says is tied faster before it is full than when it is; and his opinions are like plants that grow upon rocks, that stick fast though they have no rooting. His understanding is hardened like Pharaoh's heart, and is proof against all sorts of judgments whatsoever.—BUTLER.

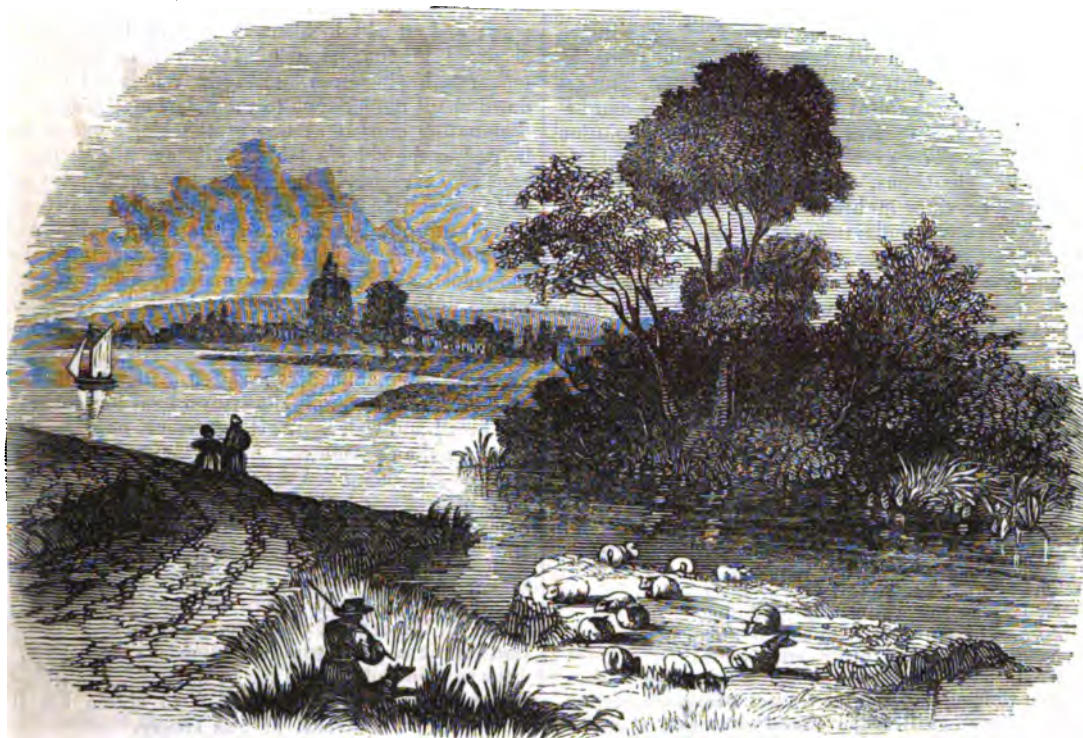
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THE BANKS OF THE THAMES. III.



THE VILLAGE OF BRAY.

Man is a glass, life is as water weakly walled about,
 Sin brought in Death, Death breaks the glass, so runs this water out.

SUCH is the quaint and not inapplicable inscription which is placed beneath a figure of Death, in the church of Long Wittenham, where we resume our Thames journey. This little village is situated three or four miles from Abingdon, on the London side; and from that point the river takes a sudden bend towards the north-west, in the direction of the village of Clifton, in Oxfordshire. From thence, another bend leads the river between Little Wittenham in Berkshire and the village of Dorchester in Oxfordshire; near which latter village the river Thame joins the Isis, and with it forms the future Thames.

Of this tributary, the Thame, Dr. Plot said:—

The banks of the Thame are so well sated with some kind of acid, that no well water in the whole town of the name (meaning the town of Thame in Oxfordshire, through which it flows) will either brew or lather with soap*. But none of these give a tincture so high that they can be perceived by the most exquisite palate, but only so far forth as may conduce to a due fermentation, and to keep them living; and yet without doubt, from hence it is that the Thame's water, at sea, in eight months' time acquires so spirituous and active a quality that upon opening some of the casks, and holding the candle near the bung-hole, the steams have taken fire like spirit of wine, and sometimes endangered firing the ship.

Some portion of these remarks are corroborated by later experience; but there seems little doubt that the case is greatly overrated.

* For the acid spoken of by Dr. Plot we must probably read carbonate or sulphate of lime in solution.

Much discussion has taken place respecting the propriety of applying the name Thames to that part only of the river which is below the junction with the Thame. Mr. Brewer states that in several Saxon documents still existing, the name of Thames is applied to the river far above the point of junction here alluded to, and that the term Isis for the higher parts of the river is a modern innovation. This question, however, is merely a nominal one, and need not demand our further notice.

From the point where the Thame joins the Isis, till we arrive at the town of Wallingford, the voyager down the Thames meets with a succession of beautiful scenery; the easy sloping hills on the Berkshire side are crowned with a variegated combination of sylvan objects; while an occasional break in the chalky cliff gives a strikingly diversified character to the view. Wallingford, which is about ten miles from Abingdon, is an ancient town. It was originally a Roman fortification; and passed successively into the hands of the Saxons and the Danes, after which it became a royal prescriptive borough in the reign of Edward the Confessor. The Castle of Wallingford, to which the town owes its origin, became in after ages the scene of many important events; but during the wars of the Commonwealth it was completely demolished. The town is situated on the road between Reading and Oxford, and has a remarkably neat and clean appearance. It consists, principally, of two streets, well-paved and lighted. Of the old bridge, which stood when Mr. Ireland wrote, he says:—"The antiquity of the bridge, from its appearance, seems to vie with the oldest structure of the kind on the Thames; it is truly gothic, and of immense strength. The pointed angular

sterlings on the upper side are so well constructed, as to be capable of resisting the most violent torrent of water from the winter floods." Since that time, however, a very elegant stone bridge has been built across the Thames at Wallingford. Among the natives of Wallingford was Richard, abbot of the monastery which formerly existed here; he was the inventor of a curious clock, which, according to Leland, represented not only the course of the sun, moon, and principal stars, but also the ebbing and flowing of the sea. This machine, the most ingenious of its kind at that time in England, he presented to the Abbey church.

Mr. Brayley some years ago described a farm, situated two or three miles from the river, near Wallingford, as having once been reputed the largest and most compact in England. It was called Cholsay farm, and had belonged to the Abbot of Reading before the dissolution of monasteries. The great barn, wherein he is said to have deposited his tithes, measured three hundred feet long by fifty or sixty in breadth. The roof was supported by seventeen pillars on each side, each pillar about four feet in diameter. These pillars elevated the roof to a great height in the centre; but it descended gradually towards the walls, which were not more than eight feet in height.

The river presents many beautiful prospects while passing between Berkshire and Oxfordshire. Pope speaks of many of the tributary streams here poured into the Thames, in the following lines:—

From his easy bed
Old Father *Thames* advanced his rev'rend head;
His tresses dropped with down, and o'er the stream
His shining horns diffused a golden gleam:
Graved on his urn appeared the moon, that guides
His swelling waters, and alternate tides;
The figured streams, in waves of silver rolled,
And on her banks *Augusta*, robed in gold;
Around his throne the sea-born brothers stood,
Who swell with tributary urns his flood:
First, the famed authors of his ancient name,
The winding *Isis*, and the fruitful *Thame*,
The *Kennet* swift, for silver eels renowned;
The *Loddon* slow, with verdant alders crowned;
Cole, whose dark streams his flowery islands lave;
And chalky *Wey*, that rolls a milky wave;
The blue transparent *Fandalis* appears;
The gulfy *Lea* his sedgy tresses rears;
And sullen *Mole*, that hides his diving flood;
And silent *Darent*, stained with Danish blood.

From Wallingford, proceeding in our course down the river, we come first to Brightwell, not far distant from that town; then to Mongewell, a pretty spot on the Oxfordshire side of the river; then to the village of Moulsoford, backed by the hills of Oxfordshire: and soon after to the village of Goring, "whose romantic and sequestered situation," it has been observed, "it is not possible for the eye of observation to pass unnoticed: the Berkshire hills form a rich variegated back-ground, and the easy ascent of the lawns in front happily intersect the principal objects, and give a charming relief to the whole." Opposite to this village, on the Berkshire side of the river, we meet with the village of Streatly, and further on, those of Basselden and Pangbourn, near which latter place the river widens considerably, and is much frequented by anglers, "who occasionally find equal cause for an exertion of their patience and of their skill."

Several other pretty villages occur, on both banks of the river, until at length we arrive at Reading, the principal town in Berkshire. This town is supposed by Camden to have derived its name from the great quantities of *fern* that grew in the neighbourhood, the ancient name of which was *redyng*. All writers agree, that this is a very ancient town, although they do not agree as to who was its founder. It appears to have been held in succession by the Saxons and the Danes, and to have been the seat of a nunnery, established by *Elfrida*, mother-

in-law of Edward the Martyr. An abbey, afterwards very celebrated, was founded here by Henry the First, for the maintenance of two hundred Benedictine monks, about the year 1120. The abbot and monks were bound, by an obligation in their charter, to provide the poor and all travellers with necessary entertainment; while, on the other hand, they were invested with the power of trying criminals, and with the privilege of exemption for all tolls or customs for the lands which they held.

The abbots are said to have paid rather more attention to their own good living than to the support of the poor; and an odd incident is told by Fuller, as having occurred in the reign of Henry the Eighth. This monarch, having been hunting in Windsor Forest, went down about dinner-time to the abbey of Reading, where, designating himself as one of the king's guard, he was invited to the abbot's table. His appetite, being sharpened by exercise, he fed so heartily from a joint of beef, as to attract the notice of the master of the ceremonies. "Well fare my heart," quoth the abbot, "I would give a hundred pounds if I could feed so heartily on beef as thou dost. Alas! my weak and squeazie stomach will hardly digest the wing of a chicken." The monarch, having appeased his hunger, thanked the abbot for his good cheer, and departed undiscovered. Some weeks afterwards the abbot was arrested, conveyed to London, sent to the Tower, and allowed no food for several days but bread and water. This treatment, together with his fears for the consequence of the king's displeasure, soon reduced his pampered condition; and, at last, when a joint of beef was laid before him, he ate like a famished ploughman. When he had finished his meal, the king, who had been a hidden spectator, broke from his concealment. "My lord," said he, laughing, "presently deposit your hundred pieces of gold, or else no going hence all the days of your life. I have been the physician to cure your squeazie stomach; and now, as I deserve, demand my fee for so doing." The abbot paid this curious physician's fee; glad to obtain his liberty from such an equivocal host as Henry.

Reading is situated on two small eminences, whose gentle declivities fall into a pleasant vale, through which the branches of the river *Kennet* flow calmly till they unite with the *Thames* at the extremity of the town. The surrounding country is agreeably diversified with an intermixture of hill and dale, wood and water, and ornamented with a number of elegant seats. The prospect from the *Forebury*, (a corruption of *Fauxbourg*;) a beautiful outwork on the north-east side of the town, is very extensive, commanding a fine view over a considerable part of Oxfordshire.

The town of Reading, being the chief place in the county, is too considerable to be described here; and we shall probably devote a separate article to it hereafter. We therefore proceed in our eastward journey along the *Thames*.

After the confluence of the *Kennet* with the *Thames*, a distance of three miles brings us to *Sunning Bridge*: which is situated near a small but ancient village of that name. Still further on we arrive at the village of *Wargrave*; a short distance from which is seen the town of *Henley*, on the Oxfordshire side of the river. This is a clean and cheerful town, situated near the base of a cluster of hills, in one of the most agreeable windings of the *Thames*. The buildings in the principal street are handsome and capacious, though far from regular. The more ancient tenements, in the several minor avenues which diverge from the great thoroughfare, are mean and incommensurable; but the beauty of the situation has induced many private families to erect elegant houses; and a spirit of improvement is manifested everywhere. The church is an irregular Gothic structure, chiefly remarkable for a punning epitaph on Mr. and Mrs. *Elme*, natives of the town:—

This *Elme*, in years and worth well groune,
 Death at the appointed time *out doune*,
 The ivy fades, her propp once gone;
 Thus fallne, both lye under this stone.
 But lye, afresh to spring, grow, spread,
 When every tree shall rise that's dead.

It is well known how fondly every admirer of genius estimates any scrap of writing from the hand of a distinguished man; and it is from such a feeling that Henley preserves the memory of a few lines written by Shenstone. The poet wrote with a diamond, on a pane of glass in a window of the Red Lion Inn, adjoining the Thames, the following lines:—

To thee, fair Freedom! I retire,
 From flattery, cards, and dice, and din.
 Nor art thou found in mansions higher
 Than the low cot or country inn.

One of the most striking objects for which the vicinity of Henley is celebrated, is Park Place, a beautiful seat in the outskirts of the town. The mansion was first the residence of Lord Archibald Hamilton, in the early part of the last century; and, at a subsequent period, it was inhabited by Prince Frederic, the father of King George the Third. Marshal Conway and the Earl of Malmsbury became in succession its proprietors; and each one increased the beauties of a spot which has been deemed one of the finest of the kind in England. It has been said of Park Place, that, "its successive and ever-varying projections, with their intervening valleys, its rich woods, spacious groves, wide-spreading lawns, and bold declivities, are in a style and form which the landscapes that are enlivened and reflected by the Thames do not display in any other part of its course. Nature has done much, nor has taste done less: the genius of the place has everywhere been consulted, and the resulting conformities completed. Marshal Conway seems ever to have had in view the precepts of Pope, who had himself broken from the formality of fashion, and stolen a peep of nature in his garden at Twickenham:—

To build, to plant, whatever you intend
 To rear the column or the arch to bend,
 To swell the terrace or to sink the grot;
 In all, let nature never be forgot.
 But treat the goddess like a modest fair,
 Nor over-dress, nor leave her wholly bare;
 Let not each beauty everywhere be spied,
 Where half the skill is decently to hide;
 He gains all points who pleasingly confounds,
 Surprises, varies, and conceals the bounds.
 Consult the genius of the place in all,
 That tells the waters or to rise or fall,
 Or helps th' ambitious hill the heav'ns to scale.
 Or scoops in circling theatres the vale,
 Calls in the country, catches op'ning glades,
 Joins willing woods, and varies shades from shades;
 Now breaks, or now directs th' intending lines,
 And in one whole involves the fair designs.

It has been a maxim with me to admit of an easy reconciliation with a person, whose offence proceeded from no depravity of heart; but where I was convinced it did so, to forego, for my own sake, all opportunities of revenge; to forget the persons of my enemies as much as I was able, and to call to remembrance, in their place, the more pleasing idea of my friends. I am convinced that I have derived no small share of happiness from this principle.—SHENSTONE.

In story-telling, besides the marking distinct characters, and selecting pertinent circumstances, it is likewise necessary to leave off in time, and end smartly. So that there is a kind of drama in the forming of a story, and the manner of conducting and pointing it is the same as in an epigram. It is a miserable thing, after one hath raised the expectation of the company by humorous characters, and a pret'y conceit, to pursue the matter too far. There is no retreating, and how poor is it for a storyteller to end his relation by saying "that's all!"—STEELE.

OPTICAL ILLUSIONS. III.

Fig. 4.

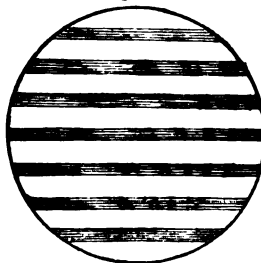
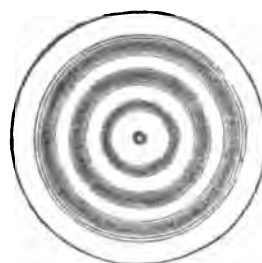


Fig. 5.



In our last paper on this subject, we described several experiments which show, that bodies in rotation may, under certain circumstances, appear to the eye to be stationary, and that by a further modification of the apparatus employed, the straight lines constituting or forming part of that object, may appear as if curved. In illustration of the latter fact, we gave cuts showing the curved forms given to the twelve radii, six red and six black, of which a star-like disk is formed. We now proceed to other figures.

A beautiful but very simple change in the apparent figure of a *striated* disk, is made by merely causing it to revolve, and viewing it in the usual way without reflexion from a mirror. Fig. 4, represents a disk painted in this way with fifteen stripes, eight white and seven black, but of course any two colours would do. If this be made to rotate, it presents the appearance of Fig. 5, in which we have a central white spot, surrounded by six concentric circles, three white and three black. The law which regulates the production of these rings is probably as follows:—Whatever tint predominates at any point of the disk, the rapidity of rotation causes the same tint to appear at every other point equidistant from the centre; and to ascertain what that tint would be, describe a concentric circle through that point, and by adding the dark portions through which it would pass into one series, and the light portions into another, by combining the two aggregates we may ascertain beforehand what number of concentric circles will result. The outlines are, as may be supposed, not clearly defined, but melt into each other.

In the instance represented in our cut, the dark stripes form an odd number, and the proportion of white is greater than that of the black; from which result the production of rings, alternately light and dark. But suppose the proportions of the two colours to be exactly equal, that the disk is poised exactly on its centre, and that it be very carefully rotated without the slightest excentricity of motion,—then the stripes, radii, checkers, or whatever figures occupy the surface of the disk, (except concentric circles,) blend into one uniform tint, midway between the colours of the disk, and entirely free from rings.

From this experiment we may deduce:—

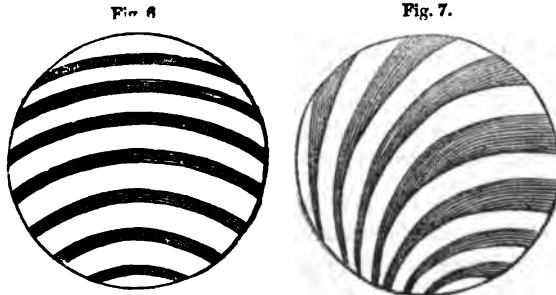
1. That when a disk is so divided, that with any radius, a circle would pass through equal portions of the two colours with which the disk is painted, an universal blending of colour will result:

2. That, if at any part of the disk a balance of colour be not observed at opposite sides of the centre, concentric rings will result:

3. That, as the non-existence of that balance depends upon a definite mode of construction, the number and breadth of the rings can be computed:

4. If the equipoise be disturbed by extraneous causes, such as imperfect division, or excentricity of adjustment, the rings are uncertain, and not easily computed.

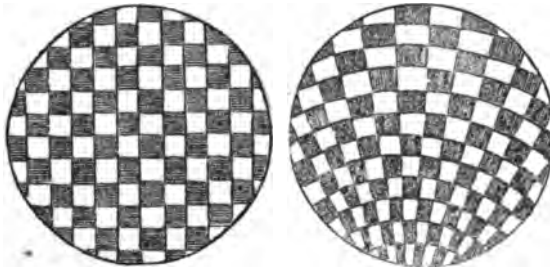
It will thus be seen that many pleasing experiments may be made with rotating disks, even when viewed in a common way. We now revert to the use of the reflecting mirror.



When the striated disk spoken of above, is seen by means of the mirror apparatus, it assumes the form of fig. 6. The surface is laid out in curved concentric bands of the greatest symmetry, the number and breadth of which are the same as in the rectilinear striæ. The centre of these concentric segments, which is at the axial end of the slit, is either at or exterior to the edge of the disk, according to the position of the eye. The figure here delineated is produced when the slit cuts the striæ at right angles. When the slit is parallel with the striæ, the figure is totally changed; for the bands appear all rectilinear; but their parallelism to each other is destroyed, as they all seem to diverge from a point situate at the axial end of the slit. When the slit is inclined at an angle of 45° with the striæ, the image presents the shell-like form represented in fig. 7.

Fig. 8

Fig. 9.



A little consideration will show that changes similar to these in principle, but modified in detail according to circumstances, would follow from the use of any other symmetrical figure. We shall therefore content ourselves with giving illustrations of one more example. Fig. 8 represents a chequered disk, which, when viewed simply while rotating, presents a series of rings somewhat resembling those in fig. 5, the only difference being a more gentle blending of the tints of the concentric rings; but, when the image is viewed through a slit in the disk, as reflected from the mirror, it presents the appearance of a tessellated globe, the illusion occasioned by which is so perfect, that an effort of the mind is required to preserve the idea of a flat surface. The appearance of the chequers, when viewed through a slit parallel with the rectilinear divisions, is such as is represented in fig. 9; evidently partaking of the character of fig. 6, the difference being due to the division of the striæ into squares. If the slit be inclined 45° from the divisions, all the diverging lines proceeding from *c* cut the diagonals of the chequers, instead of marking their boundaries.

Every change in the mode of forming the slit in the disk, produces a new modification of figure:—thus,

If the disk be diametrically divided into two halves, exactly alike, and the slit be on the line of division, the figure is altogether unchanged; but, if it be at right angles to that line, the half which contains the slit encroaches on the other half, by giving a curvature to the line of division; thus presenting the gibbous form of a three-quarter moon.

All the figures produced by this mirror apparatus are the same in principle as those produced by two revolving

disks, the latter arrangement presenting figures modified in every imaginable way, by one or more of the five conditions before stated. As an instance, we may mention, that, when two disks are rotating with unequal velocities, the nucleus towards which the curves tend, or from which they seem to spring, oscillates to and fro; and the curves themselves vary in their number and respective distances from each other.

The mode in which the phenomena before described, *i. e.*, the stationary appearance of a rapidly rotating disk, was explained, will, with some modifications, apply here. In the former, the light comes and goes before the disk has time to move through any sensible space; but in the experiments where the light of a lamp flashes upon the painted disk through the slitted disk; or where the eye is placed behind the slitted disk, and looks through it at the painted one; or where the eye, placed behind the disk, looks through the slit at the image reflected from the mirror,—the duration of the light is greater than the electric light, or than that from the phosphuretted hydrogen, &c., and the disk *does* pass through a sensible space during that time. Now, as the circumference of the disk necessarily moves quicker than the centre, that is, as the velocity decreases from the circumference to the centre, a particular spot, black for example, seen at one point of the circumference will have moved through several degrees, as the slit passes the eye; while, at or near the centre, the space gone through is scarcely appreciable. This, together with the persistence of impression on the retina, will account for the curvature given to the image of the lines.

An amusing modification of the experiment may be made in the following manner:—In a plain disk, cut a slit radially nearly from the centre to the circumference. Below and at right angles to the slit write in large characters any word or words, such as "LIGHT," in an inverted position, so that when seen in a plane mirror, the reflected image may be erect, and in its natural position. On placing the eye behind the disk, the word will be seen through the slit uninterruptedly, provided the disk perform more than six revolutions per second. In this case, the word is seen in a curved form, which is evidently due to the principle before explained, and the letters are all of the same size. Whereas, if the slit be parallel with the order of the letters, the latter appear gradually to increase in size, from the axis to the outer end of the slit.

In these experiments, the disks should be illuminated by a direct light falling upon them; and their backs, where the eye is placed, should be blackened all over.

I LOOK upon every man as a suicide from the moment he takes the dicebox desperately in his hand, and all that follows in his career from that fatal time is only sharpening the dagger before he strikes it to his heart.—CUMBERLAND.

WHEN I walk in the streets, I use the following natural maxim, (*viz.*, that he is the true possessor of a thing who enjoys it, and not he that owns it without the enjoyment of it,) to convince myself that I have a property in the gay part of all the gilt chariots that I meet, which I regard as amusements designed to delight my eyes, and the imagination of those kind people who sit in them gaily attired only to please me. I have a real, and they only an imaginary pleasure from their exterior embellishments. Upon the same principle, I have discovered that I am the natural proprietor of all the diamond necklaces, the crosses, stars, brocades, and embroidered clothes, which I see on a birth-night, as giving more natural delight to the spectator than to those that wear them. And I look on the beaux and ladies as so many paroquets in an aviary, or tulips in a garden, designed purely for my diversion. A gallery of pictures, a cabinet, or library, that I have free access to, I think my own. In a word, all that I desire is the use of things, let who will have the keeping of them. By which maxim I am grown one of the richest men in Great Britain; with this difference, that I am not a prey to my own cares, or the envy of others.—BERKELEY.

ON CHESS.

XII. BIOGRAPHICAL SKETCH OF PHILIDOR.



CHESS-PAWN, AS DESIGNED BY FLAXMAN.

The valiant guards, their minds on havoc bent,
Fill the next square, and watch the royal tent:
Though weak their spears, though dwarfish be their height,
Compact they move, the bulwark of the fight.

SEE WILLIAM JONES.

It has been remarked, as a curious circumstance, that while the talent for playing chess bears no relation to the general talent of the player, yet that every one has an individual maximum of talent for chess, to which, by study and practice he may be brought but beyond which he cannot pass.

This remark ought to be extended to every mental pursuit, for it expresses a principle of our nature, instead of a curious solitary fact. Those whose chief object it is to improve their mental powers, always find delightful occupation in striving after excellence. We are most fortunately denied the power of *foreseeing* how far our faculties will carry us in the cultivation of a particular subject, but by slow degrees we gradually get nearer and nearer to a certain point, beyond which we find we do not advance. Before this point, however, is attained, we can appreciate the powers of the great masters in the thing studied, for doubtless it requires a certain portion of the same faculties to appreciate excellence as to attain it, and if we cannot equal, we are at least qualified, to admire.

The general progress of knowledge is for the most part made by those gifted men who appear at intervals few and far between, and excel all others in the particular pursuit to which their inclination leads them. We look back upon such men with respect and admiration: we desire to know their history,—their modes of study,—their general conduct in the world and in private life,—and we thus fondly imagine that by endeavouring to imitate them we may gain some of the skill for which they were so famed. It would be unwise to check such feelings, but it is necessary that young people should be cautious in the choice of their models: they should remember that the most eminent men, notwithstanding their eminence, have still the errors and weaknesses of our nature, and that these, being often mistaken for the offshoots of genius, are more easily adopted than their better parts, and prove exceedingly injurious to their imitators.

The subject of our present notice is known to us only as a kind, amiable man, who, had he not been the best chess player of his own, and, perhaps, of any other time, would probably have been known as an eminent musician.

ANDRÉ DANICAN PHILIDOR was born in the year 1726, at Dreux, a small town about forty-five miles

from Paris. His grandfather, whose name was Danican, was celebrated as an oboe player at the court of Louis the Thirteenth. An Italian musician named Philidor was admired at that court for his performance on the same instrument; and after his departure the king gave M. Danican the *soubriquet* or nickname of Philidor, which afterwards continued as an appendage to the family name. The father, and several of the brothers of Philidor, belonged to the band of Louis the Fourteenth and Louis the Fifteenth.

At the age of six years Philidor was admitted into the choir of the Chapel Royal at Versailles, where being obliged to attend daily, he had an opportunity of learning chess from the musicians in waiting, of whom there were about eighty. Games of chance not being allowed in the sanctuary, a long table inlaid with six chess-boards was provided, with which they amused themselves during their leisure hours.

In 1737, when Philidor had only completed his eleventh year he produced a motet for a full choir, which so much pleased the *grand monarque* that he gave him five louis, and thanked him for his performance: this encouraged the lad to compose four more motets; but we do not learn that the royal condescension was followed by any more solid acknowledgment; for at the age of fourteen, when his voice began to change, and he quitted the band, we find him submitting to the drudgery of copying music for his subsistence, and giving a few lessons. When he left the chapel he had the reputation of being the most skilful chess player of the whole band. In 1740 several motets of his composition were performed at the famous *concert spirituel*, established by his uncle in 1726, and these were favourably received by the public as the productions of a child, who was already master of music and of chess. At this time Philidor might have established for himself a lucrative practice as teacher of music; but the fascinations of the chequered field caused him to neglect his musical pupils, and they, in consequence, soon procured other more attentive masters. This induced Philidor to pursue the study of chess, rather than that of music. At this time the game was played in almost every coffee-house in Paris. M. de Kermur, sire de Legalle, was then esteemed the best chess player in France, and young Philidor sought every opportunity of receiving his instructions, by which he improved so essentially, that in three years he played as well as his master.

M. de Legalle once asked Philidor whether he had ever tried to play by memory without seeing the board. The pupil replied that he had calculated moves, and even whole games at night in bed, and he thought he could do it. He immediately played a game with the Abbé Chenard, which he won without seeing the board, and without hesitation upon any of the moves. This circumstance was much talked of in Paris, and consequently he often repeated this method of playing.

Finding it so easy to play a single game without seeing the board, he offered to play two games at the same time. This feat he performed in a public coffee-room, and won both games. In the middle of one of the games a false move was designedly made, which after a great number of moves, he discovered, and placed the piece where it ought to have been at first.

In 1745 Philidor went to Holland to join some musical brethren in a scheme for giving concerts to the Dutch; but the death of one of the party terminated the plan, and Philidor found himself alone in a foreign land without means to support himself. His skill in chess and in Polish draughts procured him enough to supply his wants: he gave lessons in chess to the Prince of Waldeck, who then commanded the Dutch army, and after remaining about a year, chiefly at the Hague, he left Holland.

In 1747 he visited England for the first time. The principal London chess club then held its meetings at

Old Slaughter's coffee-house in St. Martin's Lane. Sir Abraham Janssen was then the best player in England, and with the exception of M. de Legalle, probably the best player Philidor ever encountered. After remaining about a year in England, Philidor returned to Holland, where he composed his celebrated *Analysis of the Game of Chess*. At Aix-la-Chapelle he was advised by Lord Sandwich to visit Eyndhoven, a village between Bois-le-duc and Maestricht, where the British army was encamped. He there had the honour of playing with the Duke of Cumberland, who, not only himself subscribed liberally for a number of copies of the work, but procured many other subscribers. The analysis was published in French, in London, 1749, and has been since reprinted or translated in almost every capital of Europe*.

Philidor frequently played chess at the house of the French ambassador, the Duke of Mirepoix, who gave a weekly dinner to the lovers of the game, at which he himself was expert. The king of Prussia also enjoyed the reputation of being a chess-player, and in 1751 Philidor visited Berlin, by invitation of that monarch, who took great interest in seeing Philidor play, although he did not encounter him himself.

During these chess excursions Philidor did not neglect his musical profession. In 1758 he set to music Congreve's *Ode to Harmony*, which was performed in London. The great Handel was present at the performance, and approved of the chorusses, but thought the melody defective. Two years after he returned to Paris with the intention of devoting himself entirely to his musical profession: he composed some sacred music, and solicited the appointment of *maitre de la chapelle*, but as his productions were thought by the Court to savour too much of the Italian style, his application was unsuccessful.

It would be out of place here to follow Philidor through his musical career. Suffice it to say that his compositions comprise more than twenty-five complete operas, some of which were performed with eminent success, besides numerous other musical publications. M. de Laborde, in his voluminous *Essay on Music*, does not hesitate to pronounce Philidor one of the greatest of French composers.

Philidor visited England for the fourth time in 1769. He found chess had now become fashionable: a new club had been formed at the Salopian Coffee House, where he frequently played. Another club was afterwards formed in St. James's Street, next door to the Thatched-house Tavern. The members of the latter club formed a subscription among themselves in order to remunerate Philidor for attending their meetings. The best players in this club, and at that time in London, were Count Bruhl, the Hon. H. Conway afterwards Lord Henry Seymour, Lord Harrowby, Mr. Bowdler, and Mr. Jennings. In playing over the board, the pawn and two moves, or the knight in exchange for the first two moves, were the fair odds between these gentlemen and Philidor †.

The first match played by Philidor in public without seeing the board is recorded in the *Morning Post*, of May 28, 1782. This notice is curious as showing the great sensation occasioned by an exhibition which was then regarded as equally new and wonderful.

The celebrated M. Philidor, whose unrivalled excellence at the game of chess has long been distinguished, invited the members of the chess club, and the amateurs in general

of that arduous amusement to be present on Saturday last at a spectacle of the most curious kind, as it was to display a very wonderful faculty of the human mind, which faculty, however, is perhaps at present exclusively his own.

In consequence of this invitation, thirty gentlemen and three ladies attended M. Philidor, at Parsloe's, in St. James's street, where, in their presence, with his eyes closed, he contended with two gentlemen at the same time, who had each a chess-board, and who may be deemed among the first players in Europe next himself. Count Bruhl was his adversary at one board, and Mr. Bowdler at the other, and to each was allowed the first move. The games lasted one hour and forty minutes. The game with the Count was drawn, and Mr. Bowdler won the other, owing to the exact similarity in the openings, for if the two games had less resembled each other, M. Philidor would have preserved a distinct recollection.

The idea of the intellectual labour that was passing in the mind of M. Philidor suggested a painful perception to the spectator, which, however, was quite unnecessary, as *he seldom caused half a minute*, and seemed to undergo little mental fatigue, being somewhat jocose through the whole, and uttering occasionally many diverting pleasantries. The whole passed in the French language.

When the intrinsic difficulty of the game is considered, as well as the great skill of his adversaries, who of course conducted it with the most subtle complications, this exertion seems absolutely miraculous, and certainly deserves to be recorded as a proof, at once interesting and astonishing, of the power of human intelligence.

The periodical called *The World* of the same date, after giving similar details of the match concludes thus:

This brief article is the record of more than sport and fashion: it is a phenomenon in the history of man, and so should be hoarded among the best samples of human memory, till memory shall be no more.

The ability of fixing on the mind the entire plan of two chess-tables, with the multiplied vicissitudes of two-and-thirty pieces in possible employment upon each table, that a man should maintain the two games at once, without seeing either, but merely from the report of move after move upon both; and this contending not with bad and inexperienced play, but with two of the best and most practised players in Europe,—all this makes up a wonder of such magnitude as could not be credited, perhaps would not be credible, without repeated experience of the fact.

This has been had from M. Philidor again and again, but never with more struggle, for his antagonists were Count Bruhl and Mr. Bowdler. They never were more excellent: how much resource there was, and guarded enterprise, may be imagined from the time they took in playing. During the whole of that period the memory of this astonishing man was never for a moment absent nor confused: he made not one mistake.

These wonderful performances procured Philidor more fame than profit; and he himself seems to have been roused to the conviction that his exertions would have been better directed had he acquired a competence for himself and family instead of such unrivalled skill in chess: for we are told that he would never allow any one of his numerous family to learn the game. With a wife and nineteen children entirely dependent upon his labours for support, he found it difficult for many years to procure them more than a very meagre income.

During the latter years of Philidor's life he continued to reside in London in the winter, and with his family at Paris in the summer, occasionally playing matches in public without seeing the board, and generally winning of the best players opposed to him. The following notice appeared in the London newspapers in May, 1783:

Yesterday at the chess-club in St. James's Street, Mr. Philidor performed one of those wonderful exhibitions for which he is so much celebrated. He played three different games at once without seeing either of the tables. His opponents were Count Bruhl, Mr. Bowdler, (the two best players in London) and Mr. Maseres. He defeated Count Bruhl in one hour and twenty minutes, and Mr. Maseres in two hours; Mr. Bowdler reduced his game to a drawn battle in an hour and three quarters. To those who understand chess, this exertion of M. Philidor's abilities must appear one of the greatest of which the human memory is

* Philidor brought out a second edition of this work in 1777, with considerable additions. Of the numerous translations of this work into English, the edition by Mr. George Walker is the best.

† Many of the games thus played were preserved in MSS. by the Rev. George Atwood, a pupil of Philidor. These MSS. a few years ago came fortunately into the possession of Mr. George Walker, who has prepared from them a small volume which every amateur ought to possess. It is entitled, "Games at Chess, played by Philidor and his Contemporaries: with Notes and Additions. By George Walker. London, 1836."

susceptible. He goes through it with astonishing accuracy and often corrects mistakes in those who have the board before them.

Between the years 1788 and 1799 Philidor played eight similar matches, each match consisting, in general, of three games; and in 1792 two such matches were played in the presence of the Turkish ambassador. In 1795 when he was at the age of sixty-nine he played three blindfold matches in public, the last of which was thus announced in the daily papers:

CHess CLUB, 1795, PARsLOE's, St. JAMES'S STREET.—By particular desire, Mons. Philidor, positively for the very last time, will play on Saturday, the 20th of June, at 2 o'clock precisely, three games at once against three good chess-players; two of them without seeing either of the boards, and the third looking over the table. He most respectfully invites all the members of the chess-club to honour him with their presence. Ladies and gentlemen not belonging to the club may be provided with tickets at the above-mentioned house to see the match, at five shillings each.

On Saturday, August 29th, 1795, the following sad intelligence appeared in the daily papers.

MONS. PHILIDOR, THE CHESS-PLAYER.

On Monday last, the 24th of August, this long celebrated foreigner made his last move—into the other world. For two months, he was kept alive merely by art and the kind attentions of an old and worthy friend. To the last moment of his existence he enjoyed, though nearly seventy years of age, a strong and retentive memory, which long rendered him remarkable in the circle of his acquaintance in this capital.

M. Philidor was a member of the chess-club near thirty years, and was a man of those meek qualities that rendered him not less esteemed as a companion, than admired for extraordinary skill in the game of chess, for which he was pre-eminently distinguished.

It is only two months since he played two games blindfold at the same time, against two excellent chess-players, and was declared the victor. He was, besides, an admirable musician and a composer.

What seemed to have shaken the poor old man's constitution, and to have precipitated his exit, was not being able to procure a passport to return to Paris to see his family (who reside there,) before he paid the last debt of nature. This refusal was rendered still more bitter, on its being intimated to him that he was denounced by the blood-thirsty committee of French Revolutionists as a *suspected character*. From the moment he was made acquainted with this circumstance he became a martyr to grief—his philosophy forsook him—his tears were incessant—and he sank into the grave.

We cannot conclude the first part of our course of articles on chess without offering a few remarks to the young player.

While we estimate chess as decidedly the best of games, inasmuch as it gives a wholesome exercise and discipline to the mind, and is, at the same time, a recreation from other pursuits, we must also confess that there was much truth in the remark of James the First that chess is "overwise." When played scientifically it certainly is too absorbing and difficult a subject for mere amusement. Some studious persons find rest and refreshment in a change of pursuit, even though it be from one difficult subject to another equally difficult; but there are few such. We would therefore advise our young readers to restrict themselves in the time they devote to chess, lest this fascinating game become the great object of study and set aside other and more important pursuits. Every age does not produce its Philidor, nor would it generally speaking be a wise application of time and talent to aim at reaching his standard of excellence in this game.

ON THE ORIGIN AND USE OF COUNTERS.

Few persons at the present day, when they see small flat pieces of metal, resembling coins, and called *counters*, are aware of the purpose to which they were originally employed. They are memorials by which we may measure the advance of arithmetical knowledge among the bulk of the people, in other countries as well as our own. Counters, as the name imports, were intended to assist in *counting*, in a manner which we will endeavour to describe.

Before arithmetic, as a science of the mind, was diffused through the nations of Europe, a kind of tangible arithmetic was employed, in performing the operations of addition and subtraction. In a recent paper on Calculating Machines (*Sat. Mag.*, Vol. XVIII., p. 12.) we have spoken of the Roman abacus and the Chinese schwan-pan, and these are some of the means by which tangible arithmetic was performed. It will be remembered that the Roman abacus was a frame, across which several wires were stretched, and that small beads, strung on these wires, were made the instruments of calculation, according to the relative positions which they occupied. The Chinese schwan-pan and the Russian Shtchota were different varieties of the same instrument.

But it is not difficult to see that the same effect might be produced by drawing lines on a board or table, and placing pebbles, coins, or any small objects, on or between them. This was done, and from thence sprang the custom of using counters. It appears that the Greeks used for this purpose small flat, rounded, polished pebbles, which they called *χηφοι*, and from which they termed the process in which these were used *χηφοφορια*: hence arise our terms *cypher* and *cyphering*. When the Romans came to adopt a similar plan, they called the counting pebbles *calculi*, from whence we obtain our terms *calculate*, *calculating*, &c. Many centuries after this, small flat pieces of metal were employed for this purpose instead of pebbles: they appear to have been first used in France, and were called *jettons*, from the verb *jetter*, or *jetter*: to cast or move, in allusion to the lateral or vertical movement which they made on the counting-board: the familiar expression, to *cast up* a sum, or to *cast* an account, is a remnant of the times when these pieces of metal were cast or moved from one line on the casting-board to another. When the Dutch began to adopt this plan they applied the term *legpenning* or *legget* (lay-penny, or lay-money,) to the small pieces of metal, from the verb *leggen*, to lay, in allusion to the laying or placing of them on the counting-board. In Germany the piece of metal acquired the name of *Rechenpfennig*, *reckoning penny*, and lastly in England they were called *counters*, appropriately indicating, as did likewise the German "rechnen," the purpose of counting or reckoning to which they were applied.

It will thus be seen that many terms, more or less familiar to us, have become current through the early use of counters in arithmetical computation.

The reader must bear in mind that these pieces of metal did not assume any particular value in the computation on account of their intrinsic worth as metal, but merely from the position they occupied on or between the lines marked on the board or table used for counting. Here again we have the origin of another term in familiar use: a *shop-counter* was originally the board on which the computations between the buyer and seller were made out; and though this custom has long since become obsolete, yet the word "counter" is still applied in this sense.

The pieces of metal used by the moderns for the purpose of computation were originally circular, flat, well-polished, and quite plain. But afterwards they were adorned with ornaments, devices, and legends, which make them highly curious memorials of past times, for some of them contain the name of the person by whom

or for whose use they were made,—the sovereign in whose reign they were employed,—or the particular town or corporation to which they belonged. A brief description of some specimens will show the general character of these metallic counters.

For some centuries previous to the reign of Louis the Twelfth counters were struck in France in great numbers, and they are alluded to by various writers under the names of *gects*, *gectz*, *geteurs*, *getoires*, *gettoirs*, *jectoers*, *jectoires*, *giets*, *gietons*, and *gitones*, all of which are evidently derived from the same verb as *jettons*, and are merely different modes of spelling the same term. Some of these jettons, still in existence, bear legends purporting that they were made for the use of such and such a person,—the Seigneur de Berssele, Monsieur le Chancelier, the Prince de Castelle, Monsieur de Berg, &c. Others purport to have been intended for the use of some of the public offices, such as the Bureau de Finances, and many others. Many of them contain legends of an admonitory character, serving as maxims to encourage correct reckoning, such as *Gardez-vous de mescomptes*,—Be on your guard against mis-counting; *Jettez bien, que vous ne perdriez rien*,—Cast well, that you may lose nothing; *Qui bien jettra, le compte trouvera*,—He who casts well will find his account; *Si vous failliez, le recomptez*,—If you fail, count again; *Bon compte ne font à nulle honte*,—Good counting brings shame to no one; *Comptez et jettez justement, craignant le divin jugement*,—Reckon and cast justly, fearing the divine judgment.

A large number of these jettons had legends in Latin, denoting in most cases the persons, cities, or official bodies, for whose use they were struck. Those made in Holland had not so frequently admonitory mottoes, but had such legends as the following;—*Leggelt van der Munters van Holland*,—lay-money for the coiners of Holland;—*Leggelt der Stadt van Brussel*,—lay-money for the city of Brussels. Nuremburg in Germany appears to have been particularly distinguished for the number of jettons, or as we must here term them, *rechenpfennige*, made there. These contained, in some instances, the arms of the city; in others, the bust of some public character; in others, an allegorical subject; in others, the name of the parties by or for whom they were issued; and in most of them an inscription of some kind or other. On one, of which a representation is now before us, there is "Cornelius Lauffer, in Nurnberg;" and on the other side, *Glückbesichert ist unverwehrt*,—What is allotted by fortune is not forbidden. It would appear that the family of Lauffer was of considerable importance in the town of Nuremburg; for we find many counters bearing that name; on one is inscribed *Chourat Lauffer Nurnb.*, and *Anfang bedenkt Ende*:—the beginning considers the end; on another, *Matheus Lauffer, Nurnb., Soli Deo Gloria*,—Glory to God alone; on another, *Woolf Lauffer, Rechenpfennig*; and *Gottes Segen macht reich*,—God's blessing makes rich. One contains the legend *Glück von Gott ist*,—Fortune is from God; another, *Fleissige Rechnung macht Richtigkeit*,—Diligent reckoning produces correctness; and within the border which is formed by this legend are all the letters of the alphabet; the obverse represents a man standing before a counting-table or board, and performing a computation by means of counters. One, purporting to be made by Hans Krauwinkel, bears the legend, *Arbeit und Tugend machen dich edel*,—Industry and virtue make thee noble.

It became a practice in the fifteenth century, to distribute jettons as Etrennes, or New Year's Gifts, at the public expense, in Holland. To the most considerable officers of the United Provinces, such as the Governor General, the governor of each separate province, the Inspector of the Canal at Brussels, &c., were presented a certain number of silver and copper jettons, which were put either into a splendid purse, or into a silver box. The

value of these jettons, given away as new year's presents, varied from seven hundred to three thousand pounds per annum, according to the number of persons to whom they were presented. To every person thus honoured was given a *Jett*, or a particular number of jettons necessary for the performance of computation. This custom of presenting jettons in the form of a new year's gift, was continued long after the disuse of jettons in calculation; and was afterwards regarded so far as a prescriptive right, that the Dutch officers, down to the latter part of the last century, received a certain sum of money annually in lieu of the jett of jettons given in earlier times.

It appears that the Nuremburg artists had mills at which these counters were made, and that the greater part of the counters used in Europe was made by them. In nearly all cases, these counters were, for cheapness, made of copper; but the wealthier classes had them of silver, and even of gold. Corporations, abbeys, monasteries, and churches, whose revenues required a good deal of computation, were frequently provided with counters appropriated to their own use; and it is thus that we are to explain the meaning of "abbey-pieces," applied to some kinds of counters, frequently found among the ruins of abbeys. The diffusion of the knowledge of arithmetic among all the countries of Europe, has however led to the abandonment of this mode of computation; and we may now regard counters merely as monuments of old times.

Touch-pieces were a sort of coins, of which the king, when he *touched* a person in order to cure the evil, used to hang one round the neck of the patient. English touch-pieces usually bore the device of St. Michael and the Dragon on one side, and a ship on the other. This is a very ancient superstition. The latest of these pieces are of James II., Queen Anne, and the Pretender.

A SHARK is one whom all other means have failed, and now he lives of himself. He is some needy cashiered fellow, whom the world hath oft flung off, yet still clasps again, and is like one a drowning, fastens upon anything that is next at hand. Amongst other of his shipwrecks he has lost shame, and this want supplies him. No man puts his brain to more use than he, for his life is a daily invention, and each meal a new stratagem. He has an excellent memory for his acquaintance: though these passed but how do you betwixt them seven years ago, it shall suffice for an embrace, and that for money. He offers you a pottle of sack out of joy to see you, and in requital of his courtesy you can do no less than pay for it. He is fumbling with his purse-strings, as a schoolboy with his points, when he is going to be whipped, till the master, weary with long stay, forgives him. When the reckoning is paid, he says, it must not be so, yet is straight pacified, and cries, What remedy? His borrowings are like subsidies, each man a shilling or two, as he can well dispand; which they lend him, not with a hope to be repaid, but that he will come no more. He holds a strange tyranny over men, for he is their debtor, and they fear him as their creditor. He is proud of any employment, though it be but to carry commendations, which he will be sure to deliver at eleven of the clock. They in courtesy bid him stay, and he in manners cannot deny them. If he find but a good look to assure his welcome, he becomes their half-boarder, and haunts the threshold so long, till he forces good nature to the necessity of a quarrel. Public invitations he will not wrong with his absence, and is the best witness of the sheriff's hospitality. Men shun him at length as they would do an infection, and he is never crossed in his way if there be but a lane to escape him. He has done with the age as his clothes to him, hung on as long as he could, and at last drops off.—BISHOP EARLE.

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THE BANKS OF THE THAMES. IV.



ETON COLLEGE.

My eye descending from the hill, surveys
Where Thames among the wanton valleys strays.
Thames, the most loved of all the Ocean's sons
By his old sire, to his embraces runs;
Hasting to pay his tribute to the sea,
Like mortal life to meet eternity.
Though with those streams he no resemblance hold,
Whose foam is amber, and their gravel gold,
His genuine and less guilty wealth t'explore,
Search not his bottom, but survey his shore,
O'er which he kindly spreads his spacious wing,
And hatches plenty for the ensuing spring.

PROCEEDING eastward from the town of Henley-upon-Thames, to which we had conducted the reader in the last paper, we arrive at the spot where the Thames leaves Oxfordshire, and begins to skirt Buckinghamshire; although it still continues to form the northern boundary of Berkshire. The scenery between Henley and Great Marlow, one in Oxfordshire and the other in Buckinghamshire, but both on the northern shore of the river, has often been celebrated for its beauty. It is literally studded with gentlemen's seats, embosomed in fertile and lovely spots. Near Henley is the pretty village of Hambleton, in the church of which are the following lines, forming part of the epitaph to Sir Cope D'Oyley, who died in 1633:—

Ask not of me, who's buried here?
Goe ask the Commons, ask the Sheire,
Goe ask the Church, they'll tell thee who,
As well as blubbered eyes can do.
Goe ask the heralds, ask the poore,
Thine ears shall hear enough to ask no more.
Then, if thine eyes bedew this sacred urne,
Each drop a pearl will turne

Vol. XVIII.

T'adorn his tombe, or if thou canst not vent,
Thou bring'st more marble to his monument.

Close to the river, about midway between Henley and Great Marlow, stand the remains of the small abbey of Medenham, founded in the reign of King John, as a cell to the Cistercian monks of Woburn, in Bedfordshire; but which was so reduced in after-times, that at the dissolution of the monasteries it only contained two monks. Nearly opposite this, on the southern bank of the river, is Hurley Place, once a monastery of Benedictine monks, founded in the time of William the Conqueror. The property in later times passed into the hands of the Lovelace family, who built a mansion on the site of the old monastery. A subterraneous vault beneath the house, once the burial vault of the monks, is carefully preserved, and pointed out as the spot where Lord Lovelace and other nobles met in private, in the year 1688, preparatory to the arrival of the Prince of Orange, and the abdication of James the Second.

Great Marlow, to which we next arrive, is a pleasant town, of great antiquity. It is supposed to have been a market-town in the time of the Saxons, and possesses many records of antiquity. The old bridge at Marlow, which was taken down at the end of the last century, was mentioned in grants during the reigns of Edward the Third, Richard the Second, and Henry the Fourth, empowering the bailiffs to take toll of all goods, wares, merchandise, and cattle, passing over or under the bridge; the receipts to be expended in repairs. Part of the bridge was destroyed by the army of Major-General Brown in 1642; and Parliament ordered a county-rate to

be levied for its reparation. A new bridge was built by subscription about forty years ago.

At the part of the Thames between Oxford and Marlow, there were in the time of Queen Elizabeth seventy locks, sixteen flood-gates, and seven weirs; all of which were so much out of repair, that frequent accidents happened from the sudden yielding of the timbers; and an application was made to the lord-high-treasurer, who caused the offending parties to be amenable to the laws. Mr. Ireland, speaking of a lock which existed at Marlow in his time, says:—

Between this lock and Battersea, which is a distance of about fifty miles, in all the deep waters, the lampreys are caught in great plenty in the spring of the year, and are sold to the Dutch as bait for their turbot and other fisheries. In one season, it is said, there have been sold not less than five hundred thousand. The price of the lamprey was forty shillings per thousand; but the Dutch having lately contracted for an increased quantity, at sixty shillings, it has rendered them so scarce, as to raise the price for our own use to nearly six pounds. The Thames has sometimes furnished upwards of a million of these fish annually.

How far this state of things is maintained at the present day, we are not aware.

Not far from Great Marlow is Little Marlow; and about five miles inland is a place which has acquired an imperishable name as the temporary residence of John Milton: this is the village of Chalfont St. Giles. While the plague was raging in London in the year 1665, the great poet retired to Chalfont, where he finished his *Paradise Lost* in a house which is still standing. It is said that Elwood the Quaker, the companion of his retirement, after perusing the manuscript of this poem, returned it to him with the remark, "Thou hast said a great deal on *Paradise lost*, but what hast thou to say on *Paradise found*?" Milton made no answer, and, after a short silence, began a conversation on another subject; but a considerable time afterwards he presented his friend with the *Paradise Regained*; saying, in a pleasant tone of voice, "This is owing to you; for you made it the subject of my thoughts, by the question you put to me at Chalfont." Waller, the contemporary of Milton,—a more fortunate though a less gifted poet,—lived at Beconsfield, another village not far from Chalfont.

When we approach within two miles of Maidenhead, we come to the village of Cookham. Here the river, which is of a considerable breadth, is divided by a number of little islands. The view embraces no very distant object, but those which compose it are of great individual beauty, and from their contrasted shapes and character collectively form a very delightful picture. The Thames branches off into three different channels, forming several islands, one of which contains fifty-six acres, mostly embowered in large masses of foliage; the others are covered with alders and osier. To the right is Cookham church and part of the village, and beyond it Cookham House, with its lofty elms. On the left is a large level mead of pasturage, enlivened by herds of cattle, and the uplands of Buckinghamshire rising beyond it.

Nearly opposite Cookham, on the Buckinghamshire side of the river, is Cliefden, the estate of the Chandos family in bygone times. A splendid mansion was built on this spot by George Villiers, duke of Buckingham, in the reign of Charles the Second, and made the scene of his dissipated pleasures. After his death it became the property of the Earl of Orkney, and afterwards of Frederick, prince of Wales, father of King George the Third. This splendid mansion was burnt down in the year 1795; but from the following description by an eye-witness, the grounds must have been very beautiful.

The gardens and pleasure-grounds were suited to the character of the edifice, while the woods are of a form and extent to confirm the grandeur of the place. This elevated situation commands a vast expanse of country, and, though not bounded by mountains, or varied by features of peculiar distinction, it is nevertheless magnificent from its space, as

well as pleasing from the variety of cultivation that over-spreads it; and should the eye be satiated with the unvaried luxuriance of the more distant landscape, it turns with new delight to retrace the Thames, winding through its meads, and reflecting the woods that hang down the declivities to its silver margin. The long range of wood, from the variety of its trees, the richness of its foliage, the irregularity of its surface, and the inequality of its heights, connected also with other characteristic circumstances, must be considered, in whatever point of view it may be seen, as a fine combination of grandeur and beauty.

Maidenhead, at which we next arrive, is a pleasant town on the Berkshire side of the river. Its consequence has been attributed to the building of the bridge, about the time of Edward the Third, by which means the great Western road was carried through the town. Previous to this travellers usually crossed the river at a ferry, about two miles further up the river. The bridge thus alluded to was built of wood, and lasted till the latter end of last century, when a new stone bridge was built in its stead.

Within a very short distance of Maidenhead is the Bray, to which a curious kind of celebrity has been attached, on account of the ease with which a vicar accommodated his conscience to the changes of the times in religious matters. It has been doubted by many persons whether this personage ever really existed. The story seems to have been first given in print by Fuller, in his *English Worthies*. He says:—

First we will dispatch that sole proverb of this county, viz., "The vicar of Bray will be vicar of Bray still." The vivacious vicar hereof, living under King Henry the Eighth, King Edward the Sixth, Queen Mary, and Queen Elizabeth, was first a papist, then a protestant, then a papist, then a protestant again. He had seen some martyrs burnt (two miles off) at Windsor, and found this fire too hot for his tender temper. This vicar being taxed by one for being a turncoat and an unconstant changeling, "Not so," said he, "for I alwaies kept my principle, which is this, to live and die the vicar of Bray." Such many now adayaes, who, though they cannot turn the wind, will turn their mills, and set them so that, wheresoever it bloweth, their grist shall certainly be grinded.

It was in the reign of Charles the Second that Fuller wrote this story, during which reign another mention is made of a vicar of Bray, as follows. Charles had been hunting in Windsor Forest, and in the chase was separated from his attendants. In returning he lost his road, and came to Bray after it was dark, where, on inquiring for the vicar's house, and being introduced, he told him that he was a traveller who had lost his way, and having spent all his money, begged that he (the vicar) would render him assistance to proceed on his journey, and that he would soon punctually repay the loan. The vicar told him he was an impostor, and rudely bade him to go out of his house. But the curate, who was with the vicar, felt pity for the traveller, and lent him a little money. The king then made known who he was, and upbraiding the vicar for his inhumanity, said, "The vicar of Bray shall be vicar of Bray still, but the curate shall be canon of Windsor." The king is said to have made good his word.

It is probable that in this, as in other cases, the story is true in foundation, but has received additions from the various persons by whom it has been related. Be this as it may, we must proceed onward in our journey.

After leaving Bray the course of the river brings us to the villages of Dorney and Lower Boveney, on the Buckinghamshire side, and to those of Water Oakley and Clewer on the Berkshire side of the river; till at length we come to that celebrated part of the river which presents to us Windsor, with all its old associations, on the southern bank, and Eton and Slough, the one celebrated for its classical seminary, and the other for being the residence of the distinguished family of the Herschels, on the northern.

From this point we must resume our journey at another opportunity.

GARDEN HERBS.

SAVORY. (*Satureia*.)

"THERE be two kinds of savourie: the one endureth winter, and is of long continuance, the other an annual or yearly plant resembling hyssop, but lower, more tender, and brittle; it bringeth forth very many little branches; compassed on every side with narrow and sharp-pointed leaves, longer than those of thyme; among which grow the flowers from the bottom to the top, out of small husks, of colour white, tending to a light purple. The root is hard and woody, as is the rest of the plant. Summer savourie groweth up with a slender brittle stalk of a foot high, divided into little branches. The flowers stand hard to the branches, of a light purple, tending to white." GERARDE, 1597.

The above accurate description, written at so early a period, seems to prove that the herb Savory was well known in England previous to the time usually assigned for its introduction here. Indeed we can scarcely doubt that this and the other herbs of Southern Europe, which familiar use had made almost necessary to the Romans, were cultivated during their residence in Britain.

The generic name of this plant is most probably derived from the Latin word *saturio*, to cram or satisfy, in allusion to its use in seasoning broths, soups, and stewed meats. The English name is also evidently taken from the relish imparted by the herb to preparations of that kind.

Savory is supposed to have grown abundantly near Troy, in a place called Thymbra. Both the winter and summer variety are natives of the South of Europe, and are noticed by Virgil among the fragrant herbs and shrubs that are desirable to be planted near a bee-hive.

The verdant lavender must there abound,
There savory shed its pleasant sweets around.

The Romans employed this herb in a different manner from ours. Among them, it is used as a kind of spice to give warmth to lettuce and cool salads, and also as an ingredient in their acid sauces. "Certainly," says Phillips, "a more rational way of taking this hot acrid herb, than the present method of using it, to give heat to our already too inflammatory dishes." Dodoens tells us, that savory in its operations resembles thyme, and is very good, and necessary to be used in meats.

Both kinds of savory are propagated by seeds. Those of the annual plant are raised on any light soil, early in April. When of a sufficient height the plants are to be thinned out to about five or six inches apart, and allowed to remain for use. After being once cut, they produce no succession of shoots, therefore the whole plant may be pulled up, more advantageously than taking cuttings from several. If required for drying, this herb may be treated in a similar manner to others, except that the plant, after cutting off the extreme roots, is to be preserved. "Keep it dry by you, all the year," says Culpeper, "if you love yourself and your ease, and it is a hundred pounds to a penny if you do not; keep it dry, make conserves and syrups of it, and withal take notice that the summer kind is the best."

Winter savory may be propagated by slips as well as by seeds. If the slips or cuttings are planted in spring, they will readily take root, and become strong plants, which in autumn may be taken up, with plenty of mould at their roots, and transplanted out in beds or rows at a foot distance from each other. They should be planted in a poor soil: in rich earth they imbibe too much moisture to stand the severity of our winters. When placed in a congenial soil, winter savory grows to a considerable sized shrub.

There are other species of savory now cultivated in this country, but they generally require the protection of a greenhouse, and are not in use as culinary herbs.

Savory has a very hot, penetrating, and aromatic

taste. It is an excellent seasoning for farinaceous food, as peas, beans, &c., preventing wind in the stomach. It was formerly much more used in made-dishes than at present, and was also an ingredient in cakes, puddings, sausages, &c., being thought inferior to none of the European aromatics, for pleasantness of smell and flavour. Savory belongs to the natural order *Labiata*, and to the Linnæan class and order *Didynamia Gymnospermia*.

HOREHOUND. (*Marrubium*.)

"White Horehound (*Marrubium album*), bringeth forth very many stalks, four-square, a cubit high, covered over with a thin whitish downiness; whereupon are placed by couples at certain distances thick whitish leaves, somewhat round, wrinkled, and nicked on the edges, and covered over with the like downiness, from the bosoms of which leaves come forth small flowers of a faint purplish colour, set round about the stalk in round whorls, which turn into sharp prickly husks after the flowers be past. The whole plant is of a strong savour, but not unpleasant; the root is thready." GERARDE.

The above is an admirable description of the common sort of horehound, which grows so plentifully not only in our gardens, but on waste ground, in various parts of England, in hot, dry, and dusty situations. The English name is supposed to be given on account of the hoary or frosty appearance of the surface of the plant, and also from the resemblance of the herb to the common hound's-tongue, a plant which is said to have an odour like that of a kennel of hounds.

Besides the common horehound, there are many other species of *Marrubium* cultivated in this country. Eleven are noticed in the *Hortus Kewensis*, and Miller enumerates fifteen.

This herb was much extolled by the ancients for its efficacy in removing obstructions of the lungs. According to Pliny, the Romans thought it one of the most valuable herbs used in medicine, and chiefly for the disease above-named, though they also made use of it as a remedy for the ringworm, and an antidote against poison. The juice was likewise employed to mitigate diseases of the eyes.

Horehound doubtless possesses some share of medicinal power; but its virtues do not appear to be clearly ascertained, and it is now very rarely prescribed by physicians. It has, however, its domestic reputation for relieving asthmas, obstinate coughs, and pulmonary consumptions. Its use is also thought beneficial in affections of the liver. Lozenges made of the juice of this herb and sugar, form a common remedy for colds. When recently dried, horehound has an aromatic flavour, which it loses when kept.

In the modern Pharmacopœias, we find statements somewhat varying in their nature respecting the virtues of this herb. According to one of these, it was formerly regarded as a tonic, expectorant, and diuretic, and was used in asthmas and coughs. In large doses it was also employed as a slight aperient; but it is altogether unimportant in any of these respects. Another informs us, that horehound is tonic, stimulant, deobstruent, expectorant, and vermifuge; excellent in humoral asthma, obstructions of the viscera, and violent salivation; and that although it is falling into disuse, it appears to be as good as many other bitters in fashion. The dose is half a drachm to a drachm of the powder, half an ounce to an ounce of the expressed juice, or two ounces of the infusion, three times a day.

Horehound is an annual plant, and may be raised by sowing the seed in any of the spring months. The downy appearance of the plant and its strong but not very agreeable odour, make it distinguishable from other herbs. It belongs to the natural order *Labiata*, and to Class XIV, Order 1, (*Didynamia Gymnospermia*), of the Linnæan system.

ON THE MANUFACTURE OF ARTIFICIAL FLOWERS.

THE distinction between use and ornament should ever be borne in mind, in estimating the relative importance of different employments; but even when all necessary allowance is made for this difference, there still remains much which is worthy of our notice, in the arts connected with the production of articles of decoration and ornament. The processes involved in these manufactures are often as ingenious, and require as much practical skill, as those by which more important articles are produced.

We are led to make this remark by a consideration of the mode in which artificial flowers are produced. Every one knows that attempts are made to imitate flowers and leaves, by various means, as ornaments for female dress, and that some of these attempts are remarkably successful; and it may not be uninteresting to the reader to trace in a general manner the mode in which these flowers are made.

The Italians appear to have been the first Europeans who excelled in the art of fabricating artificial flowers. By degrees the art found its way from thence into France, a country whose people are singularly skilled in the arts calling for taste and delicacy. Before excellence was attained in the art, many different substances were employed as the material of which the flower was made. At first, ribands of different colours were used, plaited, curled, and twisted as nearly to the desired form as possible. This mode of imitation gave place to the employment of feathers, which are more delicate, and more easily worked into desired forms. To supply the colours which are not generally found in feathers of European birds, it was necessary to paint them; but the blending of the tints was seldom effected with the desired accuracy. It is said that the savages of South America, taking advantage of the gorgeous plumage of inter-tropical birds, succeeded in producing therewith admirable imitations of flowers.

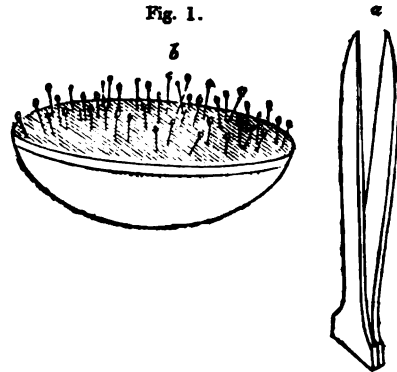
The Italians afterwards employed silk, as obtained from the cocoons. No substance takes colour better, nor retains it longer than silk; while its transparency and softness imitate pretty closely the velvet-like texture of the petals. They also employed, but with less success, Italian gauze, as the material for the imitative flowers. Different artistes have tried in succession, shells, wax, and paper; but all have had some defect which rendered them unfitted for the production of flowers for sale. About twenty years ago a French manufacturer devised a mode for making these articles from whalebone; but the substances which have been most generally employed are those which we are about to describe.

The exercise of this art is now carried on both in France and England; and it is probable that the modes of proceeding are nearly the same in both. We will therefore describe the general practice in France, taking a *rose* as an example of flower to be imitated.

The petals are formed of the material called *batiste*, and the leaves of Florentine taffety. The *batiste* is chosen of a very fine quality, and is first pressed, then calendered, in order to render the surface as level and smooth as possible. The piece of cloth for each petal is then cut out, punched, or stamped, by means of a cutting tool having exactly the contour required, so that no scissors are necessary. A great number of these cutting tools are kept by the artificial florist, in accordance with the various sizes of the petals, and also with the shapes. When the petals are thus all cut out, they are prepared for painting. The pigment employed (supposing the flower to be a *rose*) is carmine in an alkaline solution, generally salt of tartar. The florist takes up each petal separately, by grasping it at one extremity by means of a sort of pincers, represented at *a* Fig. 1, and plunges it into the coloured solution; then

immerses it into pure water, in order that the slight whitening of the tints at the edges may be produced by the partial action of the water. The deeper tint of the middle of the petal is then given by means of a pencil, in the manner of painting; and where the variety of the flower requires it, a striped succession of tints is produced. The colour is purposely made very faint and delicate; and if the tint resulting therefrom be too light, a second immersion deepens it. Any peculiar tints, or disposition of tints, belonging to the flower to be imitated, are given with the pencil, since the immersion merely gives the general colour to the whole of the petal.

Fig. 1.



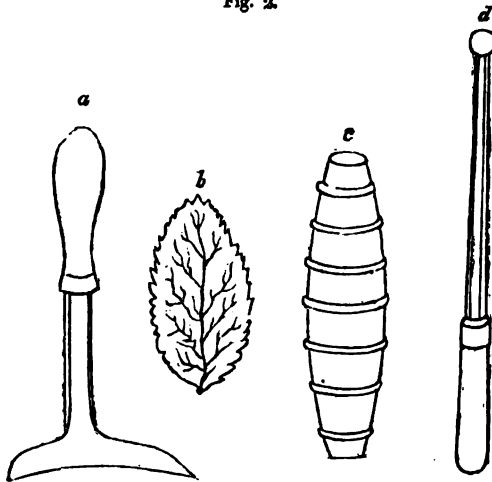
We have now to attend to the leaves. The taffety of which the leaves are made, is coloured in pieces about a yard long, before being cut. When it is painted, the taffety is stretched over a frame, and left to dry. After this, a solution of gum arabic is laid on one side of the taffety, to produce the glossy appearance usually observable on the upper side of the leaves. The peculiar dull, soft, velvet-like appearance of the under surface, is then imitated with a coloured solution of amidou, applied with a pencil, and having the desired tint and strength: the art in this process consists in using the amidou in such a state that it shall dry without gloss. When the peculiar velvet texture of the under side of the leaf admits of it, the taffety is coated with a sprinkling of *flock*, or shreds of woollen cloth cut up into the minutest fragments; the taffety being first gummed, and, when half dried, coated with the flock.

Those leaves and leaflets of which both surfaces are nearly destitute of gloss, are treated in a way accordant with their appearance, the taffety being coated with the amidou rather than with gum.

When the taffety is dry after these operations, it is cut out into the requisite forms by stamps similar to those used for the petals; different sizes and shapes being employed for leaves differently situated with respect to the flower. The taffety, when about to be cut, is laid on a block of wood, a piece of sheet lead, or a sheet made of an alloy of lead and tin. After this, a curious process is performed, in order to give imitations of the veined appearance of the leaf. Moulds are prepared, consisting of two parts, similar in effect to those employed for pressing butter into small ornamental forms. The mould is made of copper, and the inside of the bottom contains an engraved representation of one side of the leaf. The stamp, forming the other part of the instrument, is made of iron, and has on its lower surface an engraved copy of the upper side of the leaf, the raised parts being represented by elevations, and vice versa. Several leaves are then placed one on the other in the mould adapted to their form; and the stamp, previously heated to a moderate degree, is then pressed down upon them, and left in contact with them for a short time. This process gives to the leaves not only the veined appearance, but also the curves and bends which we find in nature. In Fig. 2, *b*, the interior appearance of one of the moulds is represented, as seen in a direction perpendicular to it; and at *a*, the stamping-

iron, fixed to a handle: *c* and *d* are two other implements employed to produce marks on the taffety, one being surrounded by ridges or rings, and the other being terminated by a disk.

Fig. 2.



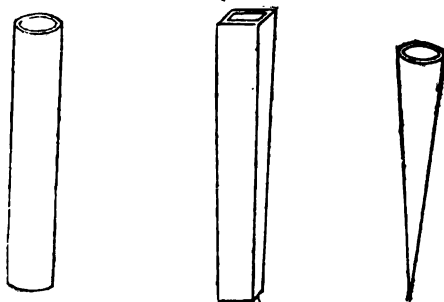
The buds are formed of little pieces of taffety or some similar substance, filled with cotton, silk filaments, or flour, and made to the requisite shapes. They are then bound with silk to small pieces of iron wire, and stuck into a basin of sand (*b*, Fig. 1.) where they remain till dry.

The stamens are made of little bits of silk, fixed to the end of a small piece of brass wire, and dipped in size or glue to give them a requisite degree of firmness; the different filaments being kept carefully separated during the subsequent drying. When they are dry, the end of each little filament is moistened with paste made of wheat flour and gum arabic, and dipped into a basin containing bran coloured yellow. Each filament or stamen thus takes up on its point a particle of bran, which forms the anther.

The separate parts being thus made, the artificer proceeds to put them together. The leaflets are cemented or sized round their points; the petals likewise are cemented around each other, the smaller within and the larger without; a curved shape being given to them when required by appropriate tools. Then follows the calyx, which encloses the ends of all the petals, and also the leaflets enveloping the bud. All the parts are cemented in their proper places with cement made of flour and gum. The stalk is made of one or more pieces of iron wire, attached to the little piece of brass wire which holds the stamens: the wire is enveloped, first in cotton, and then in serpentine strips of paper having the necessary green tint.

The leaves are mounted upon a piece of copper wire. These are arranged in threes, as presented by a natural rose; the most yellow and the smallest in size being nearest the centre. The stalk of the leaves is made in a manner similar to that of the flower, and is also united to it in a similar manner.

Fig. 3.



In the course of these operations, the contour of the several parts are given by tools called *mandrins*, of which three are represented in Fig. 3. They are cylindrical, conical, pyramidal, ellipsoidal, &c., according to the purpose to which they are to be applied.

Such is the general mode of making an artificial rose; and it may easily be conceived that the processes for producing any other flower will be nearly the same, varied only in the colours with which the batiste and taffety are painted, and in the form of the stamps and moulds by which the requisite forms are given.

RURAL SPORTS FOR THE MONTHS.

JUNE.

When with his lively ray the potent sun
Has pierced the streams, and roused the finny race,
Then, issuing cheerful, to thy sport repair;
Chief should the western breezes curling play,
And light o'er ether bear the shadowy clouds,
High to their fount, this day, amid the hills,
And woodlands warbling round, trace up the brooks!
The next, pursue their rocky channel'd maze,
Down to the river, in whose ample wave
Their little naiads love to sport at large.
Just in the dubious point, where with the pool
Is mix'd the trembling stream, or where it boils
Around the stone, or from the hollow'd bank
Reverted plays in undulating flow,
There throw, nice-judging, the delusive fly;
And as you lead it round in artful curve,
With eye attentive mark the springing game.
Straight as above the surface of the flood
They wanton rise, or urged by hunger leap,
Then fix, with gentle twitch, the barbed hook:
Some lightly tossing to the grassy bank
And to the shelving shore slow dragging some,
With various hand proportioned to their force.
If yet too young, and easily deceived,
A worthless prey scarce bends your pliant rod,
Him, piteous of his youth and the short space
He has enjoyed the vital light of Heaven,
Soft disengage, and back into the stream
The speckled captive throw.—THOMSON.

UNLIKE the sports which have occupied our attention during the preceding months, the practice of *Angling* is of a quiet and contemplative nature, and, while it leads to scenes of the most picturesque description, it leaves the mind of its advocate at liberty to enter into the enjoyment of them, and gives him leisure to mark their peculiar features. He does not hurry through the scene of his sport in eager and exciting pursuit of game, but lingers for days together among the windings of some romantic river, and only needs the eye of a poet or a painter, to gather materials from the scene around him, that shall enliven many an after-hour, and afford him sincere pleasure when the amusement which gave birth to these ideas may be no longer practicable. Thus, when the sport itself has not answered the expectation of the angler, he is seldom found to acknowledge that his time has been wholly wasted. He is ready to say with an old writer (Lady Juliana Barnes) on his favourite art, that

Atte the leest, he hath his holsom walk, and mery at his case, a swete ayre of the swete savoure of the meede floures that makyth him hungry; he hereth the melodyous armony of fowles; he seeth the yonge swannes, heerons, duckes, cotes, and many other fowles, wyth theyr brodes; whyche me seemyth better than alle the noyse of houndys, the blastes of hornys, and the scrye of foulis, that hunters, and fawkeners, and foulers can make. And if the angler take fyashe; surely, thenne is there noo man merier than he is in his spyryte.

It is well known that the term *angling* applies to the practice of taking fish with a rod, line, and baited hook, in contradistinction to all other methods of fishing. Of the antiquity of this practice we have proof in the early mention made of the implements used in angling, in the Scriptures. The book of Job contains several allusions to the use of the hook and the line; "Canst

thou draw out leviathan with a hook, or his tongue with a cord which thou lettest down," &c. Similar allusions are likewise made by the prophet Isaiah, Ezekiel, Amos, and Habakkuk. Nor is it in the sacred writings alone that we find these incidental notices of the angler's art. Throughout the writings of the ancients, there are sufficient evidences to prove its existence at a very early period, and figures connected with this art are also found on some of the most ancient sculptured relics.

It is amusing to observe the way in which Isaac Walton attempts to exalt and justify, from the charge of cruelty, this, his favourite amusement. He speaks of the sanction given to the art by the practice of so many devout and contemplative men as the patriarchs and prophets of old, taking it for granted, we know not why, that Moses and Amos were both anglers. He dwells on the fact of our Saviour having chosen four of his apostles from among simple fishermen, whom he never reproved for their employment or calling, as he did the scribes and the money-changers.

And it is observable, (continues our honest enthusiast,) that it was our Saviour's will that these four fishermen should have a priority of nomination in the catalogue of his twelve apostles: as, namely, Peter, Andrew, James and John, and then the rest in their order. It is also to be believed, that all the other apostles after they betook themselves to follow Christ, betook themselves to be fishermen too; for it is certain that the greater number of them were found together, fishing, by Jesus after his resurrection.

Without attempting to follow the worthy angler through all his laudatory remarks, we may still pronounce angling to be a very fascinating pursuit, and one which, without being either dangerous or expensive, is productive of much interest and amusement, so that, while many may prefer the more exciting diversions of the chase, there will ever be found a large number of persons equally devoted to this quiet and solitary sport.

Simple as the practice of angling may appear to those who have never personally engaged in it, yet, in order to pursue it successfully, much patience and address are requisite, together with a peculiar skill and dexterity of hand, somewhat difficult to be obtained, and impossible to be described.

There must be a certain quickness of eye to judge where the fish lies—a precision and neatness of hand to cast the line lightly, and with such truth and address that the fly shall fall on the very square inch of the stream which you aimed at, and that with as little splash as if it were the descent of the natural insect; there is a certain delicacy of manipulation with which you must use the rod and reel when (happy man!) you actually have hooked a heavy fish; all of which requisites must combine to ensure success. There are the same personal qualities requisite in shooting, billiards, and other exercises of skill, in the use of the turning lathe, and in the management of philosophical experiments. If thou hast any of this species of alertness of hand and truth of eye in thee, go forth, gentle reader, with *Salmonia* in thy pocket, and return with thy basket more or less heavy in proportion to thy perseverance. But if thou wantest this peculiar knack, we doubt if even the patience that is exercised in a punt above Chelsea bridge would greatly mend thy day's work: though thy dinner depended upon it, thou mayest go on flogging the water from morning till midnight, entangling the hook now in a bush, now in a stem, now driving it through the nose of some brother of the angle, and now through thine own, but not a fin wilt thou basket, whether of full-trout or minnow; and thou must content thee with half the definition of an angler, and be the fool at one end of the stick and string, without the gudgeon at the other*.

Great care must be taken in the construction of the angler's implements. It is well for all who enter with ardour into this amusement to become thoroughly acquainted with the formation of fishing-tackle. By this means they will not only be able to repair such articles as are accidentally injured during their excursions, but will be able to judge of the relative value of those offered

for sale, and to make their purchases to better advantage. A very important implement to the angler is the fishing-rod. This is made of various degrees of strength and elasticity, and is longer or shorter according to the kind of fishing for which it is required. Thus there is the bottom, the fly, and the trolling rod, the single and the double-handed rod, the bag rod, the walking-stick rod, and many smaller varieties. Much depends on a just adaptation of the different degrees of elasticity in the several pieces of wood of which a rod is composed, and it is necessary to ascertain the materials employed, before we can depend upon the uniform flexure of the rod as a whole piece. This is especially needful in a fly rod, which should be solid throughout, and should be adjusted so that the several joints shall have a just gradation of elastic properties, the butt being the lowest, and the point the highest in the scale of elasticity. Ash, hickory, lance-wood, and split bamboo, succeeding each other, and surmounted by a splicing of whalebone, are said to form a good elastic rod.

The materials used in making lines for angling are, first, as being most esteemed, the intestines of the silk-worm, then silk, horse-hair, bristles, cow-hair, and also Indian and other grasses. These substances are employed singly or two or more together, and the lines may be either purchased or fabricated by the angler. The different varieties of hooks necessary to the completeness of fishing apparatus are too numerous for description. The principal kinds in favour with English anglers, are known as the Limerick, Kendal, Sneckbend, and Kirby hooks. The float, the reel, and the various descriptions of artificial fly, might furnish us with matter for much observation, but we are chiefly concerned with the sport itself, and the seasons at which it is pursued.

Although there is not a month in the year in which the angler must necessarily discontinue his sport, for even the winter may afford some opportunities to those who can brave its severities, yet the period from April to October is found by experience to be the most advantageous time, and is therefore considered the regular angling season. The London angler has not the privilege of fishing in the Thames until the beginning of June, and it has been remarked that the interests of fishers in general would be promoted were the spawning fish equally protected in other rivers during the early spring months. While the heat of summer lasts, the experienced angler will pursue his sport at a very early hour in the morning and will return to it again in the cool of evening. As the season advances towards the colder months, the middle of the day may be considered preferable. In winter any part of the day, when the weather is open and mild, may be taken advantage of—for in frosty weather no hour is good. It is well-known that on dark lowering days during summer, fish are well disposed to take the bait, especially in ponds and still waters. When there is a probability of thunder, the angler has little cause to hope for success. An electrical state of the atmosphere is prejudicial to the appetite of fishes. On a bright sunny day, if a cool breeze prevails, all fish are likely to be alert. The south and south-west winds are most favourable to the sport, and an east wind the most decidedly unfavourable.

Many fishing enterprises are defeated through want of caution in approaching the water. Salter, in his *Angler's Guide*, gives a very necessary warning on this head:—

After you have made choice of a place to fish, first plumb the depth truly and with as little disturbance to the water as may be; let your line, with the plummet to it, remain in the water while you make and cast the ground bait, by which time the line will be softened and stretched, consequently less likely to break. If the water be still, throw in small pieces of ground bait; if a strong current large pieces: keep as far from the water as you can, and go quietly and slyly to work, for fish have so many enemies that they are suspicious of everything they see, feel, and hear; even the

* From SIR WALTER SCOTT'S review of SIR HUMPHREY DAVY'S *Salmonia*, in the *Quarterly Review*, Vol. 88.

shaking the bank of a river (under which fish frequently lie), will alarm barbel, chub, &c., and spoil the angler's sport: this occurs frequently by strangers walking to and fro, to see and inquire what sport, &c., and also, when two or three anglers are fishing near each other; therefore avoid agitating the water by trampling on the bank unnecessarily; drop your baited hook in the water gently, and you will kill more fish than two or three anglers who act differently.

Thus, everything must be avoided which is likely to attract the attention of the fish. The angler will endeavour not to let his own shadow or even that of his rod fall upon the water. He will take care that there be nothing glaring in his dress, but will consider in this respect what is the prevailing colour of the spot in which he means to fish. If it be a rich pasture, a dark dress will not be unsuitable, but if he is going to stand on a sandy or pebbly soil, the more nearly he can assimilate himself to it by wearing something of a drab-coloured suit and hat the better.

The baits used by anglers are varied with the seasons, the locality, the hour of the day, and other circumstances. There seems to be a particular intelligence among the finny tribes, guiding them to choose only a seasonable repast. The most tempting flies presented to a fish when they are out of season will scarcely entice his appetite, and the bait that will prove effectual at one part of the day, will be offered in vain a few hours later. It is impossible therefore to be an accomplished angler without studying the natural history of insects and worms of various kinds, and as they exhibit themselves in different localities. The flies which attract fish are not the same in all parts of England. In some districts, the May-fly, that especial favourite of anglers, is wholly unknown. The distribution of insects is affected by causes connected with climate and cultivation, and these must be considered in our selection of baits. It is impossible to give general directions on this head, but some attention to the habits and natural history of insects as it may be acquired by reading and observation will soon teach the young angler to seek and employ the most killing baits. Where it can be effected, the use of artificial, instead of natural baits, is much to be preferred. It can add no pleasure to the sport to know that we are unnecessarily inflicting pain.

In order to remove from the mind of the angler any suspicion that he may be engaged in a cruel sport, the author of *Salmonia* urges that in all probability fishes are less sensitive than man.

Under the favour of such high authority (says Scott), this is a point which none can know but the fish himself. The variety of modes in which the trout endeavours to escape from the hook certainly seem to show that his apprehensions are extreme, and the hurry and vivacity of his motions indicate irritation and pain. Being, however, a denizen of another element, our sympathies are not so strongly excited by the sufferings of a fish, as of creatures that share the same element with us.

As the natural history of Fresh-water Fishes already forms the subject of a course of articles in this Work, we have departed from our usual practice of describing the animal to which the sport refers; and must therefore direct our readers to those articles for a particular notice of the more distinguished members of the finny tribe inhabiting our streams.

"To miss the good which may be got by suffering evil," says one of our old divines, "is the worst of evils; to lose that gain which should be gotten by losses, is of losses the greatest; but to grow worse with suffering evil, is perdition itself." Men are often found under this condemnation; women, I think, but seldom. The sons of perdition are more numerous than the daughters. If women are not made of finer clay, there has been more of the dew of heaven to temper it. Or is it that "though the dews of divine grace fall everywhere, yet they lie longest in the shade," while men brave the wind, seek the sunshine, and are exposed to all weathers?—SOUTHER.

FRESH WATER FISH.

V.

THE common Perch is regarded as the type of a very extensive family of *Acanthopterygious* fishes; that is, fishes having bony skeletons, with prickly spinous processes in the dorsal fins. They all more or less approach the common perch in general form, whence this fish is called the type of the family.

The perch is one of the most beautiful of our fresh water fishes. Its body is deep, the scales very rough, the back much arched, and the side-line approaches near to it: the irides are golden yellow; the teeth small, pointed, and curving backwards, and disposed in the jaws and on the roof of the mouth, which is large; the tongue is smooth; the edges of the covers of the gills are serrated, and on the lower end of the largest is a sharp spine. When the perch is in good condition its colours are brilliant and striking; the back and part of the sides being of a rich greenish brown, passing below into golden yellowish white, with five or six broad dark bands pointing downwards, owing to which, the fish when in the water appears very dark coloured with lightish stripings, but when taken out of the water it is altogether of a greenish cast. The first dorsal fin is brown; the membrane connecting the rays is partly spotted with black: the ventral fins are of a bright vermilion; the anal fins and the tail (which is a little forked,) are of the same colour, but rather paler.

The perch is furnished with two orifices to each nostril, surrounded with three or four large pores, destined apparently for the discharge of a viscous secretion, which defends the skin from the action of the water.

This distribution of the mucous orifices over the head, is one of those beautiful and advantageous provisions of nature, which are to be so often observed and admired. Whether the fish inhabits the stream or the lake, the current of the water in the one instance, or progression through it in the other, carries this defensive secretion backwards, and spreads it over the whole surface of the body. In fishes with small scales, this defensive secretion is in proportion more abundant: and in those species which have the bodies elongated, as the eels, the mucous orifices may be observed along the whole length of the lateral line.—YARRELL.

The perch has been known in all ages and in most civilised countries. The Greeks and Romans were well acquainted with it, and it is not a little remarkable that in most countries of Europe its name does not greatly differ from the specific name given to it by Aristotle. It is very generally diffused throughout Europe and the corresponding latitudes of Asia; but it probably thrives better in cold than in warm climates; since it is stated that perches, three or four feet long, are taken in Sweden and Lapland; while in England and in France they seldom exceed a foot and a half.

Linnaeus has noticed a deformed variety of perch, with the back greatly elevated and the tail distorted, as occurring at Fahlun in Sweden, and in other lakes in the north of Europe. Mr. Daniel mentions still more singular perch taken by him in the docks at Blackwall; these had each a solid mass of fat placed on the ribs, but not adherent to them; the stomach was apparently closed and impervious, and had not been distended by food for some time. He also mentions another singular kind of perch found in Malham water, not far from Settle, in Yorkshire: these grow to five pounds and upwards in weight, yet are all blind of one or both eyes, "and, therefore," as Mr. Blaine remarks, "might have been advantageously seized on by the punster, who observed of his friend's monocular dog, that he needs must prove an excellent guard, because he would have an eye out on all occasions." Specimens of perch almost entirely white, have been found in the waters of particular soils.

The perch grows slowly, but its increase depends greatly on the nature of its habitation: in ponds and

other small stagnant waters it seldom attains any great size: but in rivers and estuaries, and especially in such waters as are subject to the rising tide, although without current, they grow quickly, and become very fat. In large stagnant waters, if there be plenty of insect food, and the young fry of other fish, they multiply rapidly. In rivers they prefer the sides of the stream rather than the rapid parts of the current, and feed indiscriminately upon insects, worms, and small fishes. "They delight to lie about bridges and mill-pools; in and near locks; about shipping, barges, and floats of timber; in navigable rivers, canals, and in wet docks, also in the still parts of rivers, and in the back-water of mill-streams, as well as in deep gentle eddies, in ponds about sluices, and the mouth of outlets and flood-gates, commonly affecting the gravel, or sandy parts of the pond."

They spawn in April or May, according to the season or climate, and deposit their eggs usually among aquatic plants, such as the stems of reeds and rushes. The eggs are enveloped in a kind of glutinous reticular band. In less than a fortnight the eggs burst, and the young fry appear. Perch will breed in small vases of water, if properly fed. A perch, of only half a pound weight, has been found to contain 280,000 ova. The weight of three pounds is considered large for this fish. Donovan speaks of one of five pounds. Montague took one from the Avon, in Wiltshire, of eight pounds; and Pennant says that one was caught in the Serpentine River, Hyde Park, of nine pounds.

Most predatory animals are solitary, but the perch is a remarkable exception to the rule. This fish is gregarious; a number of them will herd together, as if by a sort of compact. In fine, tranquil weather, they may be observed in troops in a lake, river, or even in a large ditch, near the surface of the water, quite motionless. But their perceptions being very acute, they are disturbed by the smallest unaccustomed sound, and will disappear with great celerity into some hole which is the common dwelling of the troop. "And, as one has wittily observed," says Walton, "if there be twenty or forty in a hole, they may be, at one standing, all caught one after another; they being, as he says, like the wicked of the world, not afraid, though their fellows and companions perish in their sight."

The perch is very voracious. It devours with avidity the young and weak of most animals of its class, as also water lizards, frogs, small snakes, aquatic insects, worms, naked mollusca, &c. The perch may be noticed in summer, springing from the surface of the water in pursuit of gnats and flies; and it will even fasten on animals whose means of defence are too effectual for it. Thus, it sometimes swallows the stickleback, the strongest spines of which fasten in the gullet, so that the perch can neither get it up or down, and consequently it is starved to death. It is also in its turn subject to the attacks of powerful enemies, notwithstanding the formidable character of its dorsal spines: it frequently falls a prey to pike, large eels, and trout, as well as to the web-footed and wading birds. The pike, however, is frequently wounded by the dorsal spines of the perch, and has been seen to shake its prey out of its mouth, apparently in great pain. Walton says that the pike will not attack the perch unless excited by extreme hunger; "for to affright the pike, and save himself, the perch will set up his fins, much as a Turkey-cock will sometimes set up his tail."

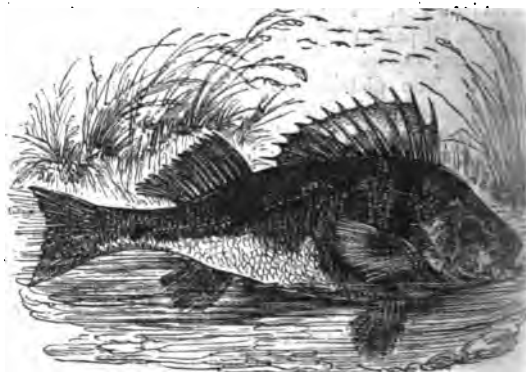
The perch is also subject to the attacks of a small animal, appropriately named by Dr. Nordmann, *Atheres Percarum*, or *Pest of the Perch*. It is found in fresh water, and attaches itself to the common, and another species of the perch genus, and takes its station usually within the mouth, fixing itself by means of a sucker, with which it is provided, in the cellular membrane so deeply, that it cannot disengage itself, or be extracted by external force, without rupturing what are called the arms

attached to the sucker, and leaving the animal behind. This animal often fixes itself to the palate, and even to the tongue.

When we consider, (says Mr. Kirby,) that these predaceous fishes often gorge their prey, swallowing it entire, we see how necessary it was that our parasite should be thus fitted to fix itself firmly, and root itself, as it were, that it may be enabled to withstand the pressure and violent action of the bodies that pass over it, for the palate and tongue of a perch must be a perilous station. This purpose seems further aided by a quantity of saliva, usually formed around it. These pests of the perch are themselves subject to the incursions and annoyance of animals still more minute than themselves. A small species of mite makes them its prey, and when the saliva just mentioned is removed, they are often found quite covered by a species of Infusory, belonging to the genus *Vorticella*.

The perch is tenacious of life, and will live for some hours out of the water. It will even bear a journey of forty or fifty miles, if carried steadily, and watered occasionally. Perch are constantly exposed for sale in the markets of Catholic countries; and if not sold they are taken back to the ponds from which they were removed in the morning, to be reproduced another day. As an article of food, this fish is firm, white, delicate, and well tasted. It is not common in the London market, although it is taken of good quality in the Thames.

The Ruffe, or Pope, is a fresh water fish, closely allied to the perch. The term ruffe (rough) is well applied, on account of the harsh feel of its denticulated scales.



THE PERCH, (*Perca fluviatilis*.) LINN.

THE power of every wise parent is tempered with tenderness towards children; and requires such acts of obedience only as are fit for their condition, and such as carry along with them their own motives to compliance.—DEAN STANHOPE.

A MAN will often call it acting according to his conscience, when he acts according to his present persuasion, without ever examining how he came by that persuasion; whether through wrong education, custom, or example; or whether from some secret lust, pride, or prejudice, rather than from the rule of God's written word, or from a principle of right reason. This cannot justly be called keeping a good conscience; for, we ought not to take up false persuasions at all adventures, and then to make those persuasions our rule of life, instead of that rule which God hath given us to walk by.—WATERLAND.

No chains bind so hard, no fetters are so heavy, as those which fasten the corrupted heart to this treacherous world; no dependence is more contemptible than that under which the voluptuous, the covetous, or the ambitious man lies, to the means of pleasure, gain, or power. Yet this is the boasted liberty which vice promises, as the recompense of setting us free from the salutary restraints of virtue.—BLAIR.

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A BRIEF ACCOUNT OF THE HANSEATIC LEAGUE.



THE HANSEATIC RATHS-HOUSE AT LÜBECK.

Man in society is like a flower
Blown in its native bed; 'tis there alone
His faculties, expanded in full bloom,
Shine out: there only reach their proper use.
But man associated and leagued with man
By regal warrant, or self-joined by bond
For interest-sake, or swarming into clans
Beneath one head, for purposes of war,
Like flowers selected from the rest, and bound
And bundled close to fill some crowded vase,
Fades rapidly, and by compression marred,
Contracts defilement not to be endured.
Hence chartered boroughs are such public plagues;
And burghers, men immaculate perhaps
In all their private functions, once combined,
Become a loathsome body, only fit
For dissolution, hurtful to the main.
Hence merchants, unimpeachable of sin
Against the charities of domestic life,
Incorporated, seem at once to lose
Their nature, and disclaiming all regard
For mercy and the common rights of man,
Build factories with blood, conducting trade
At the sword's point, and dyeing the white robe
Of innocent commercial Justice red.—COWPER.

I. HISTORICAL INTRODUCTION.

THE reader is probably aware that during the early centuries of the Christian era, nearly all Europe was included under the term "Roman Empire:"—the various provinces of Italy, Greece, portions of what is now called Turkey, Spain, Portugal, France, England, and parts of Germany, all fell under the dominion of the Roman emperors; the parts

which were not so included being inhabited by tribes scarcely if at all removed from barbarism. But the diversity of materials of which this empire was formed, its gigantic extent, the distance of some of the provinces from the centre of government, and above all, the luxurious effeminacy into which the Romans had fallen in the fourth and fifth centuries, all conspired to lead to a dismemberment of the empire. It is probable that even if no irruption of barbarians had taken place, internal dissensions would have ruined the empire; for the Romans had become altogether unworthy of the high name which they had attained before and at the time of Julius Cæsar. But it was the influx of barbarians of various tribes,—Goths, Huns, Vandals, Franks, &c.,—into all the provinces of the empire, which brought it so suddenly to ruin. These barbarians appear to have come from all the countries which are now included under the names of Hungary, Germany, Russia, Poland, Denmark, &c.; and the cause of their irruption seems to have been not so much an enmity towards the Romans, as a search for the means of subsistence. They lived chiefly by hunting and fishing, manufactures were scarcely known among them, and agriculture was in a very rude state. Under such circumstances love of country scarcely existed amongst them: their numbers increased faster than the means of subsistence; and when they had exhausted one territory, they went to another. They acknowledged few laws but those of physical force; and that which they were strong enough to seize, they appropriated to their own use without compunction. The horror which we feel at the details of barbarian warfare arises from our judging it by a civilized standard: we censure uncivilized men for the want of that sense of

justice and right which, from the very rudeness of their natures, they are incapable of understanding.

One army of barbarians succeeded another in their inroads on the various provinces of the empire; the city of Rome itself was more than once pillaged by them; and by the end of the fifth century, the empire was wholly destroyed, the last emperor being deposed by invaders. The whole of Europe was now in the hands of the conquerors, and an universal chaos prevailed. After dispossessing the original inhabitants of their territory, they proceeded to divide it among themselves. The kings or chiefs of the various tribes of barbarians assumed a show of sovereign power, and took a share of territory larger than that which fell to others. But the subordinate generals and officers received their quota of land, as did also many of the meaner rank. As there was no general policy by which the whole were governed, each proprietor began to deem himself a little sovereign over the domain which had fallen to his share, and the dependants and serfs which he gradually collected around him looked up to him as a guide and superior. These dependants were often small proprietors of land, who were too weak to defend themselves, and therefore clung to some one more powerful, yielding up their small possession to him, and receiving it again from his hands as a *fief*, *feud*, or leased property. This was the origin of the *Feudal System*, which so strikingly characterized Europe during the middle ages:—the barbarians who had actually overturned the Roman Empire received the conquered land as booty, divided into parcels: these parcels of land, from various causes,—sometimes intermarriages, sometimes superior tact, and sometimes actual violence,—became gradually combined into larger portions, fewer in number. The owners of these large estates constituted the class of proud, haughty, warlike Barons, of whom we read in the history of almost every country in Europe.

But it was only in the open country that these Barons exercised their peculiar sway: in *cities and towns* their influence was much smaller. The circumstances which distinguish town from country life are sufficiently marked to show the origin of all civic communities. Where articles are manufactured, a number of persons must be congregated together, and if their city be on the sea-coast, or on the banks of a river, shipping and boats would resort to it, for the conveyance of the manufactured goods to other parts of the country.

The state of Europe then, from the seventh to the tenth century, (for it was not till the seventh century that the irruptions of fresh hordes of barbarians ceased,) was this:—The land was possessed chiefly by Feudal Barons, who had under them a large number of vassals and serfs, whose lives and properties had become almost solely at the disposal of their lords; the baron decided the disputes of his vassals in his own baronial hall: he called them out whenever he went to war; and was, to all practical purposes, their sovereign. The monarch of the country had a general sovereignty over the whole: but it was more in name than in reality. In England the contests between the Danes and Saxons and afterwards the Normans, made many changes in the sovereignty; but throughout these changes the nobles were more powerful than the monarch or the people. In Scotland the spirit of clan-ship prevailed down to a recent period. In France, the barons were more powerful than in any other country of Europe, and left to the reigning monarch only the shadow of authority. In Germany there were certain great lords who assumed sovereign authority within their own petty dominions; and Charlemagne was almost the only emperor during this period who had a real supremacy. In Italy, the country was broken up into a number of little independent states, some monarchical, some aristocratic, and others democratic. In Spain, there was a continual strife between the Moors and the Christians for the possession of the country; and when a military chief succeeded in wresting a portion of territory from the Moors, he immediately made himself sovereign over it; and thus Spain became broken up into a number of petty principalities.

The consequences of this state of things were many and important. National laws scarcely existed, for a baron adopted on his own domain those laws which suited him best. If one feudal lord had a quarrel with another he took the law into his own hands, and revenged himself by force of arms. Again, if one baron made depredations on the domain of a neighbouring baron, captured his castle, and plundered his adherents, the sovereign had seldom power sufficient to see justice rendered, but a scene of reprisal and mutual

attack followed, each vassal and serf being bound by oath to follow the plans of his lord, however iniquitous they might be, and thus all became involved in a petty but ferocious war.

But it was not only the domains of neighbouring barons that suffered from the lawless usages of the times: the cities and towns experienced the evil likewise; and we here begin to have a glimpse of the necessity for some such institution as the *Hanseatic League*. Whatever wealth resulted from the possession of large estates belonged to the barons, but all that which resulted from manufacturing and commercial industry belonged to the cities and towns, which were generally favourable towards the monarchs, and the monarchs towards the citizens. Each was likely to be benefited by a regular government which could preserve order and redress grievances; and each felt a distrust of the power of the barons. This is the chief point in the history of charters of incorporation, municipal privileges, &c. When a sovereign wanted his treasury replenished, it was the citizens, and not the barons, to whom he looked, and his authority as a sovereign was generally more readily acknowledged by the former than by the latter. As a return and encouragement for this favourable feeling, the monarch granted certain privileges to the citizens, allowing them to choose from among themselves the municipal officers, to govern the financial matters relating to the city, to establish tolls, dues, &c., and many more of a similar kind. This was the mode in which a certain degree of mutual support was established between monarchs and cities, and the time had arrived when that support was needed. The barons frequently had their castles in the immediate vicinity of populous towns, and those who were least restrained by principles of honour and justice, or who were possessed of most power, made frequent depredations on the townsmen, attacking them at unguarded hours, and, when attacked in turn, intrenching themselves in their castles. About the year A.D. 1000 sovereign power was hollow and unreal in Europe; baronial power was vast and overbearing; citizens were advancing slowly and gradually in manufacturing and commercial enterprise, and in municipal rights, but were troubled by the exactions and depredations of the barons, and also by Scandinavian pirates, who at that time infested all the ports of the Baltic and German Seas; and lastly, the Romish Church,—almost the only one then acknowledged in Europe,—was too corrupt and demoralized to improve the minds or conduct of men. It was in such a state of things that the cities and commercial towns in the north of Germany began to combine together for mutual protection.

II. FORMATION OF THE HANSEATIC * LEAGUE.

The city of Hamburg, situated on the river Elbe, in the north of Germany, was originally a military fort, built by the Emperor Charlemagne, for the defence of his empire from the pirates who infested the Baltic. As this fort was situated at the northern part of the empire it was generally the first to suffer from the incursions of the lawless bands of Scandinavians, and it was more than once sacked and burned by them. For four centuries it underwent various vicissitudes, but continued on the whole to increase in importance and in population. The inhabitants therefore formed alliances with various towns, for mutual protection. One of the first of these alliances of which the nature has been recorded, was made with the city of Lübeck, in the year 1241. Lübeck was a considerable commercial city, a short distance north-east of Hamburg, and the treaty of alliance declared that the two towns should jointly clear the country between Hamburg and the river Trave of robbers, and prevent pirates from cruising on the Elbe,—that the expenses should be borne equally by them,—that everything which might tend to the benefit of the two cities should be concerted in common,—and that their forces should always be united to maintain their liberties and privileges.

The alliance of 1241 was probably a separate proceeding between Lübeck and Hamburg, without relation to other cities, for there was, as early as 1169, a compact between

* With regard to the origin of the word *Hanse* two opinions prevail. According to one, this term is derived from two German words, *an see*, signifying *on the sea*, because the first *Hanse* towns were all situated on the sea-coast of Holland and Germany, and hence the society is said to have been originally called *Am see stenen*, or *Cities on the sea*, and afterwards, by abbreviation, *Hanse* and *Hanse*. But the other and more probable opinion is that the word *hanse* is an obsolete High-Dutch or Teutonic word, having the signification of *alliance*, *confederation*, or *association*, and hence the term *Hanse towns* implied *Confederated towns*.

twelve towns on the Baltic shore, for mutual defence against pirates: these towns were Lübeck, Wismar, Rostock, Stralsund, Grypeswald, Anclam, Stettin, Colberg, Stolpe, Dantzic, Elbing, and Königsberg. It appears to have been a standing rule of this first confederacy that no town should belong to it but such as was either situated on the sea or on some navigable river commodious for maritime commerce. Another rule was, not to admit any towns which did not keep the keys of their own gates, and did not moreover exercise civil jurisdiction within themselves; it was at the same time permitted that the towns should in other respects acknowledge some superior lord or prince. The advantages of this confederacy were so great that other towns gladly entered into it; indeed, so rapidly did the influence of the confederation increase, that neighbouring princes and barons were often glad to cultivate the good opinion of the confederated powers, and even referred their disputes to them for arbitration. When this extension of the confederation took place, something akin to a general government became necessary, since the united efforts of a body composed of many parts are valueless unless some system is observed by the whole. It appears that when the inland towns of the north of Germany swelled the numbers of the confederates, the whole were divided into four classes, over which a certain city presided. At the head of the first class, and also of the whole league, was Lübeck, the rich and potent leader in the confederacy: this class contained the towns of Pomerania; and to the custody of Lübeck were committed the common stock and records of the confederacy. The second class comprised the towns in Westphalia, Cleves, Overijssel, Guelderland, and Mark, with Cologne at its head. The third class, with Brunswick as the chief town, comprehended the towns of Saxony. The fourth and last class, at the head of which was Dantzic, included the Prussian and Livonian towns.

The general assemblies, for the management of the affairs of the confederacy, were held at Lübeck; and an extraordinary general assembly was held every ten years, at which they solemnly renewed their union, admitted new members, excluded old ones if refractory, &c. The confederacy also chose a protector or president, in order to give dignity to their proceedings; and the choice of their protector had a marked influence on the welfare of the league; we must briefly explain the position of the persons who, for the long period of three centuries, were the chosen protectors of the league. The country which we now call Prussia, was very little removed from barbarism at the end of the twelfth century; and in order to protect Poland (which was then a considerable kingdom,) from invasion, the King of Poland granted a strip of country on the shore of the Baltic to the Teutonic Knights, or Knights of the Cross, on condition that they would subdue, and, as far as they could, civilise the rude inhabitants. These warlike knights not only succeeded in this attempt, but established towns of much importance on the Baltic coast, which, under the names of Dantzic, Thorn, &c., afterwards became well known to Western Europe. The knights formed this territory into a republic, of which the grand master of the order was president. Now the rise and progress of this republic were nearly coeval with the Hanseatic league; and there were many reasons why the two should be on good terms. The knights owed most of their influence to the maritime towns on their coast; and the commerce of those towns could not be better promoted than by joining the commercial league. Again, the constitution of the league was essentially republican, and therefore more nearly allied to the dominion of the knights than to that of an emperor or king. These were some of the causes which led the confederacy to choose as its protector the grand master of the Teutonic Knights; a custom which continued more than three centuries. By this good understanding with the knights, the Hanse Towns became possessed of all the commerce of the south shores of the Baltic, from Denmark to the bottom of the Gulf of Finland, containing countries intersected by many large rivers flowing into the Baltic, and producing many of the necessaries of life in great abundance.

III. COMMERCIAL ADVANTAGES OF THE LEAGUE.

About the year 1262, the Hanse Towns had commenced a brisk commerce with the various towns of Flanders; but the duties and exactions laid on them in that country rendered the dealings vexatious. Hamburg therefore represented the state of Flemish commerce to a general assembly of the league at Lübeck; and it was resolved to send a deputation from Hamburg, to Margaret, countess of Flanders, to treat

of more moderate duties, and of other commercial matters. Their wishes were acceded to; and shortly afterwards a similar deputation to Albert, duke of Saxony, led to similar results. These points illustrate the mode in which the league gradually acquired its power: the complaints of a single town might not have been attended to; but the associated merchants of many towns gave a weight to the representations, which, from that time forwards, monarchs and princes listened to respectfully. The opening of a commerce with Flanders was productive of important results. The league fixed upon the city of Bruges, as a *comptoir*, counting-house, or factory, for forwarding the commercial transactions of the league; and this proved of incalculable advantage by opening a communication between Northern and Southern Europe. The inhabitants of Italy, Spain, and Turkey knew but little of the countries near the Baltic, and were ignorant of the productions of those regions; but the spread of commerce under the league brought the two ends of Europe together, as it were, in a circle. The naval stores, the iron, copper, corn, flax, hemp, timber, &c., of the Baltic regions became objects of desire to Southern Europe; while the taste for the luxuries of Southern Europe began to spread in the North, as barbarism gradually wore away. Overland carriage was at that time rude in the extreme; and the conveyance of commodities from Northern to Southern Europe was by shipping belonging to the Hanse Towns; which proceeded from the Baltic into the German Ocean, through the English Channel, across the Bay of Biscay, and so round the coast of Portugal and Spain into the Mediterranean. But as the mariners' compass was not yet in use, the voyage was difficult and dangerous; and the passage from the Baltic to the Mediterranean and back again, was deemed too much for one summer. It became, therefore, desirable to have a half-way station, port, factory, or store-house, to which traders from both seas should bring their respective merchandise in summer. Now there were no towns so favourably situated for this purpose as those of Flanders, from their central situation, and from the circumstance that the long established manufactures of woollen and linen were at that time very flourishing in Flanders. To Bruges, therefore, most European nations sent their merchandise, and brought from thence the produce of other nations, of which they had need; so that this city soon became the general magazine of merchandise for all Europe; and from this circumstance, Flanders generally acquired a great increase of wealth and prosperity.

About the year 1260 a great accession of power accrued to the league, by the formation of the "steel-yard" in London. London was never a Hanse Town, properly so called; but the merchants belonging to those towns had certain important privileges granted to them for conducting business in London; and hence London became considered as a sort of ally of the league, though not itself included among the Hanse Towns. The German merchants settled in London, who may be deemed as a colony or college of Hanseatics, had their place of business in a building called the "Steel-yard;" and hence they acquired the name of the "Steel-yard Company." This company, by reason of their wealth and connexion with the Hanseatic Towns, were of frequent service to the Kings of England; and Edward the First gave them a diploma, which exempted them from any additional toll, custom, or tribute whatsoever; which diploma was acted on by the succeeding monarchs for a long period. The general warehouse of the company was in Thames Street; and the name of "Steel-yard," was applied to it, as some allege, on account of iron and steel being among the principal articles of their commerce; but, as others think, from a gradual corruption of the word "staple," (*stapel, stafel, stael, steel,*) "stapel" implying a general warehouse for keeping merchandise. As a return from the privileges which the Steel-yard company received from the English kings, they were bound, if at any time London should be besieged by a foreign enemy, to bear one third part of the expense of guarding and defending Bishopsgate, then one of the gates of the city; and were also bound to keep that gate in repair.

In the year 1280, we find the Hanseatics showing the extent of their power by a remarkably bold proceeding against the King of Norway. That monarch, influenced either by interested counsel, or by a belief that the interests of his kingdom demanded it, suspended the great privileges which the Hanse Towns had obtained from former Kings of Norway. No sooner was this resolution made known to them, than they blockaded with their fleets all the ports in the kingdom, so that nothing could be imported into the country by sea. The Norwegians, accustomed to the corn and

other produce of Germany, in exchange for their own dried fish, threatened a general insurrection if the blockade were not discontinued. The king was forced to yield back to the Hanse Towns the privileges which they had acquired, and also to pay them a considerable sum of money. This, it must be owned, looks very much like a stretch of power; for it is not easy to perceive what right, except that of the strongest, the Hanseatics had to proceed to such measures.

The year 1300 witnessed the leaguers growing in power and influence. The city of Hamburg obtained from the Earl of Holstein a great increase of privileges; and, in several contests which the towns had with the feudal barons, the united strength of the former generally enabled them to conquer. But power, wherever it exists, is liable to abuse unless checked. We find Edward the Second complaining to the King of Norway for having suffered several English merchants to be imprisoned and their goods seized, at the instigation of the Hanse merchants, "who," says the king, "by all possible ways, strive to obstruct the advantages of the English merchants." Indeed it seems pretty clear, that the Hanseatics acted on the Baltic as if none but themselves had a right to the adjacent countries of Norway, Denmark, and Sweden.

Another contest shortly afterwards ensued between the Hanseatics and the Danes. Denmark, although wholly separated from Sweden, is at one part divided from it only by a narrow channel called the *Sound*, on whose western bank are the cities of Copenhagen and Elsinour; and through this Sound all vessels have to proceed to and from the Baltic and the German Ocean. Now it appears, that, in 1348, the Danish fleet in the Sound, having interrupted the navigation of the Hanseatics by demanding toll, was attacked and defeated by the combined fleet of the Hanse Towns; most of the Danish ships were destroyed; and the king was forced to assign to the Hanseatics the fine province of Schonen, for the space of sixteen years, as an indemnification for the expenses which they had incurred. This is the first mention which we have met with, of a toll being demanded by the Danes for the passage of ships to and from the Baltic: it has been adhered to, more or less, to the present day; and has been a fruitful source of disagreement among the Northern nations.

In the year 1361, a naval contest of a more extensive character occurred on the Baltic, in which the Hanseatics played a conspicuous part. Waldemar the Third, King of Denmark, attacked the city of Wisburg, in the isle of Gothland,—an extensive commercial emporium at that time,—and carried off a large booty. As Wisburg was a Hanse Town, or was at least closely connected with them, the Hanseatics were greatly excited: they seized on the Danish ships and merchandise everywhere; declared war against Denmark; and, having made an alliance with the King of Norway, the Duke of Mecklenburg, and the Earl of Holstein, they attacked Copenhagen. The Lübeck squadron was under a commander, appointed by the citizens; and all the rest of the fleet was commanded by the Earl of Holstein. The allies succeeded in capturing the castle, and destroying the town of Copenhagen; but they failed in an attempt on Helsingborg. The Danes, in their turn, sent a fleet to Lübeck, and defeated its squadron, taking six of their ships, burning others, and forcing the rest to take refuge in the harbour of Travemund. The contest ended without any satisfactory termination of the difficulties for which it commenced; and this circumstance seems to have led to a frequent renewal of hostilities between them, in most of which the fleets of the confederacy were victorious. In 1364, three years after the last contest, the Danes received a total overthrow in or near the haven of Wismar, where their whole fleet was destroyed, and their admiral made prisoner, by the Hanseatic fleet, usually stationed at that once famous haven.

Four years afterwards we find the confederacy in alliance with Albert, king of Sweden, against the Danish monarch: the allies attacked him on the coast of Schonen, and took several Danish towns. As Denmark was at the same time attacked, on distinct grounds, by the people of Holstein and Jutland, he found it necessary to make peace with the Hanse Towns, by granting them new and great privileges all over Denmark. But even the concession seems to have been insufficient to allay the hostile feeling between the parties; for, in the following year, the confederates attacked Denmark with such vigour as to drive the king out of his dominions; they took the castle of Copenhagen, as well as many other castles, and made prisoners of many of the nobility.

IV. EXTENT AND INTERNAL GOVERNMENT OF THE LEAGUE.

Historians generally agree, that the period to which we have now arrived (about the year 1370), was that at which the Hanseatic league was at the zenith of its glory and power. It will, therefore, be desirable here to explain somewhat more fully the extent and internal government of the league.

The largest number of cities and towns that ever actually belonged to the league was 84, of which we here give an alphabetical list.

Anclam,	Elburg,	Königsburg,	Salzwedel,
Andernach,	Emmerich,	Kracow,	Seehausen,
Aschersleben,	Frankfurt,	Kulm,	Söest,
Berlin,	Goldow,	Lemgo,	Stard,
Bergun,	Goslar,	Lixheim,	Stargard,
Bielefeld,	Göttingen,	Lübeck,	Stavren,
Bolawert,	Griefswald,	Lüneburg,	Stettin,
Brandenburg,	Groningen,	Magdeburg,	Steudal,
Braunsburg,	Halle,	Minden,	Stolpe,
Brunswick,	Halberstadt,	Münster,	Stralsund,
Bremen,	Hamburg,	Nimeguen,	Thorn,
Buxtehude,	Hamseln,	Nordheim,	Yenke,
Campen,	Hamm,	Osnabrück,	Valtzer,
Dantzic,	Hanover,	Osterburg,	Unna,
Demmin,	Harderwyck,	Paderborn,	Warberg,
Deventer,	Helmstadt,	Quedlinburg,	Werben,
Dorpat,	Hervorden,	Ravel,	Wesel,
Dortmund,	Hildeheim,	Riga,	Wisburg,
Duisburg,	Kiel,	Rostock,	Wismar,
Einbeck,	Kolberg,	Rügeswalde,	Zütphen,
Elbling,	Kologne,	Ruremond,	Zwoll,

But besides these, which were all Hanse Towns in the proper acceptation of the term, there were numerous others,—comprising, indeed, nearly all the principal cities in Europe,—which were allied to them, for the mutual protection of commerce and navigation: among these were Amsterdam, Utrecht, Stockholm, Antwerp, Rotterdam, Bruges, Ostend, Dunkirk, Calais, Rouen, St. Malo, Bordeaux, Bayonne, Marseilles, Seville, Cadiz, Barcelona, Lisbon, Leghorn, Naples, Messina, and London. These towns were merely related to the confederacy for the convenience and safety of commerce; but the real Hanseatics subscribed to a common fund, out of which the salaries of officers, the expenses of meetings, &c., were defrayed. Lübeck and Cologne, as being the chiefs of the league, paid the largest quota towards this common fund; and the other towns paid according to their rank or size. The fleets were not maintained out of this fund; but each town furnished its own whenever wanted.

We have before observed that the confederacy, for convenience of business, was divided into four districts, at the head of which were the towns of Lübeck, Cologne, Brunswick, and Dantzic. All business occurring in each respective district, which was not of great and immediate importance, was usually left to be determined at the general assemblies of the whole confederacy, annually held at the head city of that district, where the records and documents of the district were deposited. But if the matter happened to be of great importance to their commerce, freedom, &c., it was reserved for the triennial meeting of the whole representatives of the Hanseatic League, usually held at Lübeck, where the journals, archives, and records of the whole community were kept.

Bruges has been spoken of as a place where the league established a *comptoir*, or general warehouse, for the reception and sale of commodities belonging to all the cities of the league. Various causes led to the removal of this *comptoir* from Bruges to Antwerp, where the Hanse merchants had a magnificent old house, resembling a college, surrounded by shops and warehouses. The next *comptoir* established was that at London, to which we have before alluded, under the name of the "Steel-yard," or the "German Guildhall." Another *comptoir* was established at Great Novogorod, anciently a famous commercial city and republic, tributary to Russia. A fourth *comptoir* was at Bergen, in Norway. Each of these *comptoirs* was governed by a corporate power, which superintended all the commercial arrangements of the league in the country where the *comptoir* was situated. At Bergen, the *comptoir* consisted of twenty-one large buildings; at the head of each of which was an overseer, who gave judgment on the different causes which came before him: above him was a council of merchants, consisting of one or two aldermen, and eighteen counsellors; the aldermen being chosen at Lübeck, and sent out for five years. The *comptoir* at Bruges, from its central situation, was more important. It included, at one time, three hundred merchants, who lived at different parts of the Low

Countries, but made Bruges their centre of traffic: when the merchants had been thus employed for a number of years, they had acquired such habits of business and such general knowledge, that the directors and magistrates of the comptoir were generally chosen from among them. The president was elected annually, and took an oath to attend to the interests and prosperity of the confederacy. The comptoir, or "steel-yard," at London, was governed in a manner nearly, but not altogether, analogous to the others. The steel-yard was surrounded by a strong high wall; all the persons employed were bound to reside within this wall, where they lived under a discipline as strict as that of a monk in his cell,—celibacy being one of the regulations imposed upon them. Each district of the league, on the last day of each year, elected four deputies, who were sent to represent that district at the London comptoir; and from these deputies a president was chosen. All these officers of the league, on entering office, swore to obey all the regulations and statutes of the confederacy,—to administer justice among the merchants under their control,—and to do all in their power to monopolise the commerce of England in the hands of the league; for this appears to have been a standing object of the confederates. As the wealth of the Hanse merchants was frequently desired by the monarchs where the comptoirs were situated, the confederates easily gained privileges which were very repugnant to the feelings as well as to the interests of the national merchants; and it was to defend themselves from outrage resulting from this ill-feeling, that the London comptoir was surrounded by strong walls; and a system of internal discipline introduced, which has had few parallels in the history of society.

About the year 1384, the leaguers distinguished themselves by destroying a nest of pirates which infested the Baltic. The Queen of Sweden, the Danish nobility, and the Hanseatics, signed an agreement to act together in the attainment of this object. In this agreement it was stipulated, among other points, that when the confederates should take any castle from the pirates, it should remain in the custody of the Hanseatics until they should be reimbursed the expense of the war. From this it may be readily inferred that the Hanseatics furnished by far the largest share of assistance on this occasion. Indeed, so great had become the maritime strength of the Hanse, that although Queen Margaret had become sovereign of all the three kingdoms of Denmark, Sweden, and Norway, yet the Hanseatics were frequently an overmatch for her, and had more shipping and more wealth than all the three kingdoms put together. Not only, too, were the towns formidable in maritime affairs; but their power was also shown, though in a smaller degree, on land. The feudal lords, being jealous of their power, frequently molested the towns, and went to war with them; but the forces which the league brought against the nobles, were generally sufficient to subdue them.

V. MONOPOLIZING SPIRIT OF THE HANSE MERCHANTS, AND ITS CONSEQUENCES.

The engrossing spirit in which the Hanse merchants sought to extend their trade, frequently led to disagreements with the monarchs of the various European countries. In 1398, complaints were made by the English merchants trading to the Baltic, that the Hanse Towns interfered with their traffic, and committed many acts of injustice against them. Whereupon Henry the Fourth issued a declaration, that, "Whereas the privileges and freedom of commerce granted to the German merchants in England, *i.e.*, of the Steel-yard, London, were on condition that the English should enjoy the like in Germany; wherefore the said Hanse Towns are thereby summoned, either personally or by deputies, to answer before the king and council for the said injuries, and to make due satisfaction for the same." The declaration was also accompanied by a threat, that if the abuses continued, the privileges of the "Steel-yard" would be discontinued. As England was, even in that day, possessed of much power, the Hanseatics were more willing to accede to terms with this country than with the weaker Northern powers. Indeed, on one occasion, when some English ships seized on a vessel laden with wine, belonging to the Hanseatics, the Bruges comptoir, in a letter to the English king for redress, used a style of adulation hardly to be expected from such a sturdy body.

But depredations still continued between the Hanse merchants on the one hand, and the English on the other. The English ships made captures of many Hanseatic ships,

and even killed some of their crews. The Hanseatics were, at the same time, accused of having captured or damaged many vessels belonging to the merchants of Newcastle, York, Hull, London, Lynn, Yarmouth, Norwich, and other places in England. As the English and Hanseatic merchants mutually complained of these aggressions, King Henry the Fourth sent some commissioners to Dort, in Holland, where they were met by other commissioners appointed by the Hanse; and an agreement was signed, by which each party consented to make good the damage done to the other. But it does not appear that this congress ensured amicable relations between England and the Hanseatics; for we find that in 1411 King Henry arrested in the port of Boston certain Hanseatic merchants, until satisfaction should be made for injuries, losses, and murders, sustained by the English merchants in their intercourse with the Hanseatics on the shores of Norway: the merchants could only obtain their liberty on giving two thousand marks as security for their reappearance when required. A farther attempt was made to settle these differences by a treaty between England and the Hanse in 1417, by which each party was to make amends for injuries committed on the other. As an instance of the unwarrantable violence which often distinguished the Hanseatics in these contests we are told that, about the year 1407, "one hundred fishermen of Cromer and Blakeney, in Norfolk, flying from their enemies into the port of Windfiord, in Norway, were assaulted by five hundred armed men, belonging to the Hanseatics residing at Bergen, who bound the poor Englishmen hand and foot, and threw them into the sea, where they all perished."

The intercourse between the Hanseatics and the English appears to have been disfigured by great bickering and unfriendly feeling, probably because the English were powerful enough to resist the encroaching spirit of these monarch-merchants. But on the continent the Hanseatic power was more frequently felt and submitted to. Its force had become so formidable that in the year 1418 the emperor Sigismund requested a conjunction of the Hanseatic fleet with his own, in a war in which he was then engaged. The League, in the same year, interfered as mediator in a dispute between Eric, king of Denmark, Norway, and Sweden, and the princes of the house of Holstein. Fourteen years afterwards a fleet of two hundred and six ships, (as it is said, but scarcely to be credited) having twelve thousand men on board, left the port of Wismar for an attack on the city of Copenhagen. This Wismar was a kind of neutral port in the Danish dominions, where the Hanseatics frequently contrived to raise up strife against the King of Denmark. The attack on Copenhagen failed, and Eric contrived to sow the seeds of disunion among some of the Hanse Towns, and greatly lessened their arrogance by threatening to give to other nations the same privileges which the Hanseatics had hitherto enjoyed in Denmark, Sweden, and Norway.

The singular relation between the English monarchs and the Hanseatic merchants was such, that though they continually quarrelled they could not do without each other. We find that treaties and disputes succeeded each other with great frequency. In 1437 there was a treaty between Henry the Sixth on the one hand, and the consuls and proconsuls of the Hanse Towns on the other, for renewing the treaties then in force; but scarcely three years elapsed before the old complaints were renewed.

The time was now by slow degrees approaching when the Leaguers were checked in their domineering progress by the commercial advancement of other nations, particularly Holland. The Hanse Towns which bordered on the Baltic (being also the originators of the Hanse) tried every possible means of keeping the commerce of that great sea entirely in their own hands, and pretty well succeeded. But still they were not a manufacturing community: they were dealers: they did not produce, to any great extent, manufactured commodities, but they bought and sold after others had manufactured. Now the situation of Holland gave her great facilities for manufacture, and the Dutch gradually established a commerce with other lands independent of the Hanse, simply because she had within herself resources for carrying on manufactures. The owners of freight ships, finding that a foreign trade was establishing in Holland, settled in that country, and the Hanseatics were no longer the universal carriers for Europe. This change of prospects was not met in a friendly way by the Hanse, and we find that serious differences soon occurred. In 1441 the Hollanders and Zealanders, having lost to the value of fifty thousand guilders on the high seas, by the depredations of the Baltic

Hanseatics, and being unable to obtain, in an amicable way, any satisfaction for those losses, the towns of Dort, Haerlem, Amsterdam, Gouda, Rotterdam, Hoorne, Enchuysen, Middelburgh, Veere, Flushing, and Armuyden, fitted out a number of warlike ships. Having, by the aid of this fleet, twice beaten the Hanseatics at sea, and taken great riches from them, they compelled the Hanse to sign a very advantageous treaty, which was to hold good for twelve years after the year 1444.

This event was followed by many others in which England was an interested party. Some English ships having attempted to fish and trade on the coast of Iceland, against the positive prohibition of the Danish king, the governor happened to be killed in an affray with them; and in the following year (1448) the Danes, by way of reprisal, seized four English merchant-ships laden with commodities from the Baltic. The English considered this act to have been suggested by the Hanse merchants, and the "Steel-yard" merchants were seized as hostages till reparation was made. On this occasion an instance occurred, which was by no means the only one, of a defection of some towns from the common band; the "Steel-yard" merchants from Cologne and other western Hanse towns contrived to get their own goods and persons excepted from this seizure, leaving their brethren from the eastern towns to get out of their difficulties in the best way they could: indeed, the town of Cologne more than once broke faith with the Hanse, and humbly sued to be forgiven;—a delinquency which was never charged against Lübeck,—the first, the only, and the never-flinching leader of this extraordinary confederacy.

These wrangling disputes between England and the Hanseatics were allayed for a time, by a treaty for eight years, made in 1456; but the friendly feeling was hollow and transient, for we find King Edward the Fourth, in 1466, calling in question the validity of the powers of the Steel-yard merchants of London; and the merchants had to present him with a large sum of money for the renewal of the charter. Another charter was given in 1470, by which the Steel-yard privileges were given for five years to the Cologne section of merchants *alone*, probably for some pecuniary assistance rendered in that quarter. The Steel-yard merchants are frequently spoken of by our historians as an usurping body, who often went beyond their charter. Always trading in a body, they easily ruined single traders by underselling them: those merchants who were connected with the cities of Bruges and Hamburg were very influential in the Steel-yard, and indeed almost fixed their own prices at will, both for exports and imports. This influence was somewhat checked during the stormy period of the wars between the houses of York and Lancaster; but at the termination of the strife, compensation was made to the Steel-yard merchants for some injuries they had suffered during that period; and a new charter was given to them by Edward the Fourth, in 1472. This charter was confirmed, two years afterwards, in a still more extensive form, by Act of Parliament; whereby the Hanse merchants were freely to trade in England, and the English in the Hanse Towns; and various facilities were afforded for the commercial arrangements of the Hanse merchants. This compact appears to have been acted on for a considerable number of years in a friendly spirit: we will therefore now turn to the continental proceedings of the Hanse.

The confederacy frequently showed itself an overmatch for the neighbouring princes. On one occasion, we find the King of Denmark and Norway, the Marquis of Brandenburg, the Duke of Mecklenberg, the Duke of Brunswick, and other princes, leagued together against the Hanse; but their measures proved abortive. At another time the power of the confederacy was shown, by its interposition being asked by the King of Denmark, for the settlement of a dispute between that monarch and the King of Sweden. Shortly afterwards they were engaged in a war with the Dukes of Brunswick and Lunenburg, whom they defeated and compelled to make a humiliating peace.

We have said that Bruges was one of the cities at which a comptoir or factory had been established by the Hanse. But this does not imply that Bruges was one of the Hanse Towns; it was placed in the same relation as London with the confederacy, and therefore had power to ally itself or not with the confederacy, for particular purposes. We find that in 1471 a treaty of commerce was concluded between the Hanse and the city of Bruges, which stipulated that all the merchandise of the Hanse should be brought to Bruges only, as the sole warehouse for all the Netherlands; for

which end, certain ships should be placed at Amsterdam and Sluys, which the merchants of both parties should use; and which were also to be well armed against pirates. Five years after this event, the Hanse showed its power by disfranchising the city of Cologne, on account of the selfish manner in which that city had consulted its own interests in certain transactions, without considering those of the confederacy to which it belonged; and it was only at the intercession of the Emperor Frederick the Third and the Elector of Treves, that Cologne was again admitted into the confederacy. A similar instance occurred in 1478, when the confederacy sent a notice to the King of England, for the information of English merchants, "That the city of Colberg, in Pomerania, had separated itself from the Hanseatic confederacy, and is, therefore, utterly incapable of participating in the privileges of this league in England, until the said league shall certify that Colberg is again reconciled to it."

VI. DECLINE AND FALL OF THE HANSEATIC LEAGUE.

As we approach nearer to the end of the fifteenth century, we find many symptoms that a decrease in the power of the Hanse was approaching. The various countries of Europe, in proportion as their commerce extended, interfered with the exorbitant privileges of the Hanse merchants. In the year 1486, serious differences occurred between the league and the French, with whom they had, generally speaking, been on amicable terms. In 1491, a solemn assembly of the whole Hanseatic confederacy was held at Antwerp, in great pomp, in order to adjust disputes which were at the time pending with England and with Holland. All parties were actuated by grasping motives, and no satisfactory result followed this meeting; for Holland, as well as England, began to feel that commerce could be well carried on without the aid of the confederacy, and, indeed, in spite of its authority.

Yet, notwithstanding these partial discomfitures, the league was still formidable: in 1492 (the year in which Columbus discovered America,—an event which had much influence on the future fortune of the league), seventy-two cities and towns sent representatives to the general assembly at Lübeck. Their old enemies, the Dukes of Brunswick and of Lunenburg, were again defeated by them about the same period. Four years afterwards, they were involved in disputes with John, king of Denmark, on account of certain political events between the latter and the Regent of Sweden. The King of Denmark had been driven out of Sweden by the Regent; and, in order to punish the Swedes, he requested the Hanse merchants to retire altogether from Sweden. The merchants, however, little caring for the political struggles of others, resolved, at a general assembly at Lübeck, that they could not consent to limit their own commerce, merely because one monarch had baffled another. They refused to accede; but still the Danish king showed himself sufficiently powerful to be a formidable rival to the merchants; for his ships now began to traverse the Baltic without fear of the Hanseatics. Still more rapidly did the power of the Hollanders increase, as was shown in an event which took place in the year 1511. A fleet of Dutch ships, homeward bound from the eastern shores of the Baltic, and consisting of no less than two hundred and fifty merchantmen, and four ships of war, appeared in sight of the city of Lübeck. The Lübeckers thought this a fair opportunity to be revenged on the Hollanders for invading the commerce of the Baltic, which the arrogant merchants claimed as the exclusive right of the Hanse. The Lübeck vessels attacked those of Holland, took some, burned others, and drove the rest into the harbour of Bornholm, where a large Danish fleet lay. The Danes then assisted the Dutch in repelling the attack of the Lübeckers, and driving them into their own port. The Danish fleet had, in the previous year, ranged over the Baltic, taken all the Hanseatic ships it could meet with, burned the suburbs of Travemund, the port of Lübeck, and destroyed many small towns belonging to the Hanse. It therefore appears that the supremacy of the Hanse was now seriously attacked in the Baltic, both by the Danes and by the Hollanders.

An event which occurred in the year 1515, will throw some light on the overbearing system of commerce pursued by the Hanse. The Danish merchants, who carried the produce of Denmark to the Hanse Towns for sale, complained to their sovereign, that they were not permitted to fix the price of their commodities; the Hanse magistrates assumed a power of arbitrarily setting a fixed price thereon; and those magistrates, being themselves merchants, took advantage of their own regulation. The consequence was,

that the Danes were frequently obliged to sell at a losing price; as they were not permitted to re-export their merchandise from those towns after they had once exposed it for sale:—or, if that were not the case, they were at least compelled, if they refused the proffered price, to lodge their commodities in warehouses, there to remain until the prices changed in their favour. Every one, at all familiar with the principles which regulate commercial transactions, must at once see that such arbitrary measures as these, are utterly inconsistent with freedom of commerce, and subversive of the very principles on which it rests. The Hanseatics were not long in experiencing the bad effects of this system; for the king ordered that all Danish merchandise should be exposed for open sale at Copenhagen instead of being carried to the Hanse Towns. Two results followed this order: Copenhagen became the emporium for the whole of Denmark; and the Hanse Towns received a blow which hastened their fall, now rapidly approaching.

Had Sweden and Denmark remained at peace with each other, there is little doubt that the Hanse would have been more rapidly humbled by them. But for centuries there were repeated contests for the crowns of Sweden, Denmark, and Norway; and, as the Hanse Towns had always numerous shipping at their disposal, the various candidates for the disputed thrones were frequently glad to borrow or purchase the aid of the Hanseatics, by which the latter gained great influence which would not otherwise have been possessed. At one time,—about the year 1525,—the Lübeckers actually offered to sell the Kingdom of Denmark to Henry the Eighth of England, for a certain sum; but that shrewd monarch reserved his money until it should appear that the Lübeckers were able to do what they professed.

The year 1552 witnessed the first serious attempt to break down the monopoly of the Steel-yard merchants at London, after it had existed 300 years. These merchants had greater facilities and privileges than the English merchants themselves, and complaints against the monopoly now became general. The Steel-yard merchants usually set what price they pleased on both their imports and exports; and having the command of all the markets in England, with joint-stock banks or funds, they ruined the native merchants. They were also accused of defrauding the customs, by taking under their own names (as they paid little or no custom) great quantities of the merchandise of other foreigners not entitled to their immunities. It is said that they had succeeded in monopolizing English commerce to such an extent, that while they exported 44,000 pieces of woollen cloth in one year, all the English merchants together had not exported more than 1100 pieces. A charge was also brought against them of having repeatedly exceeded the charter granted to them, and of having, by a gratuity to the monarch, retained privileges which were not in their charter, and of thereby injuring the English merchants generally. In consequence of these complaints, the privy-council investigated the whole matter, in the reign of Edward the Sixth, examining the modes in which the various privileges had been granted, the parties to whom granted, and the manner in which the favoured merchants had conducted themselves. The result was unfavourable to the Steel-yard merchants; for it was ordered, "that the privileges, liberties, and franchises, claimed by the said merchants of the steel-yard, shall from henceforth be and remained seized and resumed into the King's Grace's hands, until the said merchants of the Steel-yard shall declare and prove better and more sufficient matter for their claim in the premises: saving, however, to the said merchants all such liberty of coming into this realm and trafficking, in as ample manner as any merchant-strangers have within the same."—The last clause shows that there was no unfair or illiberal spirit actuating the council: yet the result was a severe blow to the confederacy; for, from various causes, the comptoirs at Bruges, Bergen, and Novogorod had greatly declined, and London was the chief place to which they looked as the centre of their commerce. The comptoir at Bruges had lost its importance in consequence of the rising importance of the Dutch: that at Novogorod had sunk under the growing power of the Czar of Russia, who unceremoniously seized the goods of the Hanseatic merchants: that at Bergen fell when the power of the Danish kings became settled; for, independent of the spread of a commercial spirit among the inhabitants of Norway, the king tried to get rid of the Hanse merchants by a rather unworthy trick. An ancient toll had been long recognised, of a gold rose-noble, for every Hanse *sail* that entered the harbour: this word "*sail*" was always meant to imply a *ship*, but the king of Denmark and Norway now put a new

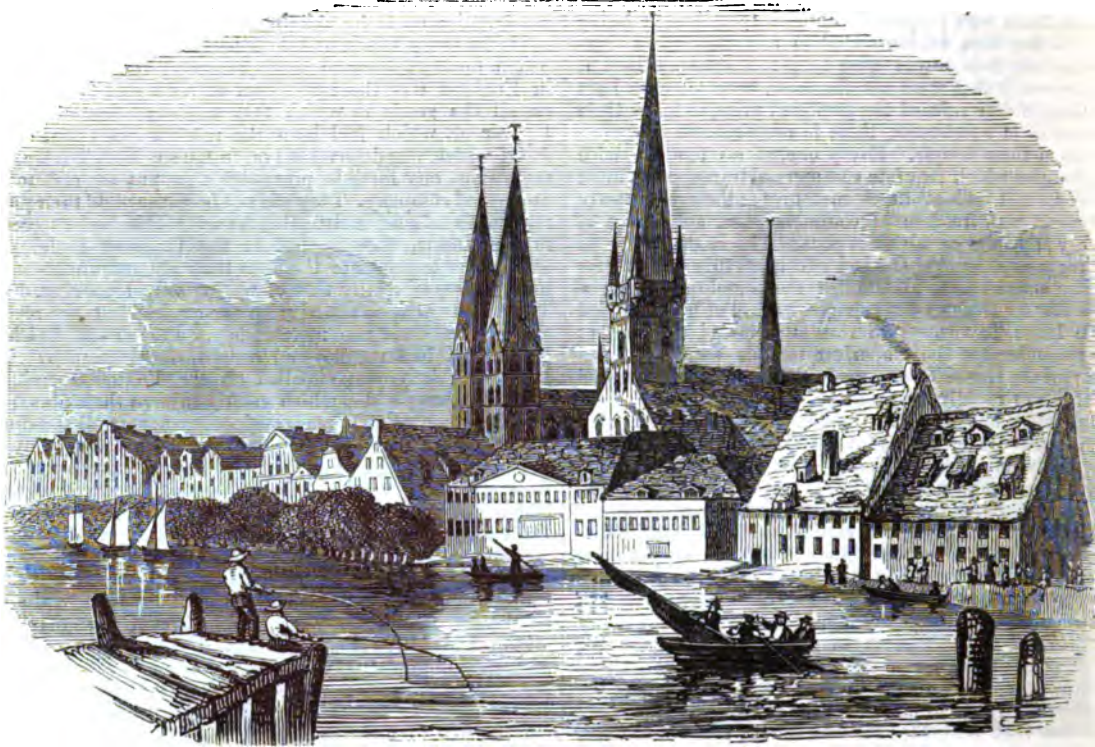
construction on it by obliging all ships to pay a gold rose-noble for every sail in or belonging to each ship.

The finishing-blow to the influence of the Hanse Towns in England was the imposition of a duty of 20 per cent. on all the goods in which they trafficked, instead of the 1 per cent. which had been the rate for 300 years. This duty, which was determined on in Queen Mary's reign, did more than any forcible proceedings to put an end to the Steel-yard company. They did not however yield their privileges without a fierce struggle; for when Elizabeth succeeded to the throne, they applied to the Emperor Rodolph to compel her to reinstate them in their old and unreasonable immunities, especially that of paying only 1 per cent. duty. The emperor expostulated with the queen; but she replied that she had done the merchants no wrong: all had been determined in a regular and constitutional manner. The Hanseatics hereupon expelled all the English merchants from Hamburg, a step which greatly injured their cause; for the queen immediately made such orders in council as reduced the Steel-yard merchants, not only to the level, but below it, of her own subjects,—prohibiting them, among other things, from exporting wool. The Hanseatics, bent on revenge, laid a duty of 7½ per cent. on all English goods entering Hanseatic ports; but this did them harm, for the queen laid an equal duty on all Hanseatic commodities.

The result of these proceedings was that the revenue and commerce of England were both much enlarged, while the Steel-yard merchants were deprived of those privileges which had hitherto given them so much power. The Hanseatics complained to the Diet of the empire, and recommended, as the only way of "bringing the queen to terms," that all English merchants should be banished out of the empire, and to prohibit English woollen goods from being imported into any German towns. The Hanse merchants were listened to by the Diet, and Elizabeth so far relaxed from her former resolution as to allow the Steel-yard merchants to trade in England on the same terms as her own subjects, provided English merchants were allowed to trade unmolested at the Hanse Towns. The queen being at that time at war with Spain, gave due notice to the Hanse Towns not to carry into Spain, Portugal, or Italy, any provisions, naval stores, or implements of war, for the use of the King of Spain, on pain of forfeiture of the ships so employed. In defiance of this injunction, sixty Hanseatic fly-boats conveyed wheat and warlike stores to Spain: they had proceeded by way of the Orkneys and Ireland, in order to avoid the queen's fleet, but they were taken by Sir Francis Drake, near Spain, and all the cargoes seized. This seizure led to much bitter correspondence between Elizabeth on the one part, and the Emperor and the Hanse Towns on the other. A general assembly of the Hanse sent a letter to Elizabeth, but allowed themselves to be betrayed into so much warmth that the queen sent them a contemptuous answer. Hereupon the emperor sent a message to her, and she sent a special messenger to explain, candidly and fairly, all the circumstances of the quarrel. Thus terminated the contest; for although the Hanse merchants petitioned to have the Steel-yard privileges restored, the English nation had become too wise to allow English interests to be frustrated by these monopolizing Hanseatics.

Meanwhile the League showed increasing symptoms of feebleness, in its dealings with continental states. The Kings of Denmark and Sweden, who had formerly been so often forced to yield to the Hanseatics, now bearded them in their turn. In 1591 the Leaguers endeavoured to force the town of Elbing, in Prussia, to discountenance English merchants, by forbidding their resort to that town; but the Elbingers had had too many proofs of the advantages of commerce with England to be led to this step: they wrote to Elizabeth, acquainting her with the proposal which had been made to them, and also their determination to continue their friendly relations with the English merchants, as did also the King of Poland. But the Emperor and the Hanse succeeded in compelling the English merchants to leave the town of Staden, as well as several other towns in Germany, whereupon the Dukes of Brunswick and of Holstein, and about a dozen towns in the Netherlands, sent letters to Elizabeth, expressive of their friendly wishes towards English commerce, and the queen at the same time ordered the lord mayor to shut up the Steel-yard, and to expel the turbulent merchants altogether from London.

Wheeler, who wrote about the year 1600, says, that the Hanseatics "are now so much decayed in power and strength, as that the state need not greatly to fear them. For, as the causes which made the Hanse Towns of estimation and



LÜBECK.

account in old times, were the multitude of their shipping and sea trade, whereby they stored all countries with their Eastern commodities, (*i.e.*, naval stores, flax, hemp, linen, iron, copper, corn, &c.), and served princes' turns with their large and stout ships in time of war; we shall find at this time, that they have in a manner lost both one and the other long ago, when compared with what they formerly were. And if her Majesty should forbid all trade into Spain, after the example of other princes, they would, in a short time, be quit of the rest; for that trade is their chiefest support at this instant. Besides, of the seventy-two confederate Hanse Towns, so much vaunted of, what remains almost but the report? And those which remain, and appear by their deputies, when there is any assembly, are they able, unless with much ado, to bring up the charges and contributions for the defence and maintenance of their league, privileges, and trade, in foreign parts and at home? Surely no; for most of their teeth are out, and the rest but loose."

Wheeler was right: the process of decay, which he significantly indicates by the "teeth being out," was rapidly going on: the confederacy had lived to realise all the benefit which such an association was calculated to confer on society; and, like a worn-out frame, it was now, by a natural process, sinking into insignificance. In 1604, they had a general assembly, and determined on a solemn embassy to the various countries of Europe, for the renewal of their mercantile privileges. But the day was gone by: the English king, James the First, would have nothing to do with the embassy; and the King of France gave empty promises, but nothing else. In 1612 the King of Denmark, to support the expenses of a war in which he was engaged with Sweden, raised the toll or duties at the Sound, on vessels passing to or from the Baltic. These increased tolls were equally vexatious to the Hanseatics and to the Dutch; and these two powers coalesced, almost for the first time, in an attack on the Danes, in order to lower the Sound duties: Holland was to pay seven-eighths, and Lübeck one-eighth of the expense incurred; and the other Hanse Towns were allowed to join the alliance or not at pleasure. This circumstance showed that the confederacy was no longer one united whole, influenced by uniform councils. These disputes with Denmark lasted for a long series of years; for as the Sound duties constituted an important part of the Danish revenues, the king would not lessen his demands, so long as he had the smallest means of enforcing them.

The year 1630 witnessed the last general assembly of the Hanseatics at Lübeck; after which the confederacy was dissolved, having no longer power to make their coalition advantageous to the constituent towns. But Lübeck, Hamburg, and Bremen united anew, in a limited confederacy, for mutual assistance and protection: and this confederacy appears to have existed, with scarcely any interruption, until 1810, when the French armies disturbed the arrangements of those cities, as well as of Germany generally. At the conclusion of the peace, however, the league between Lübeck, Hamburg, and Bremen was re-established, and still exists. These cities are called the "free cities," or, more at length, "the republics and free Hanseatic cities of Lübeck, Hamburg, and Bremen." This confederacy has the same kind of power (but smaller in degree,) as that which belongs to the various kingdoms, principalities, and dukedoms, of Germany; that is, it regulates its own internal affairs, furnishes a contingent of troops, and has one vote in the general diet or parliament of the empire.

In conclusion, we may remark, that the birth, growth, and decay of the Hanseatic League formed natural links in the progress of European society. The good which it rendered in the thirteenth century was immense, but the seventeenth required not its aid. The ruthless attacks of pirates, and the unjust depredations of the feudal barons, gave birth to the League; but the fifteenth and sixteenth centuries presented events which turned commerce into other channels. By the discovery of America, Spain became a great power, and established a traffic with which the Hanse Towns had nothing to do. By the discovery of the maritime route to India, Portugal became powerful, and Lisbon was the emporium of Indian commerce. By the improvements in navigation, each country was enabled to send its own commodities in its own ships to foreign parts, without the aid of a central port, such as Bruges. By the growth of the Russian power, that supremacy which the Hanse had had in the Baltic now passed into the hands of Russia: and lastly, by the possession of great power for four centuries the Hanse had gradually acquired habits of grasping ambition, to which the advancing intelligence of Europe would no longer submit. These were some of the causes which led to the decay of the Hanseatic League, and we see clearly from them that the time had arrived when the continuance of such an alliance would no longer benefit commerce generally or the Hanse Towns individually.

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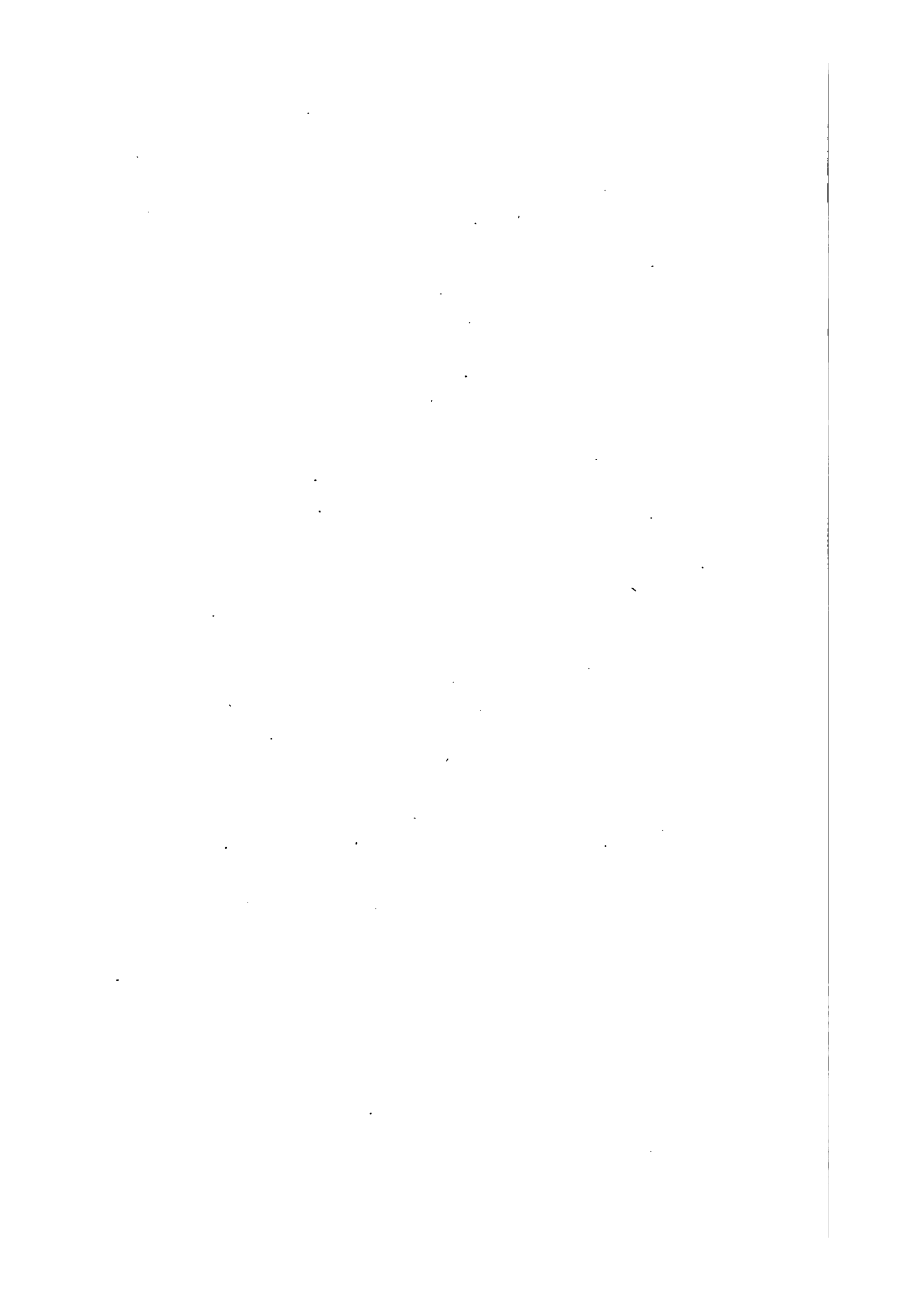


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INDEX

TO THE

NAMES AND SUBJECTS IN THE NINETEENTH VOLUME.

Answers, extracts from, 39, 79
 Africa, vegetable butter of, 156
 — emigrants' first Sabbath in, 169
 Agricultural Chemistry:—
 I. On the interchange of crops, 6
 II. On the interchange of crops, and on manures, 79
 Aimé Martin, remark by, 56
 Alison, extracts from, 133
 Alps after sun-set, 133
 American Indians, buffalo dance of the, 143
 Anacharsis, the Scythian, 104
 Ant, example of, the, 190
 Antioch and its vicinity, 113
 Archipelago, the Grecian, and its mariners, 233
 Armourer, Thomas Cursun, the, 164
 Art of deciphering effaced inscriptions on coins, 245
 Assistance in resolving doubts, 198
 Association of ideas, 178
 Astronomy, 23
 August, rural sports for, 71
 Authority, dependence upon, 245
 Authors, old scientific, study of, 16
 — perusal of fine, 190
 Banks of the Thames, V., 25—VI., 65—VII., 97—VIII., 145—IX., 185—X., 501
 Barbel, the, 93
 Basil, 67
 Beattie, extract from, 238
 Bedawin, honesty of, the, 31
 Bee, man likened to, the, 51
 Beet-root Sugar:—
 I. Varieties and cultivation of the beet, 23
 II. Early modes of producing beet-root sugar from the beet, 31
 III. Introduction of the manufacture into France, 55
 IV. Present mode of preparation in France, 59
 Beetles, oil and blistering, 27
 Belief in supernatural assistance, 29
 Benefits, material, of science, 20
 Benevolent feelings, cultivation of, 37
 Beet-chewers of the East, 77
 Bible, the, 94
 Bible and hour-glass, 93
 Biette, scene in, the, 25
 Binocular vision, 163, 189, 230
 Birth-day lines, by Mrs. Hemans, 32
 Blaze, Bishop, 70
 Blessings, diffusion of, 91
 Slight, 120
 Blindness to our own faults, 77
 Blistering beetle, the, 27
 Book, silver, of the Gospels, 225
 looks, 39, 73
 forage, 68
 lowly, lines by, 93
 Brewster, extracts from, 110, 118, 140
 Bronze, casting of statues in, 206
 Brown, Dr. Thomas, extract from, 70
 Brunschwiler, Memoir of, I., 144—II., 179
 Buffalo dance of the American Indians, 143
 Bugon, extract from, 32
 Bulgaria and the Bulgarians, 73
 Burke, remark by, 14
 Burnett, extract from, 243
 Burton, extract from, 200
 utter, vegetable, of Africa, 156
 Camel, the, 109
 — and dromedary, 116
 Cairo, Sketches of, I., 50—II., 89—III., 106—IV., 130
 Canadian foliage, 189
 Carlyle, extracts from, 102, 114
 carp, the, 39
 Carr, extract from, 89
 Cashmere Shawls:
 I. The Goat of Cashmere and the native manufacture, 3
 II. Attempts to introduce the Cashmere goat and the shawl manufacture into England, 13
 casting of statues in bronze, 206
 Castle of Pervensey, 157
 — Warwick, 57
 Chalmers, extracts from, 70, 80
 character of "Paradise Lost," 70
 — of Milton's writings, 96
 — judgment of, by children, 152
 charity schools, 195
 chemistry, Agricultural, 6, 79

Chervil, 230
 Chess:—
 XIII., XIV., XV., XVI., XVII., the Automaton Chess Player, 4, 21, 60, 78, 110
 XVIII., XIX., On the Powers of the Pieces and Pawns, 115, 150
 XX., Ancient games from which Chess is supposed to have been derived, 165
 XXI. Origin of the powers of the pieces, 191
 XXII., XXIII., The Knight's Move, 204, 228
 XXIV. Chess without the Board, 243
 Childhood, prayer in, 181
 Children of one great Father, 174
 — as judges of character, 152
 China:—
 XII. Island of Chusan; military occupation: houses and offices of the Chinese, 109
 XIII. Island of Chusan; appearance of the country; respect for the dead; Jos houses; Buddhists; mandarins, 143
 Chinese, their stationary character, 203
 Christian minister, office of, the, 63
 Christianity, infidel testimonies in favour of, 32
 Coins, effaced inscriptions on, 245
 Coke, Sir Edward, 224
 Coleridge, extracts from, 94, 119
 Commerce of leeches, 123
 Confederacy in virtue, 40
 Confidence in the Divine protection, 39
 Contemplation, pious, of the works of nature, 80
 Copying of celebrated pictures, 187
 Cottages of Switzerland, 137
 Courts, splendour of, reprov'd, 35
 Cowley, extract from, 187
 Crabbe, extracts from, 37, 70, 78, 136
 Creation, man its masterpiece, 156
 Creator, testimony of the creature to the, 37
 Credit and metallic currency, 203
 Credulity and scepticism defined, 236
 Croly, extract from, 93
 Crops, on the interchange of, 6, 79
 Crowe, extract from, 235
 Cultivation of benevolent feelings, 37
 Cursun, Thomas, the armourer, 164
 Dance of the American Indians, 143
 Danger and distress, hymn for times of, 114
 Dark and light mornings, 237
 Davies, extracts from, 23, 24
 Dead, the, 192
 Dead swallow, 203
 Death at sea, 56
 — sudden, 96
 Death-bed fortitude, 238
 December, rural sports for, 247
 Deep research, results of, 140
 Dehon, extract from, 91
 Deity, omnipotence of, the, 51, 96
 — omnipresence of, the, 112
 Desert, uninvited guests in, the, 183
 De Tocqueville, extract from, 203
 Diffusion of blessings, 91
 Diminution of friction, 226
 Dissolution of the earth, 196
 Division of labour, 168
 Dogs, sagacity of, 144
 Doubts, assistance in resolving, 198
 Dredging, 62
 Dresden, account of, 161
 Drinking of healths, 131
 Dromedary and camel, 116
 Drowning, self-preservation from, 37
 Durham, extract from, 131
 Duty, speculative acquaintance with the rules of, 166
 Earth, dissolution of, the, 196
 East, beet-chewers of, the, 77
 Economy of marine life, 147
 Education, ends of, 245
 Egypt, stone quarries of, 182
 Emigrants' first Sabbath in Africa, 169
 Employment, 78
 English Navigators, Old:—
 I. Cabot, 10
 II. Willoughby, Chancellor, and Barroughs, 199, 235
 Entrance into the Tropics, 248
 Evaruide, 133
 Evidences of revelation, 228
 Example of the ant, 190

Fables of the ancients, 226
 Faith, 119
 Fame, 12
 Fate of Jezebel, 102
 Father Long Legs, 151
 Faults, 114
 — blindness to our own, 77
 Fearless contemplation of the future, 166
 "Fifteen Years ago," 164
 Fine Arts, a Brief History of, the, I., 41—II., 123—III., 210
 First landing in the Western Ind, 184
 Floating islands, 241
 Florence, Cathedral of S. Maria del Fiore, I., 148—II., 179
 Foliage, Canadian, 182
 Force and motion, 200
 Forbes, extract from, 153
 Forster, remark by, 100
 Fortitude, death-bed, 238
 Fresh-water Fish:—
 VI. The Carp, 39
 VII. The Barbel, 93
 VIII. The Tench, 122
 IX. The Gudgeon, 184
 Friction, means of diminishing, 237
 Friendship, worldly, 156
 Fruits of Singapore, 116
 Fugians, account of, the, 134
 Fuller, extracts from, 55, 164, 227
 Future, fearless contemplation of, the, 166
 Futurity and the present life, 226
 Gainsborough and his Works, I., 178—II., 218
 Gainsborough's picture of *The Pigs*, 179
 Garden Herbs:—
 Basil—Borage, 67
 Hyssop, 223
 Tansy, 230
 Gardening, 73
 Gauge, wire, 68
 Goat, Cashmere, the, 3, 13
 God our only hope, 30
 Godliness, power of, real, 32
 Good manners defined, 55
 — missionary, the, 91
 Gospel, the silver book of, the, 225
 Gratitude, 75
 Grey, Lady Jane, translation of lines by, 70
 Gudgeon, the, 184
 Gurney, extracts from, 184, 248
 Halford, Sir H., remark by, 166
 Hall, Capt. Basil, extracts from, 123, 196
 — Robert, extracts from, 166, 190, 203
 Hamilton, remark by, 37
 Hankinson, lines by, 246
 Hastening to be rich, 37
 Hawk-moth, the, 101
 Healths, drinking of, 131
 Heart of man, 206
 Heber, Bishop, extract from, 114
 Hemans, Mrs., poems by, 12, 32
 Honesty of the Bedawin, 31
 Honey-dew, 195
 Hooker, extract from, 78
 Hope, 18
 — God our only, 30
 Horeb and Sinai, mounts, 96
 Horse, Bishop, extracts from, 51, 156
 Horse, Russian's kindness to his, 140
 House of all Nations, II., 126—III., 249
 Human body a world in miniature, 22
 — life likened to the growth of a plant, 94
 Hymns, 94, 114
 Hyssop, 223
 Ideas, association of, 178
 Idle objections to established truths, 226
 "I have lost a day," 140
 Ind, Western, first landing in, 184
 Illusions, Optical, IV., 52—V., 95—VI., 141—VII., 163—VIII., 189—IX., 220
 Imposture and superstition, 153
 India, a steam voyage to, 82
 Infidel testimonies in favour of Christianity, 32
 Influence of pure religion, 203
 Inscriptions on coins, 245
 Interchange of crops, 6, 79
 Islands, floating, 249

Jesse, extracts from, 144
 Jezebel's fate of, 102
 Jocelyn, Lord, extracts from his work on China, 102, 143, 221
 Johnson, Dr., extracts from, 56, 80, 190, 198, 226, 245
 Judicious quotations, value of, 100
 July, rural sports for, 119
 Kaimes, Lord, extract from, 79
 Kindness of the Russian peasant for his horse, 140
 King, Capt., his account of the Fugians, 134
 Knight's move at Chess, 204, 220
 Knowledge, 248
 Knox, extract from, 51
 Labyrinth, 53
 Landing, first, in the Western Ind, 184
 Last look, the, 243
 Learning, 14
 Leeches, commerce of, 123
 Library, the, 200
 — lines on his, by Dr. Southey, 198
 Light and dark mornings, 237
 Literature, sacred, 230
 Lloyd, extract from, 234
 Long-legs, father, 151
 Luxury, 94
 — progress of, 70
 Mackintosh, extracts from, 55
 Maintenance of truth, 243
 Man, the heart of, 206
 — likened to the bee, 51
 — the masterpiece of creation, 156
 Manchoo Tartary, 221
 Mauna, 93
 Manners, good, defined, 55
 Manures, on, 79
 Maps and Mapping, I., 103—II., 107—III., 116
 Marcus Antoninus, remarks by, 39, 93
 Marine life, economy of, 147
 Mariners of the Grecian Archipelago, 233
 Married life, 243
 Material benefits of science, 30
 Maxim of Marcus Antoninus, 39
 Mecca and its inhabitants, account of, 152
 Mechanical processes of sculpture, 228
 Medina, account of the city of, 197
 Melancholy, 70
 Melancthon, remark by, 243
 Memoir of the late Dr. Thomas Young, I., 139—II., 159
 Metallic currency and credit, 203
 Milton, writings of, characterised, 96
 Minister, office of the Christian, 73
 Montgomery, J., extract from, 192
 Montgomery, R., extract from, 96
 Months, Rural Sports for the:—
 VII. July, 29
 VIII. August, 70
 IX. September, 119
 X. October, 167
 XI. November, 207
 XII. December, 247
 Moralities of life, their mutual dependence, 80
 Mornings, light and dark, 237
 Moth, the hawk, 101
 Mouth organ, or Pandean pipes, 7
 Mountain of Sepulchres in Persia, 193
 Mounts Horeb and Sinai, application of the names, 96
 Motion and force, 200
 Mudie, extract from, 147
 Murillo and his Works, I., 2—II., 18
 Museum, visit to a, 219
 Nakshi Roustam, or the Mountain of Sepulchres, 193
 Nations, houses of all, II., 169—III., 249
 Nature, pious contemplation of the works of, 80
 — study of, 29
 Negligence, 80
 Northampton, Lady, lines by, 55
 November, rural sports for, 207
 Nuremberg, 9
 Objections, idle, to established truths, 226
 October, rural sports for, 167
 Office of the Christian minister, 73
 — of women, 29
 Oil beetle, the, 27

INDEX TO THE NINETEENTH VOLUME.

Old English Navigators.—
I. Cabot, 10
II. Willoughby, Chancelor, and Burroughs, 199
Omnipotence of the Deity, 51, 96
Omnipresence of the Deity, 112
Opie, Mrs. extracts from, 112
Opinions, popular, 245
— pre-conceived, 236
Optical Illusions, IV., 52—V., 95—VI., 141—VII., 163—VIII., 189—IX., 210
Organ, mouth, the, 7
Ouzel, the water, 231

Pa. insects, 233
Pandean pipes, or mouth organ, 7
Pantograph, the, description of, 70
Paradise, common imagination of, 15
— Lost, character of, 70
Paris, Dr., extract from, 236
Patagonians, account of the, 99
Patience, 51
Pawns, at Chess, powers of the, 115
Peace, 75
Peg top, philosophy of a, 19
Pepitid Diem, 140
Permanence of books, 39
Perial, Mountain of Sepulchres in, 193
Perial of fine authors, 190
Peversey Castle, 157
Philosophy of a peg top, 19
Pictures, copying of celebrated, 197
Pieces and pawns, at Chess, powers of, 115, 150
Pipes, Pandean, or mouth organ, 7
Plant, human life likened to the growth of a, 94
Pope, probable origin of the doctrine of the supremacy of the, 61
Porteus, Bishop, extracts from, 99, 91
Potter, extract from, 246
Power of real goodness, 32
Powers of pieces and pawns at Chess, 115, 150
Praise, voice of, 238
Prayer in childhood, 161
Preconceived opinions, 236
Present life and futurity, 296
Pringle, extracts from, 91, 162

Processes, mechanical, of sculpture, 238
Profruity, 233
Progress of luxury, 70
Pro action, confidence in the Divine, 39
Providence, blessings of, 39
— reliance on, 68
Pure religion, influence of, 203

Quarries of Egypt, 182
Quotations, value of judicious, 100

Raffles, extract from, 243
Reliance on Providence, 68
Relief, voluntary, of poverty, 227
Religion, influence of pure, 203
Results of deep research, 140
Resurrection, the, 91
Revelation, evidences of, 236
Rich, hastening to be, 37
Richardson, extract from, 70
Robinson, extracts from, 91, 92, 96, 102, 116, 183
Roses, extract from, 222
Rural Sports for the Months—
VII. July, 29
VIII. August, 71
IX. September, 119
X. October, 167
XI. November, 207
XII. December, 247
Russian peasant's kindness to his horse, 140

Sabbath, emigrants' first, in Africa, 162
Sacred literature, 221
Sagacity of dogs, 144
Saxony, Dresden, in, 161
Scene in the Blicère, 35
Scepticism and credulity defined, 226
Science, material benefits of, 30
— use of speculations in, 118
Scientific authors, study of old, 16
Scorpion, the water, 112
Scrope, extracts from, 118, 203
S. ythian, Anacharis, the, 104
Sea, death at, 56
Secker, extracts from, 77
Self-knowledge, 63
Self-preservation from drowning, 37
September, rural sports for, 119

Shawls, Cashmere, 3, 13
Sherlock, extract from, 245
Shooting stars, 212
Sieve-pieces, 92
Silver Book of the Gospels, 226
Sinal and Horeb, application of the names, 96
Singapore, fruits of, 116
Sketches of Cairo, I., 50—II., 89—III., 106—IV., 130
Solitude, 55
Soul and body, union between, 245
Southery, extracts from, 75, 167
Speculations in science, their use, 118
Splendour of courts reproved, 25
Stars, shooting, 222
Statues, casting of bronze, 206
Steam voyage to India, 81
Stone quarries of Egypt, 182
Strang, extract from, 37
Study of nature, 32
— old scientific authors, 16
Edden death, 96
Sugar, best-root, 23, 21, 55, 59
Supernatural assistance, belief in, 39
Superstition and imposture, 153
Supremacy of the Pope, probable origin of the doctrine, 61
Swallow, the dead, 208
Swimming, 37
Switzerland, cottages of, 137
Sympathy, 246

Talent, true use of, 84
Tansey, 230
Tartary, Manchou, 221
Taylor, Jeremy, extract from, 206
Tavernmouth, Lord, extract from, 226
Tench, the, 132
Testimony of the creature to the Creator, 37
Testimonies, infidel, in favour of Christianity, 33
Thames, Banks of the, V., 25—VI., 65, VII., 97—VIII., 145—IX., 185—X., 201
Thoughts, 102
Thyer, extracts from, 96
Tottie, extract from, 94

Transport of large masses of stone, 17
Triumph, ultimate, of truth, 116
Tropics, entrance into the, 248
True use of ta-ent, 24
— knowledge, 248
— wisdom, 243
Truth, ultimate triumph of, 110
— weight of, 78
Turkey and the Turkish Provinces—
VI. Wallachia and the Wallachians, 53
VII. Bulgaria and the Bulgarians, 7
VIII. Antioch and its vicinity, 13
IX. Mecca and its inhabitants, 18
X. Medina, 127
XI. The Archipelago and its neighbours, 233

Uninvited guests in the desert, 122
Union between soul and body, 246

Value of words, 75
— judicious quotations, 100
Vegetable butter of Africa, 156
Vice and virtue, deep appreciation of, 23
Vision, binocular, 163, 169, 229
Visit to a museum, 197
Voices of praise, 229
Voluntary relief of poverty, 227
Voyage, steam, to India, 81

Wallachia and the Wallachians, 3
War, 235
Warwick castle, 57
Watchmaking, 168
Water scorpion, the, 112
Weight of truth, 78
Western Ind., a first landing in the, 19
What is blight? 180
— honey-dew? 185
— knowledge? 248
Whewell, extract from, 246
Wilcox, extract from, 51
Wire-gauze, 68
Woman, office of, 20
Words, value of, 75
Worldly friendship, 136

Young, Dr. Thomas, Memoir of, I., 129—II., 160

INDEX TO THE ENGRAVINGS.

Ancient games, figures representing, 165
Antioch, in Syria, 113
Antique head in the British Museum, 125
Aphis Koom, 180
Apparatus for diminishing friction, 237
Arabia, Mecca, in, 153
— Medina, in, 127
Arqua, Petrarch's house at, 176
Automaton Chess-player, 4, 5, 21, 60, 76, 77

Barbel, the, 92
Bearded Bacchus, terminal head of the, 128
Beetles, 23
Bey-el-Kasreys, in Cairo, 166
Blighted branch, a, 196
Blistering beetle, 23
Boulae, landing place at, 81
Bridge at Hampton, 57
Britain, Roman coin for, 245
Bulgaria, ruined caravanserai at Hafia, in, 73

Cairo, views in.—
Bey-el-Kasreys, 105
Khan el-Khaleeles, 199
Landing-place at Boulae, 81
Street scene, 49
Turkish offende writing a memorial, 89
Caravanserai, at Hafia, 73
Carp, the, 40
Cashmere goats, 13
Castle of Nuremberg, 9
— Peversey, 157
— Warwick, 57
— Windsor, 23
Cathedral of Florence, 149
Chess-player, automaton, 4, 5, 21, 60, 76, 77
Coin, Roman, for Britain, 245
Colossal Egyptian statue, 44
Colossus, removal of, by the ancient Egyptians, 183

Cottages in Switzerland, 137

Davy's safety lamp, 69
Diagrams of tops, 19, 20
Dredging machine, 64
Dresden, in Saxony, 161

Egyptian colossal statue, 44
English manor house, 169
Etruscan patera, 46

Father Long-legs, 159
Figures representing ancient games, 165
Floating Islands, Lake of the, 241
Florence, cathedral of, 147
Fortune, goddess of, 121
Friction, apparatus for diminishing, 237

Gainsborough, pictures by, 177, 217
Games, ancient, figures representing, 165
Goats, Cashmere, 13
Goddess of Fortune, 121
Grenada, in Spain, 173
Gudgeon, the, 184

Hafia, ruined caravanserai, at, 73
Hampton bridge at, v.
— court, 146
Harem, an Indian, 256
High Priest of the Magians, 194
House, interior of an Oriental, 249
— old English manor, 169
— of Petrarch, at Arqua, 176

Illusions, Optical, illustrations of, 53, 96, 141, 142, 163, 164, 189, 190
Illustrations of Map-making, 108, 109, 116, 117, 118
— of the Knight's move at Chess, 204, 205
Indian harem, 256
— mountain dwelling, 253
Italy, Petrarch's house at Arqua, in, 176

Khan-el-Khaleeles, Cairo, 129
Kingston-on-Thames, 183

Lake of the Floating Islands, 241
Lamp, Davy's safety, 69
Landing-place at Boulae, 81
Long-legs, Father, 159
Loom, wire-gauze, 68

Machine for spoon-dredging, 64
Magian high-priest, 194
Manor house, old English, 169
Map-making, illustrations of, 108, 109, 116, 117, 118
Market-cart, from a picture by Gainsborough, 217
Mecca, street in, 153
Milk-girl, from a picture by Gainsborough, 177
Moldavia, travelling post in, 23
Mountain of Sepulchres, in Persia, 193
Mouth-organ, or Pan's pipes, 8
Murrillo, pictures, by, 1, 17

Nakshi-Roustan, or the Mountain of Sepulchres, 193
Nuremberg, castle of, 9

Oil beetle, 28
Old English manor house, 169
Optical Illusions, illustrations of, 53, 96, 141, 142, 163, 164, 189, 190
Oriental house, interior of an, 249

Pan, terminal figure of, 41
Pan's pipes, 8
Pantograph, the, 15, 16
Partridges, 120
Patera, Etruscan, 46
Persia, Mountain of Sepulchres, in, 193
Petrarch's house at Arqua, 176
Peversey Castle, 157
Phoenix, statue of, 41
Phytolacca decandria, 224
Pouter and Setter, 99
Pompeii, Roman painting from, 209

Red Grouse, 73
Removal of a Colossus by the ancient Egyptians, 188

Richmond Hill, view of the Thames from, 201
Roman coin for Britain, 245
— painting, from Pompeii, 209
Ruined caravanserai at Hafia, 73

Saxony, Dresden, in, 161
Scorpion, the water, 112
Setter and pointer, 99
Sieve pieces, 92, 93
Snipe, the, 203
Spain, Grenada in, 173
Spanish flower-girl, from Murrillo's Tinker, from Murrillo, 17
Sphinx Nerion, 201
Spoon-dredging machine, 64
Stainer's stone, 65
Statue, colossal Egyptian, 44
— of Phosion, 21
Street scene in Cairo, 49
— in Mecca, 153
Sun, view of, 69
Swiss cottages, 137
Syria, Antioch, in, 113

Tench, the, 132
Terminal figure of Pan, 41
— head of the bearded Bacchus, 128
Thames, views on the banks of the, 5, 65, 97, 145, 185, 201
Tinker, Spanish, from Murrillo, 17
Tops, diagrams of, 19, 20
Travelling post in Moldavia and Wallachia, 23
Turkish offende writing a memorial, 89
Victory, from a Roman painting from Pompeii, 209

Wallachian post carriage, 23
Warwick Castle, 57
Water scorpion, the, 112
Windsor Castle, 23
Wire-gauze loom, 68
Zebra, the, 26

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THE SPANISH FLOWER GIRL, FROM MURILLO.

MURILLO AND HIS WORKS, I.

If it be true that painters portray themselves in their works, if their paintings exhibit their own genius, their propensities, affections, and the dispositions of their minds, the works of MURILLO bear a great analogy to his virtues, and the gentleness of his character. That a man of genius should be insensible to those allurements which so greatly affect vulgar minds ought not to excite surprise,—we ought rather to be surprised when a great mind displays the qualities of a mean and narrow capacity. Believing, as we do, in the purifying influence of intellectual exertion, it is cheering to point out the examples which so frequently occur of greatness united to goodness. These qualities ought ever to accompany each other and form the rule, the exceptions to which ought rather to be regarded as accidents insufficient to cast a slur upon the exertions of intellect. We have recently sketched the life of SALVATOR ROSA in which genius and frailty were strangely mingled—a life in which the misery resulting from the gratification of capricious passion was acutely felt. We have also been delighted in the contrast presented by the amiable and accomplished CANOVA, and we now propose to invite attention to the life and works of an artist whose conduct in both has earned for him the title of “the tender and the natural MURILLO.”

Bartolomeo Esteban Murillo was born at Seville in 1618. He was descended from an ancient family, who had formerly held ample possessions in the province of Andalusia. Don Juan del Castillo a painter of some celebrity, was his uncle, and had established an academy at Seville which enjoyed considerable reputation.

In common with most persons who have attained eminence in any pursuit, Murillo gave very early indications of the natural bent of his genius. As a child he was constantly filling the margins of his school books, the walls, and whatever paper came into his hands, with drawings. It is not always that parents appreciate justly these promptings of nature, but in the present instance, the parents of Murillo fostered the genius of their child, taught him to read and write, and then took him to the gallery of his uncle Juan to be instructed in the painter's art. Castillo was in high estimation in Seville, being a good designer, although hard and unpleasing in his colouring. The boy was gentle and docile, and soon won the affection of his relative, who led him on slowly and surely in the principles of his art; nor did he leave his pupil ignorant of the mechanical departments—he made him mix his own colours—clean his own brushes—dispose his pallet, and prepare his canvass.

So well did Murillo profit by the instructions of Castillo that in a few years he exhausted all the acquirements of that master. He then painted two pictures, the one in the cloister of the Convent de Regina, representing the Virgin and San Francisco; and the other in another convent, the subject being Our Lady of Rosario with Santa Dominga. The manner of Castillo is discernible in both.

About this time Castillo removed to Cadix, leaving Murillo without a master and without occupation. He was so poor that being one day in the kitchen of a convent, the cook said, “Murillo, you are so expert, pray do paint something for me.” Murillo replied, “I have no canvass, and what is worse, have no money to buy any.” The cook held his dish-cloth, Murillo took it and painted the head of Christ upon it, in a beautiful and finished style.

The poverty of our artist compelled him to seek the Feria* in order to paint whatever subjects were ordered

* La Feria is a term given to a quarter of the parish of San Juan Sancto (San Juan) where every Thursday there is held a sale of old and new furniture, second-hand clothes, and numberless articles of cheap purchase. The inhabitants of this district are mostly artists and mechanics, who provide nearly all Andalusia with their productions; especially with pictures, painted generally in so bad a style that every badly-painted

of him. Here he continued for some time engaged in supplying wares to this market of Spanish saints, and considerably improved his readiness to invent, to draw, and to dispose and arrange any given subject.

After spending a few years in this way, and in private study, a circumstance occurred which had great influence on the mind of Murillo. One of his fellow scholars, Pedro de Moya, influenced by a strong desire to travel in foreign countries, had abandoned the school of Castillo, and gone to Flanders as a private soldier, but happening to see many of the pictures of Vandyck, all his love for his former profession returned, and he was most anxious to become a pupil of that celebrated master. Moya accordingly went to London, where Vandyck resided, became his pupil, and soon succeeded in working in the style of his master; but his improvement was checked by the death of Vandyck, and Moya returned to Spain. Murillo saw, and was surprised at that chance, and to him hitherto unknown manner, which Moya had acquired, and became anxious to visit Flanders or Italy, in order to obtain the same advantages. But his peniary means were very limited,—he was without friends and patrons,—men of greater name or pretension had hitherto stood between him and reputation. But he worked diligently for a short time, and produced several works, which he sold at the Feria, and, without communicating his intentions to any one, he quitted Seville for Italy in the twenty-fourth year of his age.

When Murillo arrived at Madrid he visited his countryman, Don Diego Velasquez de Silva, first painter of the camera to the King, with whom he was not acquainted except by fame, and requested of him letters of introduction to Rome. Velasquez, pleased with the mild and gentle demeanour of Murillo, inquired of him about his connections and family,—of his school and his master,—and the motives which induced him to quit his country, and undertake so distant a journey. Murillo replied with so much ingenuousness that Velasquez was charmed with him,—told him to stay where he was,—to consider Velasquez as his friend, and that house as his home.

Murillo gratefully accepted the generous offer of Velasquez, and proved himself worthy of this liberality by diligent study, and consequent improvement. He copied some paintings of Vandyck, of Ribera, and of Velasquez. These copies Velasquez presented to the king, and they were applauded by all the nobility and connoisseurs of the court. The judicious choice of Murillo was also approved in selecting three masters celebrated, the one for his exquisite colouring, the other for his perfection in the claro oscuro, and the third for the spirit as well as truth to be seen in his productions; and Murillo was advised to copy no other masters, because these would enable him to attain a good tone of colouring, a facility of handling, and a greater freedom in drawing.

The rapid progress of Murillo surprised his patron, who, after the lapse of about two years, told our artist that he was now qualified to undertake the journey to Rome, and offered him letters of recommendation and other advantages from the King; but, whether attracted by the entreaties of his master, or that he considered the object attained for which he left Seville, Murillo declined these advantageous offers, and exercising himself in very

pictures is named proverbially *Padre de Feria*. These pictures were formerly executed with so much promptitude, that it happened sometimes that a temporary piece of a saint which the devout buyer had desired has been painted when the price was being bargained; or they have produced, for example, the representation of a Saint Onofre upon a Saint Christopher; or the Virgin del Carmen into a Saint Anthony of Padua. The rapidity of the sort of pictures, and the speedy execution of them, was so great when the demand for them was large in the Spanish colonies of South America. At that time this description of art was much better executed than in our own days; for many purchasers being no connoisseurs, applied to the painters in the colonies, who were obliged to execute them, and paid them in proportion to the duties demanded.

We quote this information on the authority of the Spanish writer Can Berruendez, who has contributed much that is interesting to the biography of Murillo. The biographical notices of this artist collected by Captain Edward Davis will be found interesting.

respectful terms, he acquainted his master and benefactor with his desire to return to Seville. Velasques regretted this resolution, because he foresaw the high degree of perfection to which Murillo's genius in the art of painting was capable of attaining at Rome, but he did not interfere with his design, and Murillo returned to Seville, in the year 1645.

About this time a proposal was made to adorn the small cloister of the convent of St. Francis, at Seville, with eleven historical pictures, the figures of the full size; but the proposed remuneration was scanty, it being the result of small collections made from the members of the convent, and amounting to so small a sum that all the painters of Seville refused to paint pictures at so mean a price. Murillo, however, who had a reputation to acquire, undertook the work, and his services were accepted simply because those of no other painter were to be had.

The subjects of these pictures were chiefly from the Romish legends, and need not be described. As works of art their character is very high. Murillo worked at them with care and diligence, and the distrust of his employers was gradually converted into the most hearty gratification and delight. But the astonishment of the artists and connoisseurs of Seville knew no bounds: here were eleven fine pictures, arranged and executed without the knowledge of any one of these "directors of the public taste," and by an artist whom no one had heard of: suffice it to say that in a short time Murillo was acknowledged as the chief of the Sevillian school, because the genius of the painter enabled him to appeal to the feelings and affections of our common nature, by presenting truth in all her simple purity.

Murillo now became celebrated: the great, the powerful, and amateurs in art courted his intimacy, and desired to be painted by him. His rising talents procured him an introduction to Doña Beatriz de Cabrera y Solo Mayor, a lady of distinction and fortune at Pilas, to whom he was married in the year 1648. Murillo now became one of the most distinguished citizens of Seville, and his house was the resort of persons of influence, of taste, and talent in the arts.

The frontispiece to our present article is copied from a picture in the Dulwich Gallery, which is commended by Dr. Waagen in the following terms:—"A girl, with great simplicity of expression, holds some roses in her handkerchief,—a choice example of the very peculiar contrasts and accords of colours by which many of Murillo's pictures have such a magical effect. The background a landscape."

CASHMERE SHAWLS.

I.

THE GOAT OF CASHMERE, AND THE NATIVE MANUFACTURE.

CASHMERE has been celebrated from very early periods, for the beauty of its situation, the comeliness of its inhabitants, and the products obtained thence. It is the name both of a country and the capital city therein. The country is a fertile valley, entirely inclosed by lofty mountains, in the north-west extremity of India. The countries which surround it are those of the Seiks, of the Afghans, of the Tibetians, and of the Chinese Tartars. It appears in early ages to have had Hindoo sovereigns, but to have been conquered by a Mohammedan usurper about five or six hundred years ago. The next conqueror was the Mogul emperor of Hindostan, Humayoon, in whose family the sovereignty remained till the rise of the powerful Afghan dynasty in the last century, when Cashmere became a province of Afghanistan. During the present century, when the contests of rival claimants to the Afghan crown had reduced the monarchy to a shadow, Runjeet Singh, the powerful

chief of the Seiks, seized Cashmere; and we believe that it still remains under the sovereignty of his successor.

Throughout this series of changes, Cashmere appears to have been highly valued; on account of the large revenue derivable from its produce. The city of Cashmere is very large, containing nearly two hundred thousand inhabitants; but the feature for which the valley has been prized is the great productiveness of the soil, and also the productive industry of the inhabitants. The Cashmerians have become celebrated, not only throughout Asia, but in Europe likewise, for the beautiful shawls which they produce. At the time when the Honourable Mountstuart Elphinstone visited the Afghan dominions, Cashmere was considered to possess sixteen thousand shawl-looms, each giving employment to three men. A recent writer in the *Encyclopædia Britannica* remarks:—"For a long period the district of Cashmere, a province of Hindostan, formerly subject to the King of Candahar (Caul), produced articles of this description in such perfection as to make them highly prized both in Europe and Asia. The date at which this manufacture took its rise is not known; but ever since the British established themselves in India, Cashmere shawls have been considered one of the most valuable manufactures of the East. These shawls are made both long and square, the former measuring generally fifty-four inches wide and a hundred and twenty-six long; the latter are from sixty-three to seventy-two inches square. The finest of them are composed of a material exquisitely soft and warm, surpassing in this respect probably any other material that has ever been fabricated into clothing." From the observations of Bernier, Strachey, and other writers, we gather the following particulars respecting the mode of manufacturing the shawls, as well as the general arrangements connected with the manufacture, in Cashmere.

It appears that the shops occupied by the shawl makers consist of a frame-work, at which the persons employed sit on a bench. The number employed on one shawl is two, three, or four; generally three. On plain shawls two persons only are employed, the weaving being effected with a long, narrow, and heavy shuttle; but those shawls of which the pattern is variegated are worked with wooden needles instead of a shuttle, there being a separate needle for the thread of each colour. The operations are consequently slow, proportionate to the quantity of work which the pattern may require. It is not unusual for a shop to be occupied with the manufacture of one single shawl for a whole year, if it be a remarkably fine one; and, in those which are most elaborately worked, not one quarter of an inch is completed in one day by three persons. Sometimes, in order to expedite the production of a shawl, it is made in separate pieces at different looms, and the worked pieces are afterwards sewed together.

The Oostand, or head workman at each loom, superintends the operation on the shawl, while the other persons are employed near him immediately under his direction. Should the pattern which is about to be worked in the shawl be new, or one with which the workmen are not familiar, the Oostand directs them as to the figures, colours, and threads, which they must employ; keeping before him a paper pattern of the device which is to be produced. During the operation of making, the rough or inferior side of the shawl is uppermost on the frame, or nearest the eye; notwithstanding which, the Oostand preserves the pattern with the utmost accuracy. The mode of operation in this respect seems to bear considerable resemblance to the mode of producing tapestry in the old times, when the rooms of the noble and the wealthy were hung with that production instead of with painted or printed paper.

A merchant who enters largely into the traffic in shawls, frequently engages a number of shops, situated near one spot, where he employs men to work for him;

or else he supplies the Oostands or head workmen with thread which has been previously spun by women and afterwards dyed, and they carry on the manufacture at their own houses, having previously received instructions from the merchant respecting the quality of the goods he may require, their colours, patterns, &c. Under such circumstances, the employer finding all the materials, an Oostand receives from six to eight *pice* per day as wages, and a common workman from one to four *pice*,—a *pice* being a small coin in Cashmere, worth about three half-pence English money. After the shawls are completed, the merchant sends them to the custom-office, where each shawl is stamped; and he there pays a certain duty, the amount of which varies with the quality and value of the shawl. The duty is reckoned at one-fifth of their value; but the government-officers generally manage to fix the value at more than the goods are really worth, for the purpose of increasing the per-centage payable into the treasury of the state. In most Eastern countries, where a province is governed by a pacha, a satrap, a semindar, or other vice-regal personage, the amount of duty levied on merchants and traders is too often left at the mercy of the governor, who seldom fails to appropriate a portion to his own private use.

The wool of which the Cashmere shawls are made is imported principally from Tibet and Tartary, in which countries the kind of goat which produces this wool thrives better than in most others. That which is brought from Rodauk is deemed the best, its price in Cashmere being from ten to twenty rupees for a *turruk* of twelve pounds. It is to the peculiar beauty and fine texture of this wool that the Cashmere shawls owe the high estimation in which they are held. The wool forms the inner coat with which the goat is covered; and the dark gray colour which belongs to it in a natural state, is removed from it by a bleaching process to which it is subjected in Cashmere, and which is effected principally by a preparation of rice-flour. When this bleaching has been completed, the wool is spun into yarn, and dyed of various colours. The weaving then proceeds, in the frames of which we have before spoken; and, after being woven, the piece is washed once; and the border, in which is displayed a variety of figures and colours, is attached to the shawls in so dextrous a manner that the junction can scarcely be detected. The price varies, under ordinary circumstances, from a sum equal to about ten shillings English, up to fifty; but when the flowered work is unusually elaborate, the price is increased to five or six pounds. This rate of charge does not appear large, to us who are familiar with British manufacture; but, when we take into account the very small daily wages of these Cashmere weavers, the proportionate price is then considerable.

When Cashmere was tributary to Afghanistan, a considerable portion of the public revenue was exacted in shawls, instead of money. Many of the shawls are exported in an unwashed state, and in the western parts of Asia they are worn also in that state; but in India there is no market for unwashed shawls, and therefore they are washed and packed at Umritsir, a town near Lahore, where the process of washing is more carefully attended to than at Cashmere.

With regard to the extent of the shawl manufacture in Cashmere, nothing more than an approximate estimate can be made. Two hundred years ago, it was supposed that there were forty thousand looms in Cashmere. Mr. Strachey, however, in 1809, stated the number at sixteen thousand; and adds, "It would perhaps be difficult to determine with accuracy the quantity of shawls manufactured annually; supposing, however, that five of all kinds are on an average made at each shop or loom in the course of a year, the number would be eighty thousand, which is probably not far from the truth."

ON CHESS. No. XIII. THE AUTOMATON CHESS-PLAYER. I.

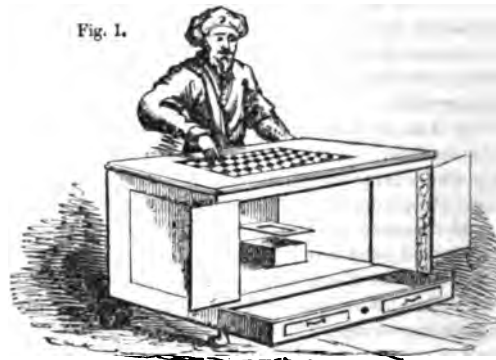


Fig. 1.
A perspective view of the Automaton, seen in front, with all the doors thrown open.

PROBABLY NO contrivance of the fertile genius of man ever excited so much wonder and delight for upwards of half a century as the Automaton Chess-player. The announcement and subsequent production of a machine which appeared so to vary its operations and modes of action as to suit the ever-varying circumstances of a game of chess were sufficient to account for this excitement throughout Europe.

The results of automatic machinery in general cease to interest the mind strongly so soon as the effects produced by it are clearly traced to well-established physical causes. The wind which turns the sails of a windmill; the flowing stream which gives motion to a water-wheel; and the elastic steam which elevates and depresses alternately a piston, are simple results of self-evident causes. These prime movers may impart motion to more or less complicated machinery, so as to produce the variegated carpet which adorns our rooms, or the sheet of paper upon which we write, but still the mind is satisfied that these results are produced by machinery in motion, which motion is imparted and sustained by some well-known force. So also in machines which imitate many of the motions and attributes of animals the mind is soon satisfied that the cause is mechanical, and resides within the automaton itself, since by a slight observation it is seen that the automaton is adequate to the performance only of a very limited routine of actions which are always repeated, like the tunes on a barrel-organ, in the same order.

Automata may be divided into three classes,—viz., the *simple*, the *compound*, and the *spurious*. The first class comprises those insulated automata, the movements of which result from mechanism alone, by the aid of which they perform certain actions, and continue them so long as the moving force is kept in an active state. As examples we may cite the trumpeter of Maelzel, the flute-player of Vaucanson, the self-acting piano-forte, &c.

The second class includes those automata which, like the former are moved by machinery, but possessing at the same time a secret communication with human agency, are enabled to change the regular order and succession of their movements according to existing circumstances, and hence in some manner to assume the character of living beings.

The third class contains those automata which, under the semblance only of mechanism, are wholly directed and controlled by a concealed human agent.

Now it must be at once perfectly clear to every intelligent reader that the Automaton Chess-player cannot belong to the first class, because, great and surprising as the powers of mechanism assuredly are, the movements which result from it are necessarily limited and uniform. Those who know anything of the difficulties and intricacies of chess will readily admit that intellect, and that

* This class of Automata is described in *Saturday Magazine* Vol. XVIII., pp. 62 and 69.

of no mean order, is alone equal to the task of managing this game; that machinery can never usurp and exercise the faculties of mind, and therefore that the Chess Automaton, which in its day encountered, and often conquered, some of the first-rate professors of chess, cannot be admitted into the class of *simple* automata. Its claims to a place either in the second or in the third division the reader will easily decide upon after a perusal of the following details.

The Chess Automaton was the invention of Wolfgang de Kempelen, a native of Hungary, Aulic councillor to the royal chamber of the domains of the Emperor of Germany, and celebrated for his skill in mechanics. In the year 1769 de Kempelen, being at Vienna on business relative to his office, was ordered to court to be present as a scientific witness of some magnetic games or performances which one Pelletier, a Frenchman, was to exhibit before the Empress Maria Theresa. During the exhibition, Her Majesty having condescended to enter into familiar conversation with de Kempelen, he was induced to hint that he thought himself capable of making a machine, the effects of which would be more surprising, and the deception more complete than anything Her Majesty had seen during this magnetic exhibition. The empress took him at his word, and expressed so earnest a desire to see his project carried into execution that she obtained a promise of him to set about it immediately. He kept his word, and in six months again appeared at the Court of Vienna in company with the Automaton Chess-player.

It may readily be supposed that this automaton excited the admiration and surprise of every one who either saw it play or played with it. An account of the invention soon spread through a great part of Europe; the newspapers and journals were eager to announce its marvellous powers; the smallest scrap of information respecting it was read with avidity; and the result of all this excitement was that these accounts become daily more exaggerated and contradictory. Even an intimate friend of the inventor, who had repeated opportunities of witnessing the performances of the automaton, expresses himself in the following high-flown terms.

The boldest idea that ever entered the brain of a mechanic was doubtless, that of constructing a machine to imitate man, the master-piece of the Creation, in something more than figure and motion. M. de Kempelen not only conceived this idea, but also carried it into execution; his Chess-player being beyond contradiction the most astonishing automaton that ever existed. Never before did any mere mechanical figure unite the *vis motrix* with the *vis directrix*, or to speak more clearly, the power of moving itself in different directions as circumstances unforeseen and depending on the will of any person present might require. Was a wooden figure ever before seen playing at the most difficult and complicated of all games, frequently beating the most consummate adept, and setting him right if ever he deviated from the rules of the game?

The same writer published a series of letters to a friend descriptive of all the "externals" of the Chess Automaton*. These letters are extremely interesting, not only on account of the admiring simplicity with which he speaks of the invention of his friend; but for the information they give as to the mode of exhibition adopted by de Kempelen from the very first. Our author writes to a friend at a distance from Vienna, and begs him to set bounds to his curiosity, "for he cannot gratify it;" and although he admits the automaton "must be a deception," yet "he is forced to the humiliating avowal that it is as incomprehensible to himself as to the person he addresses." He is, however, kept in countenance by the fact that "others endowed with much

* The title of this book is remarkable, and displays the spirit of credulity with which it was written. It is as follows:—*INANIMATE REASON; or a circumstantial Account of that astonishing piece of Mechanism, M. de Kempelen's Chess-player.* By M. CHARLES GOTTLIEB DE WINDISCH. This gentleman is spoken of, elsewhere, as the respectable author of *The History and Geography of the Kingdom of Hungary*, and the intimate friend and countryman of M. de Kempelen.

superior knowledge and quicker penetration have not been more successful than himself in developing the mystery." And then growing warm with his subject he exclaims, "It is a deception!—granted: but such an one as does honour to human nature; a deception more beautiful, more surprising, more astonishing than any to be met with in the different accounts of mathematical recreations."

In our next article on this subject we will describe particularly the appearance and performances of the Chess Automaton. We will conclude our present notice with two extracts from the author already quoted.

The first idea that strikes you on a superficial examination of this chess-player is a suspicion that its movements are effected by the immediate impulse of some human being. I myself fell into this mistake. When I first saw the inventor shove his automaton, fixed to a kind of large cupboard, out of an alcove, I could not any more than the rest of the company avoid suspecting that this cupboard certainly contained a child, which from the size of it I supposed might be from ten to twelve years old. Many of the company were so fully persuaded of it that they made no scruple to declare it. I assented only in silence to their opinion, but was not less confused when I saw M. de Kempelen tuck up the dress of the automaton, take out the drawers, and open all the drawers of the cupboard, and in this situation roll it round the room on the castors which it goes upon, turning it in every direction so as to enable each person present to examine it on all sides. You may be sure that I was not a little eager to gratify my curiosity. I examined even the minutest corner of it, without being able to find anything throughout the whole capable of concealing an object the size of my hat. My vanity was grievously mortified to see my hypothesis, which at first sight appeared so plausible, instantaneously disproved.

I know not whether the whole company were affected in the same manner: but I thought I could perceive in many of their countenances marks of the greatest surprise. One old lady in particular who had not forgotten the tales told her in her youth, crossed herself, and sighing out a pious ejaculation went and hid herself in a window seat, as distant as she could from the *evil spirit*, which she firmly believed possessed the machine.

Our author being thus fairly put upon a wrong scent has recourse to the idea of a secret communication between the automaton and some neighbouring apartment. This leads him to describe the residence of M. de Kempelen thus—

M. de Kempelen resides here at Presburg, and occupies with his family the first floor of his house; his little workshop together with his study where the automaton is placed, are on the second floor. When the automaton is exhibited, the company assemble in the lower apartment, from whence they are conducted up stairs. In passing through the workshop which serves as an antechamber to the study, you see nothing but joiner's, smith's and clockmaker's tools, lying in heaps in that confusion so characteristic of the abode of a mechanical genius. The walls of the study are in part hid by large presses, some containing books, others antiques, and the remainder a small collection of natural history: the intermediate spaces are decorated with paintings or prints, the performances of the master of the house.

The writer satisfies himself that no communication can possibly exist between the automaton and an adjoining room; this was indeed proved by the machine being carried for exhibition to the Imperial Palace.

Fig. 2.



An elevation of the Automaton, as seen from behind.

AGRICULTURAL CHEMISTRY.

I. ON THE INTERCHANGE OF CROPS.

At one of the meetings of the Chemical Section of the British Association for the advancement of Science, the preparation of a Report on Organic Chemistry was assigned to Dr. Justus Liebig, Professor of Chemistry in the University of Giessen. This Report has been edited by Dr. Lyon Playfair, and recently published under the title of "Organic Chemistry, in its applications to Agriculture and Physiology." From this work, which is one of the most profound and useful contributions to science, we propose to select a few subjects capable of being presented to the reader in a popular form.

It has long been known to the agriculturist that the growth of annual plants is impeded, and the produce rendered less abundant, by cultivating them during successive years on the same soil, and that, notwithstanding the loss of time, a larger quantity of grain is obtained when a field is allowed to remain uncultivated for a year. During this interval of repose, the soil, in a great measure, regains its fertility.

Experience has also led to the observation that certain plants, such as peas, clover, and flax, flourish on the same soil only after a lapse of years; whilst others, such as hemp, tobacco, rye, and oats, may be cultivated in close succession. It has been also found that several of these plants improve the soil, whilst others, and these are the most numerous, impoverish or exhaust it. Fallow turnips, cabbage, beet, spelt, summer and winter barley, rye, and oats, are supposed greatly to impoverish the soil; whilst wheat, hops, madder, late turnips, hemp, poppies, teasel, flax, weld, and licorice, are supposed to exhaust it entirely.

From the earliest times manure has been employed to increase the fertility of soils; and experience has proved that manures restore certain constituents to the soil, which have been removed by the plants grown upon it; but it has been observed that crops are not always abundant in proportion to the quantity of manure employed, even, although it may have been of the most powerful kind: that the produce of many plants diminishes in spite of the apparent replacement of the substances removed from the soil by manure, when they are cultivated on the same field for several years in succession.

It has been remarked, on the other hand, that a field which has become unfitted for a certain kind of plants was not on that account unsuited for another; and, upon this observation, a system of agriculture has been gradually formed, the chief object of which, is to obtain the greatest possible produce with the least expense of manure.

It was deduced from the foregoing facts that plants require for their growth different constituents of soil, and it was very soon perceived that an alternation of the plants cultivated maintained the fertility of a soil, quite as well as leaving it at rest or fallow. It was evident, therefore, that all plants must give back to the soil in which they grow, different proportions of certain substances, which are capable of being used as food by a succeeding generation.

Many explanations have been offered respecting the cause of the favourable effects of the alternation of crops; but the theory of De Candolle is the one which has received the greatest share of attention.

This distinguished botanist supposes that the roots of plants imbibe soluble matter of every kind from the soil, and thus necessarily absorb a number of substances which are not adapted to the purposes of nutrition, and must subsequently be expelled by the roots, and returned to the soil as excrements. Now, as excrements cannot be assimilated by the plant which ejected them, the more of these matters which the soil contains, the more unfertile must it be for plants of the same species. These excrementitious matters may, however, still be capable of assimilation by another kind of plants, which would

thus remove them from the soil, and render it again fertile for the first. And, if the plants last grown also expel substances from their roots, which can be appropriated as food by the former, they will improve the soil in two ways.

This view of the subject is countenanced by many well-known facts. Every gardener knows that a fruit-tree will not grow on the same spot, where another of the same species has stood; at least not till after a lapse of several years. Before new vine-stocks are planted in a vineyard from which the old have been rooted out, other plants are cultivated on the soil for several years. It has also been remarked, that several plants thrive best when growing beside one another; and, on the contrary, that others mutually prevent each other's growth. Whence it was concluded, that the beneficial influence in the former case depended on a natural interchange of nutriment between the plants, and the injurious one in the latter on a poisonous action of the excrements of each on the other respectively.

But the theory of M. De Candolle has been confirmed in a satisfactory manner by a series of admirable experiments by M. Macaire which we will briefly detail.

The roots of the *Chondrilla muralis* were carefully cleaned and immersed in filtered rain water: the plant continued to flourish, and put forth its blossoms, and at the end of eight days the water was of a yellowish colour, indicating to the smell and taste the presence of a bitter narcotic substance, similar to that of opium,—a result which was further confirmed by using chemical tests, and by a reddish-brown residuum which remained after evaporating the water. It was ascertained that neither the roots nor stems of the same plants, when completely detached and placed in water could produce this effect, which seems to be the result of an exudation from the roots, necessary to the health of the plant. By comparing the results of various experiments on the quantity of matter thrown off by the roots of the French bean, by night and by day, it was found to be much more considerable by night,—an effect which it is natural to refer to the interruption of the action of the leaves when deprived of light, and when the corresponding absorption by the roots is also suspended. This was confirmed by the result of some experiments made on the same plants by placing them during the day in a darkened room, when the excretion from the roots was found to be much increased; but, even when exposed to the light, there is always some exudation, though in small quantity, going on from the roots.

By this excretory process plants are enabled to get rid of any noxious matters which they may have absorbed from the soil. This was proved by experiments on several plants, among which was the common cabbage. The root of the cabbage was washed clean, and the fibres separated into two bunches, one of which was immersed in a weak solution of acetate of lead, and the other bunch in pure water, contained in a separate vessel. After a few days, during which the plants vegetated tolerably well, an appreciable quantity of acetate of lead was found in the vessel which contained at first only pure water. In order to prove that the poison was actually absorbed into the body of the plant the experiment was varied: the plant was first allowed to remain with its roots immersed in a solution of acetate of lead: it was then removed and carefully washed, in order to get rid of all traces of the solution from the surface of the roots, after which it was placed in a vessel containing pure water, which in two days' time became contaminated with acetate of lead. Similar results were obtained when lime-water and a solution of common salt were substituted for the acetate of lead.

M. Macaire also found that the water in which certain plants had been kept was injurious to other plants of the same species, while it produced decidedly beneficial effects on plants of a different kind.

When substances which cannot from their nature be employed in the nutrition of a plant exist in the matter absorbed by its roots they must be again returned to the soil as excrements, which, however, may be serviceable, or even indispensable, to the existence of several other plants. Substances, however, that are formed by the vegetable organs during the process of nutrition, which are produced in consequence of the formation of woody fibre, starch, albumen, gum, acids, &c., cannot again serve in any other plants to form the same constituents of vegetables.

The matter thrown off by the roots of plants as excrements, undergoes during autumn and winter a useful change from the action of air and water: its putrefaction, and at length by continued contact with the air, which tillage is the means of procuring, its decay, are effected; and at the commencement of spring it has become converted, either in whole or in part, into a substance which supplies the place of humus*, by being a constant source of carbonic acid.

The quickness with which this decay of the excrements of plants proceeds, depends on the composition of the soil, and on its greater or less porosity. It will take place very quickly in a calcareous soil; but it requires a longer time in heavy soils, consisting of loam or clay.

The same plants can be cultivated with advantage on one soil after the second year, but in others not until the fifth or ninth, merely on account of the change and destruction of the excrements, which have an injurious influence on the plants, being completed in the one, in the second year; in the others not until the fifth or ninth.

In some neighbourhoods clover will not thrive till the sixth year; in others not till the twelfth; flax in the second or third year. All this depends on the chemical nature of the soil; for it has been found by experience, that in those districts where the intervals at which the same plants can be cultivated with advantage are very long, the time cannot be shortened even by the use of the most powerful manures. The destruction of the peculiar excrements of one crop must have taken place before a new crop can be produced.

Flax, peas, clover, and even potatoes, are plants, the excrements of which in clayey soils require the longest time for their conversion into humus; but the use of alkalies and burnt lime, or even small quantities of wood ashes, (which have not been wetted so as to remove the alkali contained in them,) must enable a soil to permit the cultivation of the same plants in much less time.

A soil lying fallow owes its earlier fertility, in part, to the destruction or conversion into humus of the excrements contained in it, which is effected during the fallow season, at the same time that the land is exposed to a further disintegration. In the soils in the neighbourhood of the Rhine and Nile, which contain much potash, and where crops can be obtained in close succession from the same field, the allowing of the land is superseded by the inundation. The artificial irrigation of meadows effects the same purpose. It is because the water of rivers and streams contains oxygen in solution, that it effects the most complete and rapid putrefaction of the excrements contained in the soil which it penetrates, and in which it is continually renewed. If it was the water alone which produced this effect, marshy meadows should be the most fertile.

A fertile soil ought to afford to a plant all the inorganic bodies necessary to its existence in sufficient quantity and in such condition as allows their absorption. All plants require alkalies, and these are contained in

* Woody fibre, in a state of decay, is called humus, and is the principal constituent in mould. Humus acts in the same manner in a soil permeable to air as in the air itself; it is a continued source of carbonic acid, which it emits very slowly. An atmosphere of carbonic acid formed at the expense of the oxygen of the air surrounds every particle of decaying humus. The cultivation of land by tilling and loosening the soil, causes a free and unobstructed access of air. An atmosphere of carbonic acid is therefore contained in every fertile soil, and is the first and most important food for the young plants which grow in it.

some plants (as in the grasses) in the form of silicates; in others in the form of tartrates, citrates, acetates, or oxalates. Some species of plants require phosphate of lime, or phosphate of magnesia, and several do not thrive without carbonate of lime.

THE PANDEAN PIPES, OR MOUTH-ORGAN.

The rural ditties were not mute,
Tempered to the oaten flute,
Rough satyrs danced, and fauns with cloven heel
From the glad sound would not be absent long,
And old Dametas loved to hear our song.—MILTON.

AMONG the musical instruments familiarly known to us at the present day, there is one which, though it has acquired a sort of a character for vulgarity, is one of the most ancient of all. We allude to the *Mouth-organ*, known to classical readers by the names *Syrinx*, and *Fistula Panis*, or Pan's Pipes.

The formation and the mode of playing musical instruments among the ancients have formed the subject of considerable research; great difficulty being experienced in knowing the proper interpretation or translation to be given to certain terms used by the classical writers. The first attempt at a wind instrument seems to have been the employment of the shell of some particular fish, or the horn of a quadruped. To this probably succeeded the use of the *Avena*, or single oaten stalk; the *Culamus*, or single reed; and the *Syrinx* or *Fistula*, a number of reeds of different sizes, ranged side by side, each one stopped at the lower end. It was the opinion of Dr. Burney, that such simple instruments as these, in which each pipe is employed to yield but one note, preceded the employment of those which were provided with *foramina*, or holes, and which, by stopping one or more of these holes with the fingers, could be made to yield several notes. When this latter method became known, a great advance in the musical art resulted; and the artificers gradually attained the skill to make such instruments of box-tree, laurel-wood, brass, silver, and even gold.

Flutes or pipes, called *Tibia*, were much used in the theatrical exhibitions of the ancients, some of them approaching nearly to the form of a shepherd's pipe, as represented in old pictures, and indeed all of them bearing more resemblance to a flageolet than to a modern flute. But with regard to the instrument now called a mouth-organ, it does not appear to have been similarly employed. It is a circumstance not a little remarkable, that the god Pan is almost invariably represented as playing on this instrument; a fact which, whatever may have been its source, is strongly indicative of the familiar use of such an instrument among the early Greeks. In some of the pictures wherein Pan is introduced, the syrx on which he appears to be playing, is composed of tubes or pipes having a square sectional area; while in others the pipes are of cylindrical form. In the cut at the end of this article, the pipes are six in number, and of a square form. This representation is taken from an ancient basso-relievo of Greek sculpture, in the Giustiniani Palace at Rome, the sculpture portraying the nursing of Jupiter by Amalthea. Pan is holding the syrx in his left hand, while in his right he grasps a horn, resembling the *shavm*, represented upon the Arch of Titus, among the instruments supposed to have been copied from those brought by this emperor from Jerusalem.

A French writer of the last century relates his having seen at Rome, on a monument in the Farnese Palace, a syrx with eleven pipes; the first five being of equal lengths, and consequently producing notes of the same pitch; with six others of equal diameter, but of different lengths from the first five. "I confess," says he, "that I am unable to conceive the use of the five first reeds or pipes of the same length for no two of them could be made to sound at once. Is it not possible that these

five pipes were half tones, and differed from each other in length so little, as to seem all of a length? or perhaps they differed in diameter, and may have all produced different tones, though of equal length." But to this supposition it has been objected, that the ancient Greeks had no succession of regular semitones in their musical scale.

Without dwelling longer on the early history of the syrinx,—except to remark that this word is the Greek name for the instrument, that *Fistula Panis* is the Latin name, that *Pan's Pipes* is the English translation of this latter name, and that *mouth-organ* is a name in some degree expressive of the mode in which the instrument is played,—we will describe the acoustical principles on which this instrument acts.

When we blow into an open tube, that is, a tube of cylindrical bore with both ends open, we merely send a forcible current of air from one end of the tube to the other, and produce a *wind*, which is nothing more than a slightly audible agitation of the air. But when one end of the tube is stopped, and we blow into the open end in an oblique manner, with the lips compressed, so as to give a forcible impetus to the breath, a musical *note* results, which is more or less pleasing according to circumstances. Now the difference between a *sound*, such as that resulting from the mere emission of breath, and a musical *note*, consists in this, that in the latter case a current of air is set into regular vibration, performing a certain number of regular oscillatory movements in a certain space of time. It has been found by experiment, that a note having the same pitch as the middle *A* of the treble clef, is the result of 420 vibrations in a second,—a number indicating an astonishing degree of rapidity in the successive changes in the conditions of the air.

The vibrations here spoken of may be excited either by the agitation of a musical string, or of a column of air in a pipe; the pitch depending on the absolute frequency of vibration, and not upon the manner in which those vibrations are excited. In the case now before us, we blow in a tube, the lower end of which is stopped, and thus excite a rapid oscillatory motion of the particles of air within the tube, which motion is communicated to the external air, and thence to the ear.

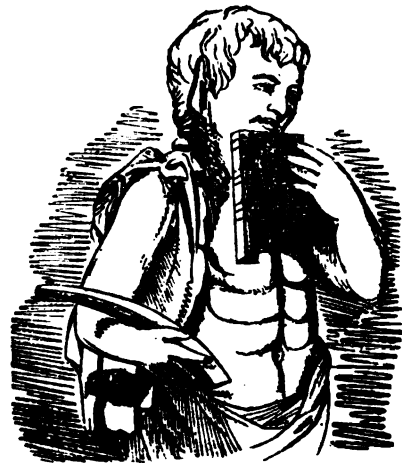
But it is a very remarkable part of the phenomenon, and one on which the construction of the mouth-organ mainly depends, that the pitch of the note resulting from these vibrations varies with the length of the pipe; a shorter pipe yielding a more acute or elevated tone than a long one. The mode in which this difference arises is as follows. The vibration of the column of air in the tube, takes a certain time to travel to a certain distance,—viz., at the rate of 1125 feet per second; so that the time which it takes to travel from end to end of the tube will depend simply on the length of the tube, or on the proportion which that length bears to 1125 feet. Consequently a short tube permits the transference of this agitation from end to end, in a shorter time than a long tube; and, as a consequence of this, the repetition or succession of these impulses occurs with greater rapidity. The air will vibrate twice as fast in one tube as in another tube of twice the length; because the agitation has only half the distance to travel in each separate vibration.

There is a curious connexion between the relative lengths of two pipes, and the relative pitch of the notes which are yielded by them. Let us suppose that we have one which yields the *A* before mentioned, that is, the note resulting from 420 vibrations in a second. If the other be of such a length as to give 840 vibrations in a second (and this will result if, other things being the same, it be only half as long as the other); then the note yielded will be *A*, one octave higher than the *A* of the other pipe. If the second one be so much longer that it only gives 210 vibrations in a second, then it yields a note one octave lower than the *A* first spoken

of, and two octaves lower than the other *A*. But if the lengths of the two pipes be in any less simple proportion, the notes produced will form intermediate steps in the musical scale; thus 256 vibrations in a second, being equal to $\frac{2}{3}$ of 420, will yield the note *c*, a major-sixth (in musical language) below the former. If we consider this *c* as a kind of standard note, we shall find that the following fractions, representing the comparative frequency of vibration, 1, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$, $\frac{5}{6}$, $\frac{6}{7}$, $\frac{7}{8}$, 2; or the numbers 256, 288, 320, 341 $\frac{1}{2}$, 384, 416 $\frac{2}{3}$, 480, 512, will represent the vibrations necessary to produce the succession of notes of the natural scale, *C, D, E, F, G, A, B, C*. By producing a number of vibrations greater than any here indicated, we shall produce a higher note; and with a less number, a lower note.

On these principles the *mouth-organ* is constructed. It consists of a number of hollow canes or reeds, ranged side by side, and secured by cross bands of cane. The bottom of each pipe is stopped, either by one of the natural joints of the cane, or by wax or some similar substance; while the upper end is open. The lengths of the pipes decrease gradually from one end to the other, the longer being also generally the wider pipes. This increase of diameter is intended, not so much to affect the pitch of the note, as to give a greater roundness and richness to the tone of the lower notes. The length of the pipe is, as before stated, the circumstance which principally regulates the pitch; and this length is arranged on the principles just explained. It is very probable that the maker of the instrument is ignorant of the principles on which he is proceeding; but his proceedings are not the less governed by principles. He endeavours so to regulate the lengths of the pipes as to produce the succession of notes forming the regular Diatonic scale; and in so doing, he finally settles on such lengths as will yield the numbers of vibrations indicated above, or at least, the *proportions* of those numbers; for the actual number will depend on the octave which forms the main part of the instrument.

The mouth-organ is, from its nature, not very likely to get out of order, since the lengths of the pipes, on which the pitch of the notes depends, are less likely to yield from changes of temperature than the other dimensions. It must be obvious to any one at all acquainted with the action of organ pipes in general, that the reeds of a mouth-organ bear a considerable resemblance to them, inasmuch as they produce sounds by the longitudinal vibration of a column of air. Hence the popular name of the instrument.



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NUREMBERG



THE CASTLE OF NUREMBERG.

THE town of Nuremberg, or Nürnberg, in Bavaria, though fallen from its ancient wealth and consequence, had become, in a commercial sense, a dull and unattractive spot, will nevertheless be pleasing to the traveller of taste, and will fully repay the attention he may be induced to bestow on its examination. In former days it was one of the most flourishing towns included in the Hanseatic league, and was reckoned among the most wealthy of the free Imperial cities. It was the residence of emperors, the seat of diets, and, before the trade with the East Indies took a new direction, the focus of commerce between Asia and Europe. Nor were these its only advantages: the manufactures of Nuremberg were long and justly celebrated, and brought a large accession of wealth to the town. Various mathematical and musical instruments were invented, and the first pocket-watches made in that town. The manufacture of these articles, as well as of hardware of all kinds, and toys of brass and wood, caused Nuremberg to be highly celebrated. The trade in such wares is still very considerable, and, owing to the cheapness of the toys in particular, half the children in Europe are supplied with playthings, called Dutch toys, from that source. These toys are chiefly made by the peasants of the Thuringian forest, who employ themselves and their families on such labours during the winter, and by their simple and frugal habits, are able to produce them at a surprisingly low price. For the sale of Nuremberg wares an annual fair is held, at which much business is

transacted. Yet, compared with its ancient traffic—so extensive as to give rise to the proverb,

Nuremberg's hand
Goes through every land,—

the present trade of Nuremberg may be called trifling, as the condition of the city is also greatly altered.

The outward aspect of Nuremberg has not partaken much of the decay which has fallen on its commercial interests, and it is in the appearance of the city, as it stands surrounded by feudal walls and turrets, and inclosed within arched gates, with massive cylindrical watch-towers, that the traveller may recognise its ancient grandeur and strength; while, as he examines the quaint buildings of the city, and wanders through its irregular streets, he may fancy himself carried back to a distant century. Most of its churches are in a state of beautiful preservation, and have escaped in a manner that seems almost miraculous, the storm of regular warfare, and the outbreaks of mistaken zeal. The principles of the Reformation were early embraced by the inhabitants of Nuremberg; but the churches were not, as in too many other instances, despoiled of their architectural embellishments. The private dwellings, many of them of a palace-like extent, and built of stone, are likewise in excellent preservation, and are in some instances still inhabited by the families whose forefathers originally constructed them.

Nuremberg is celebrated as the birth-place of Albert Dürer, called the Raphael of Germany; of the famous

sculptor Peter Vischer, the poet Hans Sachs, and the gallant knight Beham, the friend of Columbus.

St. Sebald's church, a very beautiful Gothic edifice, contains the master-piece of art, of which Germany is justly proud, the *Shrine of St. Sebaldus*, executed by Peter Vischer, after a design by Albert Dürer. The sculptor, assisted by his five sons, spent thirteen years of labour on this work, and completed it in 1519. It is a miniature Gothic chapel in bronze, consisting of a rich fretwork canopy, supported on pillars. The figures of the Apostles occupy twelve niches around the shrine, and, for their grace, expression, and varied action, are justly extolled by every person conversant with fine sculpture. Above these are twelve smaller figures of Fathers of the Church, and, scattered around, among foliage and flowers, are about seventy fanciful representations of mermen, animals, &c. The relics of the saint are enclosed in an oak chest, encased in silver, which is most elaborately worked in bas relief. Finally, at that end of the shrine which faces the altar, is an admirable statue of the artist himself, in a mason's dress, with apron on, and chisel in hand; and at the opposite end a figure, equally excellent, of St. Sebald. The same church also contains "The Descent from the Cross," painted by Albert Dürer.

The church of St. Lawrence is considered to be the finest church in Nuremberg. It is of a noble Gothic architecture, and is very rich in decorations. The windows are exquisitely painted, and one of them, the Volkamer window, for the depth and brightness of its colours, and the excellence of its design, is said to be scarcely equalled throughout Europe. This church contains the celebrated *Sacrament-hauschen*, or tabernacle for the reception of the sacramental wafer, delicately executed in the form of a spire, of Gothic open-work, by Adam Kraft; the whole of the exquisite stone structure, which tapers to the height of sixty-four feet, is supported by three figures, representing himself and his apprentices.

The castle of Nuremberg occupies the most northern and elevated position within the town. It is of great antiquity, so that no precise date can be assigned for its erection. It is built on a rock of red stone, unlike any other found in the country, and tradition attempts to account for this in the same way that it explains many other curious facts, by attributing it to the work of a magician. The rock and castle, say the superstitious of Nuremberg, were both transported from the neighbourhood of the Rhine in one night. This edifice towers above all the other buildings, and commands the best view of Nuremberg, and of the country around. It appears to have received few modern additions, and is therefore interesting as a specimen of the ancient style. The emperors of Germany made the castle of Nuremberg at various periods their residence: they took pleasure in the prosperity of the city, knowing its importance, and they found its situation, nearly in the centre of their dominions, well adapted for their convenience. The imperial regalia were deposited in the chapel of the Holy Ghost for nearly three centuries, but are now removed to Vienna. The castle has two towers, supposed to be of extreme antiquity, the Pentagonal tower, and the Heathen tower, so called from some carved figures upon it, said to be idols. It also contains two very remarkable chapels, one supported by low and thick arches, and assigned to the tenth century; the other, or upper chapel, resting on slight marble pillars, with Corinthian capitals, and also very ancient. The Corinthian pillars, says tradition, were brought from Rome by the evil one, who had laid a wager with the almoner that he would carry them in less time than mass could be performed. Three pillars were safely deposited, and the spirit had just arrived at the chapel with the fourth, when he found the clerk putting out the candles, and mass concluded. This put him in such a fury, that he

dashed the pillar to the ground, and broke it in two pieces. Let any one should presume to doubt the truth of the story, the fractures are shown where the pillar was cemented together, and an image of the devil's head is fixed in the wall facing the door of the chapel.

Briefly to notice some of the other public buildings of Nuremberg, the *Rath-haus*, or town-hall, is one of the finest in Germany. It is built in the Italian style, and contains, among other curiosities, a number of paintings, some of which are by Albert Dürer, and have suffered much by time, having in some cases been injudiciously restored. In the upper story of the Rath-haus is a singular representation, in stucco, of a tournament held there in 1434, the figures as large as life.

The church of St. Egidius is a handsome modern building, in the Italian style. It succeeded a chapel originally founded in 1140 for some Scotch Benedictine monks. This church contains a fine altar-piece, representing Christ lying dead in the arms of the Virgin, by Vandyke. Near this church stands the gymnasium, or high school, founded by Melancthon, whose statue is erected in front of it.

The church-yard of St. John deserves to be mentioned, as having been the burial-place of many noted persons. There are about three thousand grave-stones in this church-yard, all regularly numbered, and mostly decorated with bronze plates, bearing coats of arms, and devices of deceased patricians. No. 649 is Albert Dürer's grave, No. 603 Hans Sachs', a celebrated cobbler and poet, whose poems, mostly of a satirical sort, exceed six thousand in number. Sandrach and Adam Kraft also lie interred here. This burial-place is situated about a mile from the town; and between it and the town gate are stationed, at regular distances, seven stone pillars, each bearing a representation, in bas-relief, of a scene in the passion of our Saviour. These pillars were set up, according to tradition, by a citizen of Nuremberg, named Martin Ketsel, as a representation of the Dolorous Way, in Jerusalem, along which our Saviour is supposed to have passed, in going from Pilate's house to Calvary.

There are many well-conducted public institutions in Nuremberg, such as a polytechnic institution, a gymnasium, numerous schools, a society for the encouragement of manufactures, &c. The public paper, called the *Nuremberg Correspondent*, is one of the most widely-circulated in Germany. At one period, the proprietor, editor, and printer were all females.

We will conclude our notice of this city by mentioning the date of the most important inventions ascribed to its inhabitants. The first watches (called Nuremberg eggs) were made by Peter Hele in 1500; the gun-lock by a person not known, about 1517; the air-gun by Lobzinger, in 1560; the clarinet by Christopher Denner, in 1690; wire-drawing machine by Rudolph, in 1360; brass by Erasmus Ebner, in 1550.

OLD ENGLISH NAVIGATORS.

For Britain, chief,

It was reserved, with star-directed prow,
To dare the middle deep, and drive assured
To distant nations through the pathless main.
Chief, for their fearless hearts the glory waits,
Long months from land, while the black stormy night
Around them rages, on the groaning mast
With unshook knee to know their giddy way;
To sing, unquelled, amid the lashing wave;
To laugh at danger. Theirs the triumph be
By deep invention's keen pervading eye,
The heart of Courage, and the hand of Toll,
Each conquered ocean staining with their blood,
Instead of treasure, robbed by Russian war,
Round social earth to circle fair exchange,
And bind the nations in a golden chain.—Trowson

As the naval glory of England, whether in the sad necessity of war, or in the laudable endeavour to promote

the operations of commerce and geographical science, must be a subject of interest generally to the inhabitants of the British islands; and as maritime discoveries, like other achievements of the human race, have, under the guidance or permission of Providence, progressed gradually, some notice of the lives of those eminent individuals who, in former days, contributed to the establishment of British credit on the highway of the seas, may be generally acceptable. We propose, therefore, to devote a series of articles to the lives of the old English navigators,—men who have so largely contributed to the civilization of the human race by rendering easy and familiar the passage of the ocean, which, up to the beginning of the fifteenth century, was, very generally regarded with those feelings which guided the pen of an old writer in the following passage:—

The ocean, (he remarks,) encircles the ultimate bounds of the inhabited earth, and all beyond it is unknown. No one has been able to verify anything concerning it, on account of its difficult and perilous navigation, its great obscurity, its profound depth, and frequent tempests; through fear of its mighty fishes, and its haughty winds; yet there are many islands in it, some of which are peopled, and others uninhabited. There is no mariner who dares to enter into its deep waters; or if any have done so, they have merely kept along its coasts, fearful of departing from them. The waves of this ocean, although they roll as high as mountains, yet maintain themselves without breaking; for if they broke, it would be impossible for a ship to plough them.

CABOT.

The history of this great navigator has been so much clouded in obscurity or misrepresented, that it would appear at first sight doubtful, whether we should put Cabot at the head of the naval worthies of our country; but the prominent parts of the following narrative will, we trust, satisfy the reader that we are justified in the course which we have taken.

SEBASTIAN CABOT, the subject of this narrative, was the son of John Cabot, or Gabotto, as his name is sometimes found written. The elder Cabot was undoubtedly a native of Venice, who frequented England on commercial affairs; but little more is known of him than that he was a wealthy, intelligent merchant, and fond of maritime discovery. When his business caused him to sojourn in this country, his residence was at Bristol, where Sebastian was born in the year 1477. The young Cabot was early instructed in geography, navigation, and mathematics. When only nineteen years of age, he was included with his two brothers in a patent, dated 5th of March, 1498, and granted by Henry the Seventh to John Cabot, his father, for the discovery and conquest of unknown lands. The object of this expedition seems to have been, to find out new countries in a north-westerly direction, and above all, a shorter and more convenient passage to the East Indies.

It is remarkable, as showing the zeal and enterprise of these navigators, that this expedition, consisting of five ships, was equipped at the sole expense of the adventurers, which was probably the reason why these mariners did not set sail till the spring of the following year. The ship which the Cabots sailed in, was equipped at Bristol, and named "the Matthew." On the morning of the 24th of June, they first saw the coast of North America, probably the part now called Labrador, about 56° N. It does not appear that there is any farther account of this discovery; but it seems probable that the expedition returned to England immediately, in order to re-visit the newly discovered countries, with more definite objects of trade and empire.

In the privy purse expenses of Henry the Seventh is found a very curious item,—“10th August, 1497: To hym that found the new Isle £10.” This isle is supposed to be Newfoundland, which is to the south-east of Labrador. This seems probable; for in another patent, granted to John “Kabotto,” he is permitted to take six

ships in any haven of the realm, of the burden of 200 tons and under, “to convey and lede to the Londe and Isles of late founde by the seid John, in owre name, and by our commaundemente,” &c. At this time Sebastian seems to have been esteemed as the most scientific navigator of the family. When, about this period, the great discovery of Columbus began to be talked of in England, as a thing almost more divine than human, the effect of it upon young Cabot's imagination was to excite “a mighty longing,” to use his own words, “and burning desire in his heart that he too should perform some illustrious action.” For some reason or other the elder Cabot did not head the expedition just referred to; but it devolved on Sebastian, whose progress in naval science, aided by his father's example and instruction, had been very great. Our mariner, at this time, could not have been more than twenty-two years of age. About this time, i. e., in 1499, John Cabot died; but there is no record of his death, nor is anything whatever known of Sebastian Cabot for the next twelve years.

In making the voyage above referred to, Cabot sailed from England in the summer of 1498, and directing his course by Iceland soon reached Newfoundland, which he called *Terra de Bacalhao*, or land of cod-fish, from the great quantity of that sort of fish found there.

Of this remarkable voyage a short account is preserved by Peter Martyr, the historian of the New World, a writer of high authority, and an intimate friend of the navigator, who, at the time he wrote, was in the habit of paying him frequent visits at his house.

Martyr tells us that the northern seas, between Europe and America, were navigated and explored by Sebastian Cabot, who fitted out two ships in England at his own cost, and with three hundred men directed his course so far towards the North Pole, that, even in the month of July, he found great heaps of ice swimming in the sea, and almost continual daylight. In our summer the sun does not set at the North Pole for several months together; which curious fact is illustrated and explained in a Supplement on Astronomy, in a former part of this work [No. 411].

Martyr goes on to say that Cabot saw the land cleared of ice, which had been melted by the heat of the sun; and, seeing such masses of ice drifting down before him, he was compelled to turn his sails, and follow the west, then coasting still by the shore, he was brought far into the south by reason of the land bending so much southward. As he passed along the coasts, called by him *Bacalhao*, he affirmed that he found the same current of the waters towards the west, which the Spaniards met with in their southern navigations, with the single difference that they flowed more gently. To account for the phenomenon of the waters of the ocean moving westward, which was of course first observed in the Atlantic, Martyr conceived that there must exist between the Old and New Hemispheres of the globe, certain great gaps or open places, through which the waters continually pass from east to west. The cause of this natural phenomenon, however, Cabot was expected to elicit;—the question at issue being simply this:—Why the seas in that part ran with so swift a current from the east to the west?

Our more advanced knowledge of physical geography and astronomy enables us to explain the phenomenon just referred to. The principal currents are produced by the movement of the waters, perpetually setting from the polar regions towards the equator, and by the progression of the tropical seas towards the west; both of which are occasioned by the earth's rotation on its axis. By the laws of mechanics, any fluid body in rotation has a tendency to accumulate in a heap at the part in most rapid motion; and accordingly, we find the waters of the polar circles naturally flowing from their own stiller region, to that of the more rapidly revolving equatorial zone. Strong currents are thus formed, which, in some

instances bear with them vast masses of ice. These are carried to a greater or less distance, according to local circumstances. Now the water which arrives among the equatorial regions from the north, has not a rotatory motion of equal velocity with that of this portion of the globe; and consequently, it has an *apparent* motion from east to west.

Martyr informs us that at Newfoundland, the cod-fish, which the navigators took for tunnies, were so numerous, that they actually impeded the sailing of the ships! The inhabitants of those regions were found covered with the skins of beasts; but yet, not without the use of reason. He also relates that there are plenty of bears in those parts which feed upon fish. It is the habit of these animals to throw themselves into the midst of the shoals of fish, and seizing their prey, to bury their claws in their scales, drag them to land, and there devour them. On this account, he says, these bears seldom disturb men.

After sailing down southward with a view to a passage to the Indies, and discovering the coast of Florida, Cabot returned home, chiefly through want of provisions. Soon after the death of Henry the Seventh, he was sent for by Ferdinand, king of Spain, in which country he arrived in September, 1512, and immediately received the title of Captain, with a liberal salary. It appears from Spanish authorities, that Cabot had felt disgusted with the want of consideration shown him in England; but this seems to have been mainly owing to the civil disturbances in England, and the preparation for war with Scotland.

In the year 1515, Cabot was appointed to revise the maps and charts in use among Spanish navigators: he was also preferred to the station of member of the council of the Indies. He was also selected to conduct an important expedition for making new discoveries towards the west; but this plan was interrupted by the king's death. The new king of Spain, Charles the Fifth, was occupied elsewhere, and did not reach Spain for some time, during which the court was a scene of abominable intrigue. Fonseca, the enemy of Columbus, was in authority, and the insults offered by him and his creatures to Cabot, caused the return of the latter to England. In 1517 he was employed by Henry the Eighth, in connexion with Sir Thomas Perte, to make another attempt at a north-west passage. In this voyage he seems to have reached lat $67\frac{1}{2}^{\circ}$ N., and to have entered Hudson's Bay, and given English names to many places therein. From this expedition he was obliged to return sooner than he intended, through the malice or timidity of Sir Thomas Perte, and the mutinous conduct of his crew.

After this voyage Cabot again visited Spain, where he was named, by Charles the Fifth, Pilot Major of the kingdom, and entrusted with the duty of examining all projects of voyages of discovery. The Molucca islands, in the Eastern Archipelago, at this time very much engaged the attention of mankind. The pope had presumed to give away the newly discovered countries of the world between Spain and Portugal; and the latter power having earnestly represented that the limits, assigned to her by the pope in his division of the New World, would include the Moluccas, it was resolved that a solemn conference should take place, in which all parties should state their claims, and experienced men should attend for the purpose of reference. At the head of this list was Cabot, and Ferdinand Columbus, son of the great navigator. The conference was held at Badajoz, in April, 1524, and by the end of May, sentence was pronounced that the Moluccas were within the Spanish division of the world. The Portuguese retired in disgust, and threatened an expedition to destroy any Spanish or other vessels trading within the disputed territory. Immediately after the decision, a company was formed at Seville to prosecute the trade to the Moluccas, and Cabot was appointed to the command

of the first expedition sent out by the company. Unfortunately, the officers under Cabot were personally hostile to him. The expedition set sail in April, 1526, and proceeded to cross the Atlantic. On the Brazilian coast, a daring mutiny, excited by his officers, compelled him to resort to the extremity of putting on shore the three ringleaders, who were actually the persons named to succeed him in command, in case of his death. Cabot explored the river La Plata and some of its tributaries, erected forts, and endeavoured to colonize the country. He sent to Spain, and solicited the permission of the Emperor Charles to effect his object; as also a supply of ammunition, provisions, &c., which request was favourably regarded.

Another expedition arrived in the Plata in the subsequent year, commanded by Diego Garcia. After some disputes with Cabot, Garcia quitted the country, but left behind him some of his followers, who were guilty of acts which incensed the natives. In consequence, the whole nation burst with fury on the feeble colony, and Cabot was compelled to put to sea. He returned to Spain in 1531, where he resumed his old office, and made several other voyages. In 1548 he resolved to return to his native country.

The throne of England was then filled by Edward VI., who, being very solicitous about maritime affairs, conversed with Cabot, and received from him some explanation about the variation of the compass, first noticed, or at least first particularly attended to, by our navigator. Edward granted him a pension of 250 marks a year (166*l.* 13*s.* 4*d.*),—a munificent reward in those days, and deservedly bestowed. He also made him Pilot Major of the kingdom. Cabot remained high in the young king's favour, and was consulted in all affairs relating to trade and navigation. The advice and influence of Cabot in directing an expedition to the north, opened to England the valuable trade with Russia: he was made governor of the company of merchant-adventurers, by whom the expedition was fitted out; and the instructions delivered by him to the commander, Sir Hugh Willoughby, evince good sense, knowledge, and humanity.

The journal of Stephen Burroughs, who was despatched as commander of a vessel in the Russian trade, in the year 1556, shows the character of Cabot in a very favourable light. Speaking of a visit to the vessel at Gravesend, before her departure, he says,—“the good olde gentleman, Master Cabota, gave to the poore most liberrall almes, wishing them to pray for the good fortune and prosperous successe of the Serchthrift, our pinnesse.”

In the reign of Mary, the maps and documents of Cabot were consigned to the custody of one William Worthington, who was associated with him in his pension in the year 1557. It is supposed that all Cabot's nautical papers were by these means either destroyed, or put into the possession of Philip of Spain, the husband of Mary: certain it is, however, that they are no longer to be found.

The time and place of Cabot's death are not known; although his friend Eden gives some account of it. Speaking of a mode of finding the longitude, he tells us, “Cabot, on his death-bed, tolde me, that he had the knowledge thereof, by divine revelation, yet so that he might not teache any man.” We are told, however, by Eden, that he thought that “the good old man in that extreme age somewhat doted, and had not yet, even in the article of death, utterly shaken off all worldlye vaine glorye.”

FAME, fame; thou canst not be the stay
Unto the drooping reed,
The cool fresh fountain, in the day
Of the soul's feverish need;
Where must the lone one turn or flee?
Not unto thee, oh! not unto thee.—MRS. HEMANS.



CASHMERE SHAWLS.

II.

ATTEMPTS TO INTRODUCE THE CASHMERE GOAT AND THE SHAWL MANUFACTURE INTO ENGLAND.

THE Cashmere goat is not confined particularly to the valley of Cashmere; but is found in various parts of Central Asia, between the Himalaya mountains and the Black Sea. The principal points in the most approved breeds of the Cashmere goat are large ears, slender and cleanly-formed limbs, horns slightly twisted, and, above all, a long, straight, silky, white fleece. The quantity of the down procured by each goat does not exceed a few ounces in weight; so that the cost of shawls manufactured from this substance must ever be high.

In a former article we gave an account of the mode in which shawls are manufactured in Cashmere from goat's down, as also a few particulars respecting the goat itself. We will now detail the circumstances under which attempts have been made to introduce this source of individual wealth into England.

In the year 1828, a gold medal was presented by the Society of Arts to C. T. Tower, Esq., of Weald Hall, Essex, for having reared a flock of Cashmere goats, and having had a shawl manufactured from their down, and on that occasion a paper, published by the Society, furnished some interesting facts on this subject. Unsuccessful attempts had been made in former years by two or three persons to obtain, through British interest in India, a few of the Cashmere goats, in order to ascertain whether the breed could be naturalized in this country, and the gold medal of the Society had, for some years, been offered with the same view, in order to keep the public attention fixed on the subject. It is to France, however, that we owe the first successful attempt to bring over the goats to Europe, and to rear them. Two agents, MM. Fernaux and Jaubert, were sent out by the French government, about twenty years ago, to Persia, for the purpose of making purchases of goats in the north-eastern provinces of Persia, and bringing them to Europe. A considerable number of these animals was procured, and although many of them died in their long and wearisome march to the Black Sea, and in their passage thence to France, yet a certain number survived, and were brought to Paris in the year 1823.

Mr. Tower, happening to be in Paris at the time of the arrival of the goats, succeeded in purchasing four of them, two males and two females, and in conveying them safely to his residence in Essex. In the park at

Weald Hall the animals continued in health, and multiplied steadily, the number having increased to twenty-seven by the year 1828. The goats showed no impatience of cold, and were very healthy, requiring only the occasional shelter of a shed in very rough weather. In spring, summer, and autumn, they grazed like sheep, and were fed during winter with hay and refuse vegetables from the garden; but their favourite food was the *gorse*, (*Ulex Europæus*), which they devoured eagerly, without being annoyed by its prickles.

The coat produced by these goats is a mixture of long coarse hair and of short fine down. The down begins to be loose early in April, and is collected easily and expeditiously by combing the animals two or three times with a comb such as is used for dressing horses' manes. A good deal of the long hair comes off at the same time, but this is afterwards carefully separated. The down produced by a male is about four ounces, and of a female two ounces. Two pounds of down, as it comes off the goat's back, is estimated as sufficient to make one shawl, fifty-four inches square, and it will therefore require ten goats, male and female, to furnish materials for one shawl. Mr. Tower, in 1828, had three shawls made of the down produced by his goats, the yarn being spun by Messrs. Pease, of Darlington, and the shawls being woven by Messrs. Miller and Sons, of Paisley. One of these shawls was examined by the Committee of Manufacture, of the Society of Arts, and was found to be superior to others made of the French shawl-goat down, taken from the progeny of the goats brought over from Persia. This shawl, together with a pair of the goats, were subsequently presented by Mr. Tower to his late Majesty, King William the Fourth, as a memorial of the success which had attended this attempt. In the year 1833 Mr. Tower, in a letter to the Society of Arts, speaks of the progress of his flock in the following terms:—

As to my flock of goats, I have to report most favourably of its increase in point of numbers, and good condition. I have now upwards of fifty, and should in fact have had considerably above sixty, had I not lost ten or a dozen early last summer, from the injudicious supply given to them, in my absence from home, by the party attending them, of large quantities, which proved too succulent, and caused a loss to the above extent, by diarrhoea. The very small produce of the pure Thibet wool rendered it almost hopeless (as the quantity has not been found to be increased in this country) that they could be made to pay as an article of profit. When it is considered, however, that the first crop of the Angora quintuples the quantity, and promises rather to improve the adaptation of it to the manufacture of shawls,

we have only to import the Angora females, and the object is attained, whether for cultivation in this country, or export to Australia.

From the foregoing details we may gather, that although the Cashmere goat appears able to thrive in England, yet the small quantity of down yielded by each goat will render the manufacture unprofitable as a commercial speculation. We turn, therefore, to the subject alluded to in the last sentence of Mr. Tower's letter.

Mr. Riley, a gentleman many years resident in New South Wales, directed his attention to the best means of establishing a growth of fine wool in that country; and in pursuance of this object he transported to that territory, in the year 1825 and 1828, two flocks of the finest Saxon sheep procurable in Germany. The result proved favourable, for the wools of New South Wales, derived from those flocks, became eagerly purchased by manufacturers who were able to appreciate their excellence. Encouraged by this success, Mr. Riley next contemplated the introduction into the colony of the Cashmere goat, anticipating a result both favourable to himself and ultimately advantageous to the country generally. The son of this gentleman thereupon directed his attention towards the purchase of some of the Cashmere goats which were known to be then existing in France, the result of the mission of MM. Ternaux and Jaubert.

Mr. Riley, on inspecting the flock of Cashmere goats under the care of M. Ternaux, found that the quantity of down on each goat was so extremely small—not averaging above three ounces—that he deemed the animal wholly unfit for the object in view. The project of sending over some of these goats to Australia was therefore abandoned. Mr. Riley, however, was recommended to visit the flock of M. Polonceau, at Versailles, a gentleman who has succeeded in introducing an important improvement in relation to this subject. M. Polonceau was among the first to purchase a chosen selection of the Cashmere goats brought over by Ternaux; and having accidentally seen an Angora goat whose hair had an extraordinary silky appearance, resembling long, coarse, but very soft down, the idea struck him that from these two varieties of goat there might result a third variety possessing in many respects the joint qualities of the other two. The Angora goats were a peculiar breed introduced into France a few years after the introduction of the Cashmere goat. M. Polonceau made the necessary arrangements for testing the correctness of the idea which he had formed; and he had soon the pleasure of seeing springing up around him a little progeny of Cashmere-Angora goats, whose coats contained a considerable quantity of long, fine, soft, and glossy down, in every respect fitted for the purposes of shawl-weaving. In 1826, the Société Royale et Centrale d'Agriculture de Paris, acquainted with the interesting result of M. Polonceau's flock, being at that time in the third generation; and considering that the down of this new race was more valuable than those of the East, and that it was the most beautiful filaceous material known, as it combines the softness of Cashmere with the lustre of silk, awarded him their large gold medal.

M. Polonceau sold four of his goats to the King of Wurtemberg, for the sum of 3400 francs; but as he was not willing at that time to dispose of any more of his flock, Mr. Riley returned to England without effecting any of his projected purchases. At a subsequent period, however, this gentleman succeeded in obtaining from M. Polonceau ten female and three male Cashmere-Angora goats, which were safely conveyed to England for shipment to Australia. We believe those animals were forwarded to their Eastern destination; and that it was intended, not only to rear this valuable variety of the goat, but also to produce another variety, intermediate between, or combining the joint properties of the

Cashmere-Angora goat, and the common goat of Australia.

Mr. Riley's communication to the Society of Arts, at the time he received a gold medal for his importation of the Cashmere-Angora goats into this country was made we believe about the time when the goats were about to be shipped off to Australia; and as we are not acquainted with the result of this interesting experiment, we will state briefly a few particulars respecting the down, resulting from M. Polonceau's experience.

M. Polonceau has goats which have yielded as many as thirty ounces of down in one season, and he states that the whole of his herd produces on an average from twelve to twenty ounces each, thus showing the great advantages which this breed has over the pure Cashmere, which never yield more than four ounces, and frequently not more than two ounces of down per goat. M. Polonceau states that the Cashmere-Angoras are more robust and more easily nourished than the common goat, and that they are less capricious and more easily conducted in a flock. They prefer the leaves of trees, as do all other goats, but they thrive either on hay or straw, or green fodder, or in meadows. They also feed with equal facility on heaths, and on the most abrupt declivities, where sheep would perish. For the first year or two of M. Polonceau's experiment he thought it prudent to give them aromatic herbs from time to time, but he afterwards deemed a continuance in that course unnecessary. During the course of six or eight years he could never discover any particular disease to which the goats were liable, for they continued in robust health.

The down commences to grow on the goat's back in the month of September, and develops itself progressively until the end of March, when it ceases to grow, and detaches itself naturally, unless artificially removed. To collect the down, M. Polonceau waits for the period when it begins to detach itself, and then the locks of down which separate from the skin with little force are taken off by hand. The down is taken from the animals every three or four days. In general it first begins to fall from the neck and shoulders, and in the following four or five days from the rest of the body. The collection is completed in the space of eight or ten days; sometimes the entire down can be taken off at one time, and almost in an unbroken fleece. The whole of it can also be removed from the animal at one shearing when it begins to loosen. The shearing has the advantage of preserving more perfectly the parallelism of the individual filaments, which much increases the facility of combing and preparing the down for manufacture.

Both as regards England, considered as a manufacturing country, and Australia, as a country whose resources are only just beginning to be developed, we deem the further prosecution of the experiments briefly detailed above to be a matter of considerable importance, and well worthy of the attention of those who are favourably placed for prosecuting them.

We are but too apt to consider things in the state in which we find them, without sufficiently adverting to the causes by which they have been produced, and possibly may be upheld. Nothing is more certain than that our manners, our civilization, and all the good things which are connected with civilization, have, in this European world of ours, depended for ages upon two principles; and were indeed the result of both combined; I mean the spirit of a gentleman and the spirit of religion. The nobility and the clergy, the one by profession, the other by patronage, kept learning in existence even in the midst of arms and confusion, and whilst government was rather in their causes than formed. Learning paid back what it received to nobility and priesthood, and paid it with usury, by enlarging their ideas, and by furnishing their minds—
BUCKE.

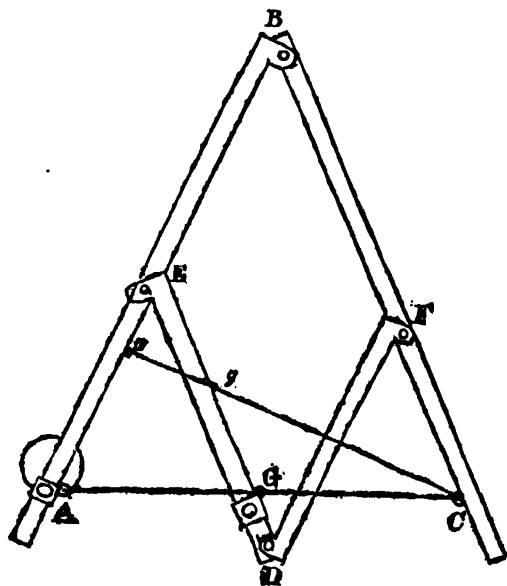
THE PANTOGRAPH.

THE Pantograph is an ingenious and useful instrument, employed by architects, draughtsmen, surveyors, and others, for copying drawings, either on the same scale as the original, or in any given proportion to it, larger or smaller.

If we have a representation—say, of a building; and wish to make another copy of it on a separate piece of paper, and on a similar scale, we can do so by the aid of ordinary drawing instruments, such as a scale of inches and parts of an inch, a pair of compasses, a protractor or setor for measuring angles, a parallel-ruler, a square, &c. But, when a copy is to be made, for instance, only one-half or one-fourth the size of the original drawing, the difficulty becomes much increased, because every line, long or short, vertical, horizontal, or diagonal, must be reduced in the just proportion. It is to meet such cases as these, that the instrument called a PANTOGRAPH has been invented; its name is derived from the Greek, and implies a *universal describer*; and we proceed to the principle on which this instrument acts.

AB, BC, DE, DF , (fig. 1,) are, respectively, four straight rods, jointed or hinged together at the corners in such a manner as to form a parallelogram, $BFDE$, all the angles of which are capable of altering with a very slight moving force. The joints are made with great care, in order that one ruler or rod may slide round on the other with ease and regularity. In instruments of the best construction, there is a small metal cock screwed to the lower bar of each joint, which supports the upper end of the axis upon which it turns.

Fig. 1.



Suppose the drawing, and the copy to be made from it, to occupy separate pieces of paper: then the two papers are laid flat down on a table, side by side, and the instrument is made to traverse the surface of both of them; a pointed tracer being made to pass over and along every line in the original draught, and a pencil being at the same time employed in drawing similar lines on the copy-paper. The intention of the instrument, then, is to produce lines, by the pencil, exactly similar in position, and bearing a certain fixed proportion, to the lines followed by the tracer. These purposes are effected in the following ingenious manner.

At the point c , in the bar BC , is fixed a small tube, intended for the reception of a tracer or tracing-point; the tracer being so fitted into the tube as to move freely within it, but without shaking. The bars AB and DE are each provided with tubes, shaped somewhat similar

to that at c , but attached to a little apparatus which is capable of sliding along the bar, and of being screwed firmly to it at any desired part of its length. The difference between the tube at c and those at G and A is, that the former is for the reception of a tracing-point, and each of the latter for the reception of a pencil; also, that the former is fixed, while each of the latter is moveable along the bar to which it belongs. The pencil, placed in one of the tubes G, A , has frequently a little cup at the top, for the reception of weights to keep the pencil down upon the paper when the instrument is in use. The circular piece seen at A is a flat leaden weight with a brass stem rising from it, which fits in the tubes, in the same manner as the pencil or the tracing-point. This leaden weight has three or four fine points on its under surface, to keep it from shifting upon the paper: and under whatever tube it is placed, it forms a fulcrum, round which the whole instrument moves. The little weights in the cup at the top of the pencil keep the latter pressing down upon the paper, in a position to make a pencil mark whenever the instrument is moved; but, whenever it is desired to lift the pencil from the paper, it can be effected by the following means:—A silk cord is attached to the pencil stem, carried through eyes made for the purpose at the joints E, B , and F , and fixed in a notch at the upper part of the tracer; so that when the silk cord is pressed down by the thumb, the pencil is immediately lifted from the paper.

Such being the arrangement of the instrument, let us assume that the drawing is to be copied on the same scale as the original, all the lines of the one being of the same length as the corresponding lines of the other. Then, the point c , where the tracer is placed, being permanent, the two tubes A and G are slid along their respective bars until the points A, G , and c are all in a straight line, and the distance AG is equal to the distance cG , that is, until the tube G is exactly midway between A and c . The pencil is then fixed in the tube A , and the leaden weight is attached to the tube G . In this mode of arrangement, every part of the instrument revolves round G as a centre, the tracer c passing in contact with the lines of the drawing, and the pencil passing over the paper which is to receive the copy. Then whatever line the tracer c be made to pass over, the pencil at A will make a similar and equal line. That the line will be equal is demonstrable from the mathematical construction of the instrument; for, if the line BE be in the first instance equal to DE , and DE be equal to BF , then BE is equal to BF , and will remain so, however the four angles may be altered. In our diagram B and D are acute angles, and EF obtuse; but, if the reverse of this were the case, the whole figure would still form a parallelogram. Neither is it necessary that all four sides should be of equal length; for if opposite sides are equal, *i.e.*, BE equal to DF , and DE equal to BF , the parallelogram will still be preserved. It would be somewhat tedious to follow out the mathematical reasoning by which it is shown that the lines drawn by the pencil are equal in length to those gone over by the tracer; but it will not be difficult for a reader, who knows a little of geometry, to trace the consequences, first, of the parallelism of the opposite bars of the frame $BFDE$, and, secondly, of the position of the fulcrum G , half-way between the tracer c and the pencil A .

In the next place, we will assume that the copy is to be exactly one-half the dimensions of the original drawing. The arrangement of the instrument will then be such as is represented in our diagram, where the leaden weight, which constitutes the fulcrum—or rather indicates the position of the fulcrum—is attached to the arm AB at the point A , instead of being attached at G . The fulcrum and the pencil have, in fact, changed places, without any change being made in the relative distances of A from G , and of G from c . The instrument, turning

round A as a fulcrum, leads to this necessary result, that the point C, to which the pencil is attached, moves through only one half of the space which the point C traverses in consequence of the distance being only half as great from A as C is from A. Whatever length of line, therefore, the tracer C passes over, the pencil C will describe a line of just half that length. Here, then, the required effect is produced; for the maintenance of parallelism in the opposite bars is just as certain here as in the former case; and the copy resulting from the action of the instrument will exactly resemble the original, on a scale one-half the size. It is necessary to observe, however, that, when the pencil is between the fulcrum and the tracer, as in the present instance, the copy is seen in the right direction or position; but, when the fulcrum is between the pencil and the tracer, as in the former instance, the copy is reversed, the right hand side of the original being represented at the left hand side of the copy, and *vice versa*.

As a third example of the action of the instrument, let us suppose that the copy is to be on a scale only one-fourth of that of the original; in such case the pencil C will still be between the fulcrum and the tracer, but both pencil and fulcrum will be moved and adjusted to different positions on the bars to which they respectively belong. The adjustment must be such, that while C, G, and A,—the tracer, the new position of the pencil, and the new position of the fulcrum,—are all in a right line, the distance from A to C shall be four times as great as the distance from A to G; or, which amounts to the same thing, the pencil shall be only one-fourth as far distant from the fulcrum as the tracer is. Bearing in mind what has been before stated, it will be understood that all the lines which are drawn by the pencil will now be just one-fourth of the length of the corresponding lines in the original.

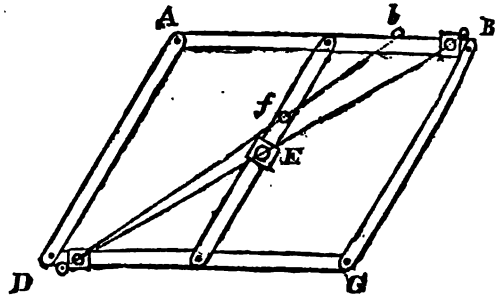
Any other proportion may be chosen in a similar way, and the instrument adjusted to that proportion by this formula;—As the distance of the pencil from the fulcrum is to the distance of the tracer from the fulcrum, so is the size of the copy to that of the original. But in using the pantograph it is seldom necessary to make any calculation in this respect; for the arms to which the pencil and the fulcrum are attached are so graduated as to comprise all the proportions likely to be required in practice.

The instrument is supported on six castors, one under each joint, which move freely over the surface of the paper, and give the joints a facility of adjusting themselves to the motion of the pencil. But, however carefully the instrument may be made, it is difficult to use, on account of these numerous joints and castors, which, while they make the instrument heavy for the hand, also render it difficult to mark the minute and gently curving lines, which often require to be copied.

To remedy in some respects these defects, a pantograph has been constructed of the form represented in the annexed cut (fig. 2.) Here we see five bars, moving freely on each other by means of six joints. F is the fulcrum, attached to the central cross-bar, and capable of sliding along it to any one of a scale of divisions engraved on the bar. D is the tube which carries the tracer, and B a moveable tube carrying the pencil. Then, supposing a copy has to be made the exact size of the original, the fulcrum is screwed down exactly at the centre of the cross-bar, as in the diagram; and the pencil B is so adjusted that D F and B shall all be in one straight line. The construction of the instrument involves, as a consequence, that the fulcrum will be exactly midway between the other two points; and, as a second consequence, that the lines drawn by the pencil shall be just as long as those gone over by the tracer. If the copy is required to be only half as large as the original, the fulcrum F is slid up to f, twice as far from the bottom of the bar as from the top; and

when the pencil B is adjusted to the position b, where it will be in a right line with D and f, then the distance f b will be equal to one-half the distance f D, and the lines of the copy will be only one-half as long as the corresponding lines of the original.

Fig. 2.



It is obvious at a glance that this instrument is more simple in its construction than the former, principally from the circumstance that the fulcrum is always attached to the central bar. When the copy is to be of the same size as the original the fulcrum is fixed midway between the tracer and the pencil; when it is to be larger than the original, the fulcrum is to be nearer to the tracer than to the pencil; when smaller than the original, the fulcrum is to be nearer to the pencil than to the tracer.

Our home is not in this mortal clime.
Our life hath not its bounds in time;
And death is but the cloud that lies
Between our souls and paradise.

MANY persons deprecate the study of the older authors on scientific subjects, as a waste of time and mental energy. To a certain extent, this is correct. To seek in them for that knowledge which they had no means of attaining, would be obviously absurd. No one expects to find a microscopical description of the tissues of the organized body before the era of the invention of that instrument. But it will often occur that men of original views suggest thoughts which they have no power of following out,—which, are, in fact, in advance of their time; and these may be profitably taken up at a subsequent period. Moreover in those departments in which the phenomena are constantly presenting themselves to inspection, an acute observer will frequently seize almost intuitively the essential details, and transmit to posterity accounts of them which may be highly valuable as bases for further inquiries. Thus the descriptions of diseases, founded on symptoms alone, left us by Hippocrates, were probably not surpassed by those of any other physician down to the time of Sydenham; and the descriptions of various species of animals, including not merely their external form, but their internal structure, which were drawn up under the direction of Aristotle, if not actually by him, would, if attended to by subsequent naturalists, have saved them from many errors, some of them egregious ones. We by no means recommend the study of bygone authors to those who desire merely to acquaint themselves with the present state of the science they are pursuing; since to them it would be generally a misemployment of time. But on those who are pursuing the path of original inquiry in any department upon which the means of investigation were within the reach of their predecessors, we would urge a careful research into their contributions, whether of fact or opinion, as a matter of interest as well as of duty. They will frequently thus be able to start from a more advanced position; they will often receive valuable assistance in their progress; and, when they have completed their work, they will be able to reply more successfully to the attacks of those who represent their discoveries as "nothing new."—*British and Foreign Medical Review*.

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THE SPANISH TINKER, FROM MURILLO.

MURILLO AND HIS WORKS.

II.

THE most interesting period in the life of a man of genius, is that which includes the struggles of his earlier years: we follow him through all the difficulties of his career, and our sympathy is so much excited that we almost feel our own destiny to be united with his. We rejoice at his success; sorrow at his hopes deferred; but we experience a feeling somewhat akin to disappointment, when, having attained the object of his desires, his life moves on unchequered. We sigh for more adventures; and because we look for the false excitement of romance in the soberness of biographical truth, we often cease to be interested in the remaining chapters of a life which no longer deals in stirring events.

The "gentle Murillo" appreciated too well the pleasures of calm and studious retirement to furnish the materials of personal narrative to his biographer. Our artist having attained that distinction which he merited, has recorded his life in his works, and to them we must now refer for the completion of our sketch; but so numerous are the pictures of this great man, that the notice of a very brief selection must suffice: the reader, at all interested in the subject, will not find it difficult to obtain a view of several of Murillo's pictures contained in many of the Galleries of England, especially Dulwich Gallery, which is open to the public by means of tickets furnished gratuitously at the principal print shops.

It is probably a consequence of not studying in Italy that a national peculiarity of air, habit, and countenance, pervades all the pictures of Murillo: nothing of the academy is to be discovered in his groupes; all his Madonnas and Saints have the Spanish cast of features; and though he adopts a beautifully natural expression, yet there is generally a peasant-like simplicity in his ideas, holding a middle place between the vulgarity of the Flemings, and the elegant taste of the Italians. In his rustics we behold life itself, with a minute attention to costume. Many of his figures of the Saviour are of magic lustre and transparency of hue; but still there is a certain cast and expression of features which appear strikingly provincial to any one to whom Andalusian countenances are familiar. His Baptist and his Saints, particularly San Francisco Xavier, are noble and often sublime pictures; but the sublimity of Murillo neither forces nor enlarges nature; truth and simplicity always prevail; the painter presents what he sees, and not what he conceives. Herein he is distinguishable from his preceptor Velasquez: that great master, by his courtly habits and intercourse with the great, contracted a more proud and swelling character, to which the simple and chaste pencil of Murillo never sought to aspire; a plain and pensive cast, sweetly tempered by humility and benevolence, marks his canvass; and wherever his characters are impassioned, it is by the zeal of devotion—never by the guilty passions*.

One of the finest pictures of Murillo, viz., San Thomas, of Villa Nueva, distributing alms to the sick and the poor, was exhibited a few years ago at the exhibition of the Society of British Artists.

This fine picture (says Dr. Waagen) was formerly in the Church of the Franciscans, at Genoa. It is of the second period of the master, in which, after his return from Madrid with a lively recollection of the pictures of Velasquez, he united great fidelity to nature in the design, and precision in the single forms. The subject was a peculiarly happy one for Murillo. In the head of the saint, in which priestly dignity and gravity are admirably expressed, he has proved how equal he was to such religious subjects, from the legends of the monkish saints. The cripples and the sick afforded him, on the other hand, an ample field to show his skill in representations from common life, which we so highly admire in his beggar boys. The calm intellectual action of the saint forms a striking contrast with the lively

* See CUMBERLAND'S *Anecdotes of Eminent Painters in Spain*.

excitement of the distressed, whose whole consciousness is concentrated in their eagerness for the momentary satisfaction of their bodily necessities.

Murillo appears never to have quitted Spain,—he did not even make a second journey to Madrid: he was so much averse to pretension and display, that by the time he had attained his fifty-seventh year, his productions were scarcely known in that courtly city. But, in the year 1670, one of his pictures was exhibited there in the great procession of Corpus Christi, to the admiration and surprise of the whole court and city. The King, Charles the Second, invited Murillo to Madrid, and promised to appoint him one of the royal artists. But Murillo, whose love of retirement and attachment to his native city of Seville could not be superseded by any considerations of interest or ambition, excused himself from the proposal on account of his age. He was then requested to send to Court some specimens of his performances, equal in merit to the picture he had exhibited at the solemnity before mentioned, and was promised munificent rewards if he accepted the commission. Murillo could oppose no absolute excuse to this request, but at the same time evaded an immediate compliance by requiring a longer space of time for executing the commission than the impatience and curiosity of the king could dispense with. His majesty, therefore, employed an agent to buy up the pictures of Murillo, and thus some of the finest works of this artist found their way into the royal collection.

Murillo contributed largely to the adornment of the churches of his country. Among others, there is a fine picture at Seville, in the Christening Chapel of the Church of the Miraculous Paduan, representing the Saviour and St. Antonio under a glory of cherubims, the back ground giving the perspective of part of a temple; and by the side of the saint is a table on which is placed a jar with lilies, so accurately represented, that the monks relate the story of a small bird attempting to rest upon the flowers, to pick the seeds; a compliment which has often been paid to many an inferior artist, but which the monks enlarge upon with rapture. But, in the present case, it would be unfortunate if the fame of Murillo depended at all upon such a trifle, because the whole back ground of this picture, including the lilies, was put in by Valdez, a cotemporary artist.

To Murillo also is due the five grand compositions, exhibiting different periods in the life of Jacob. These pictures were originally in the collection of the Marquis de Villamaurigne. The first design was to embody the life of David with the landscapes or back grounds, by Ignacio Iriarte, of Seville, who excelled in that branch of the art. Murillo desired Iriarte to paint the landscapes, and he would afterwards add the figures: Iriarte, on the other hand, contended for Murillo's placing the figures before he filled up the back grounds:—to remedy this difficulty, Murillo executed the whole without Iriarte's assistance, taking Jacob's History instead of David's.

The character of Murillo and the termination of his life, are thus described by Mr. Richard Cumberland.—

Murillo was in his person graceful, of a mild and humble deportment, and an expressive handsome countenance; to the allurements of interest or ambition he was equally insensible; he resisted, as we have seen, the offers of Charles, and at his death was found possessed of one hundred rials, which he had received the day before, and sixty dollars in a drawer: he was in his seventy-third year, when mounting a scaffold to make a painting of St. Catherine, for the convent of Capuchins, at Cadiz, he fell and bruised himself so much as to bring on a violent increase of a disorder which already existed; but such was the delicacy of his nature, that being unwilling to expose his infirmity to the examination of a surgeon, he suffered in silence; and, after some days' anguish, a mortification taking place, with perfect composure he resigned a life, tinged with no other excess, but that of an inherent modesty, to which, having repeatedly sacrificed what is generally esteemed most valuable in life, he lastly gave up life itself.

THE PHILOSOPHY OF A PEG-TOP.

WE trust that our young readers will not be disposed to spin their tops with less zest when we assure them that this toy presents a very difficult problem to the Natural Philosopher: that the theory of its motions has engaged the attention of very eminent men, and that the questions arising therefrom are by no means satisfactorily answered. The boy who loves his peg-top because it is an ingenious toy, will, we hope, be taught by the present article to regard it with a higher degree of interest; and the man (if such there be) who despises the peg-top because it is a toy, will have an opportunity of learning that much philosophy may be gathered from childish things.

The simple contrivance whereby a top is set spinning, need not be particularly described. The string which is wound round the top and suddenly uncoiled with a jerking kind of action, has the effect of imparting circular motion to the top. Now circular motion is always the result of two forces, one of which attracts the body to the centre around which it moves, and hence is called the *centripetal* force; and the other impels it to move off in a right line from the centre, and this constitutes the *centrifugal* force. In all circular motion, these two forces constantly balance each other: if it were not so, the revolving body must evidently approach the centre of motion or recede from it, according as one or the other force prevailed. This is well illustrated by the action of a sling. When a stone is whirled round in the sling, a projectile force is imparted to the stone; but it is prevented from flying off on account of the counteracting or centripetal force of the string; the moment, however, that the string is unloosed, the stone ceases to move in a circle, but darts off in a right line; because, being released from confinement to the fixed or central point, it is acted on by *one force only, which always produces motion in a right line.*

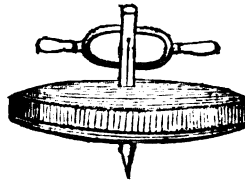
We need scarcely inform our young reader that it is impossible for him to set up his top so that it shall stand steadily on its point without spinning it. He can never keep the line of direction within its narrow base: but when the rotating motion is once established, there is no difficulty in preserving it for a time in its erect position. Why is this? When a top is spinning we have an example of circular motion round a central axis; and the more rapidly the top spins, the greater is the tendency of all its parts to recede from the axis; or, in other words, the greater is the centrifugal force: the parts which thus revolve may be regarded as so many powers acting in a direction perpendicular to the axis; but as these parts are all equal, and as they pass with great rapidity round the axis, the top is in equilibrio on the end of its axis, or point of support, and thus its erect position is maintained. But the top soon falls, on account of two great impediments to its motion; viz., the friction of the peg on the ground, and the resistance of the air. If the top could be made to revolve on a point without friction, and in a vacuum, it would continue to revolve for ever, and always maintain the same position. But as it is impossible to comply with these two conditions, let us see what results have followed the attempts to reduce the retarding forces as much as possible.

About the middle of the last century Mr. Serson contrived a top, which, instead of the usual pear shape of the common peg-top, presented a horizontal surface similar to what we should obtain by piercing the centre of a disk of wood with an axis or peg. The upper surface of this top was polished, and it presented, while spinning, a true horizontal plane. It continued to spin for thirty-five minutes. On being spun (after the manner of spinning a humming-top), on the table of an air-pump, and was covered with a glass receiver, from which the air was then removed, and the top continued to spin during the space of two hours and sixteen minutes.

Mr. Roberts, of Manchester, a few years ago made a

top which would spin in the air forty-two minutes. He made another top, and, in order to give it a neat appearance, covered it with lacquer; when he found it would not spin more than seventeen minutes; he removed the lacquer, and the top continued to spin as long as at first. He found that the lacquer, although it improves the appearance of surfaces, yet it imparts to them a vast number of minute roughnesses, scarcely, if at all, appreciable by the touch, yet sufficient to offer so much additional resistance to motion in the air.

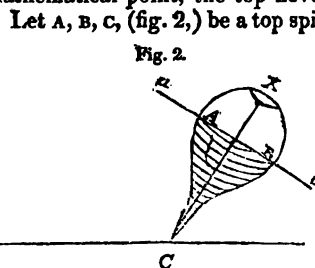
Fig. 1.



The accompanying figure represents a top made by Mr. Evans, of Swansea. Its shape is that of a disk of about four and a half inches in diameter, but rather thicker at the centre than at the edges: the central part through which the spindle passes is about an inch in thickness; and at the edge the thickness is about five-eighths of an inch. The top is put in motion like a common humming-top, by means of a yard of cord passed through the hole in the upright spindle. A rim of lead passes round the top and is inserted to the depth of about three-fourths of an inch. The steel peg on which the top spins is about seven-eighths of an inch long; it is not brought to a very fine point, because, in spinning, it is apt to drill a hole through the surface upon which it is placed. The spindle or axle is of wood, and nearly two inches long: the cord is wound tightly round this spindle; one person holds the two handles firmly, and a second draws out the cord to its full length. The cord should not be drawn out too rapidly at first, but with a speed gradually increasing. The best surface to spin it on would probably be a small agate cup, but, in the absence of this, we may employ a plate or saucer, over which a little oil has been rubbed. Mr. Evans says, "that by a simple contrivance, namely, sticking a knitting-needle through a reel of fine cotton, containing 250 yards, and attaching it to the top at full speed, I have been enabled to ascertain to a great nicety the speed of mine that spins forty minutes; the cotton was run off the reel in somewhat less than one minute; and from frequent trials, I find it makes no less than 4500 revolutions in the minute."

We will now return to the common form of the peg-top, and endeavour to explain the means by which the top is enabled to rise from the oblique position (which it always more or less assumes when first set spinning,) into the truly vertical position which produces the effect called *sleeping*, where the motion is so steady that it scarcely seems to move.

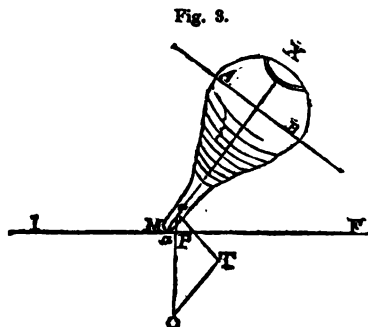
When the top is *sleeping*, its centre of gravity is situated perpendicularly over its point of support; but, in rising from an oblique to a vertical position, the top must have its centre of gravity raised. The force which effects this change has been a subject of contest in the philosophy of the peg-top, and we believe that Dr. Paris was the first to offer a satisfactory explanation thereof. He considers it to depend upon the form of the extremity of the peg, and not upon any simple effect connected with the rotatory or centrifugal force of the top. If the peg were to terminate in a fine, that is to say, in a mathematical point, the top never could raise itself.



Let A, B, C, (fig. 2.) be a top spinning in an oblique position, having the end of the peg C on which it spins brought to a fine point. It will continue to spin in the direction in which it reaches the ground, without the least tendency to rise into a more vertical position.

tion, and it is by its rotating or centrifugal force that it is kept in this original position: for if we conceive the top divided into two equal parts, A and B, by a plane passing through the line x c, and suppose that at any moment during its spinning the connexion between these two parts were suddenly dissolved, then would any point in the part A fly off with the given force in the direction of the tangent, and any corresponding point in the part B with an equal force in an opposite direction; whilst, therefore, these two parts remain connected together, during the spinning of the top, these two equal and opposite forces, A and B, will balance each other, and the top will continue to spin on its original axis. Hence the rotating or centrifugal force can never make the top rise from an oblique to a vertical position.

But in order to be satisfied that the change in position depends on the bluntness of the point, let A B C (fig. 3), be a top spinning in an oblique position terminating in a very



short point with a hemispherical shoulder P a M. It is evident that in this case, the top will not spin upon a, the end of the true axis x a, but upon P, a point in the circle P M to which the floor I F is a tangent. Instead, therefore, of revolving upon a fixed and stationary point, the top will roll round upon the small circle P M, on its blunt point, with very considerable friction, the force of which may be represented by a line, o P, at right angles to the floor I F, and to the spherical end of the peg of the top: now it is the action of this force, by its pressure on one side of the blunt point of the top, which causes it to rise in a vertical direction. Produce the line o P till it meets the axis c; from the point c draw the line c T perpendicular to the axis a x, and T o parallel to it; and then, by a resolution of forces, the line T c will represent that part of the friction which presses at right angles to the axis, so as gradually to raise it in a vertical position; in which operation the circle P M gradually diminishes by the approach of the point P to a, as the axis becomes more perpendicular, and vanishes when the point P coincides with the point a, that is to say, when the top has arrived at its vertical position, where it will continue to *sleep* without much friction, or any other disturbing force, until its rotatory motion fails, and its side is brought to the earth by the force of gravity.

There can be no doubt that this explanation is correct, and however difficult it may appear to the general reader, yet it is worthy an attentive consideration. The following remarks by Dr. Arnott will greatly tend to illustrate and simplify the theory of Dr. Paris.

While the top is quite upright, the extremity of its peg, being directly under its centre, supports it steadily, and although turning so rapidly, and with much friction, has no tendency to move from the place; but if the top incline at all, the *edge* or *side* of the peg, instead of its very *point*, is in contact with the floor, and the peg then becoming as a turning little roller, advances quickly, and describes a curve somewhat as a skater's foot does, until it come directly under the body of the top as before. It thus appears that the very fact of the top inclining, causes the point to shift its place, and to continue moving until it come again directly under the centre of the top. It is remarkable that even in philosophical treatises of authority the standing of a top is still vaguely attributed to *centrifugal force*. And

some persons believe, that a top spinning in a weighing scale, would be found lighter than when at rest; and others most erroneously hold that the centrifugal force of the whirling, which of course acts directly away from the axis, and quite equally in all directions, yet becomes, when the top inclines, greater upwards than downwards, so as to counteract the gravity of the top. The way in which centrifugal force really helps to maintain the spinning of a top is that when the body inclines or begins to fall in one direction, its motion in that direction continues until the point describing its curve, like the foot of a skater, has forced itself under the body again.

The gyrations of the peg-top depend upon the same principle as that which produces the precession of the equinoxes; viz., an unequal attractive force exerted upon the revolving mass. In the one case, this is known to arise from the action of the sun and moon on the excess of matter about the equatorial regions of the earth; in the other, from the parts of the top being unequally affected by gravity while it is spinning in an inclined or oblique position. Sir John Herschel says:—

The precession of the equinoxes consists in a real, but very slow motion of the pole of the heavens among the stars, in a small circle round the pole of the ecliptic. Now this cannot happen without producing corresponding changes in the apparent diurnal motion of the sphere, and the aspect which the heavens must present at very remote periods of history. The pole is nothing more than the vanishing point of the earth's axis. As this point, then, has such a motion as described, it necessarily follows that the earth's axis must have a conical motion, in virtue of which it points successively to every part of the small circle in question. We may form the best idea of such a motion by noticing a child's peg-top, when it spins not upright, or that amusing toy the te-to-tum, which when delicately executed, and nicely balanced, becomes an elegant philosophical instrument, and exhibits in the most beautiful manner, the whole phenomenon, in a way calculated to give at once a clear conception of it as a fact, and a considerable insight into its physical cause as a dynamical effect.

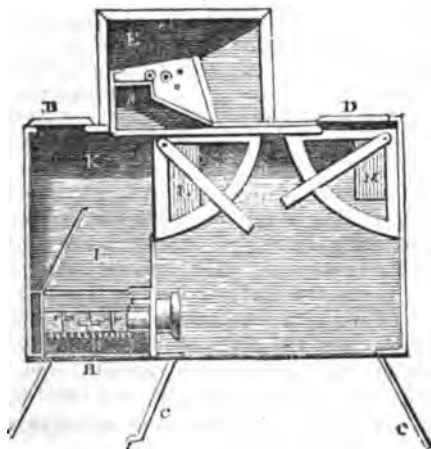
The following ingenious and useful remarks we borrow from Dr. Paris.

If a top could be made to revolve on a point without friction, and in a vacuum, in the case of its velocity being *infinite*, it would continue to revolve for ever, in the same position, without gyration. If the velocity were *finite*, it would for ever remain unchanged in position, in the event of the centre of gravity being directly over the point of rotation. In any other position (supposing its velocity very great, although not infinite) there would arise a continued uniform gyration, the line which passes through the point of rotation and the centre of gravity always making the same angle with the horizon, or describing the same circle round the zenith. But in all artificial experiments the circumstances are very remarkably changed; if, indeed, the centre of gravity happens to be situated perpendicularly over the point of rotation, the top will continue quite steady, or *sleeping*, as it is termed, till nearly the whole of its velocity of rotation is expended. In any other position the top begins to gyrate, but reclining at all times on the outside of its physical point of gyration, the top is uniformly impelled inwards, and this, (when the velocity is considerable, and the point broad,) acts with force sufficient for carrying the top towards its quiescent or *sleeping* point; but when the velocity is much diminished, this power becomes feeble, the gyrations increase in diameter, and the top ultimately falls.

As the peculiar office of man is to govern and defend society; that of woman is to spread virtue, affection, and gentleness through it: she has a direct interest in softening and humanizing the other sex. Man is too rugged to be even just towards those whom he only loves, but does not respect: he is too powerful to be swayed by those whom he only respects, but does not love. The empire of woman must be won, not solely through his sense of justice, but by the grace and delicacy, the tenderness and purity she diffuses through life; but her rights will neither add dignity to her social influence, nor bring practical security to her domestic station, except as they are found really to promote the virtue and happiness of society.—*Woman's Rights and Duties.*

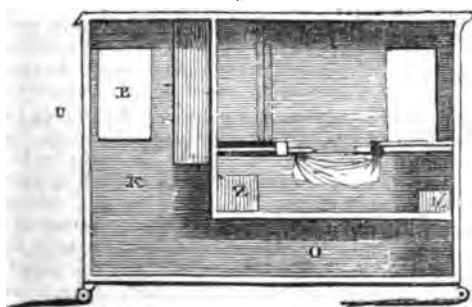
ON CHESS. No. XIV.
THE AUTOMATON CHESS-PLAYER. 2.

Fig. 3.



A horizontal section of the Chest, as seen from above.

Fig. 4.



A vertical section of the Chest.

WE propose on the present occasion to describe the external appearance and the mode of performance of the chess automaton, as detailed by M. Windisch soon after its first introduction to the public. The reader will fancy himself a visitor to M. de Kempelen's study, as described in our last article.

The first object that catches the eye on entering this room is the automaton, placed opposite the door. The chest to which it is fixed is three and a half feet long, two feet deep, and two and a half feet high. It stands upon four castors, by which means it may be easily moved from one place to another. Behind this is a figure, the size of life, dressed in the Turkish fashion, seated in a wooden chair, attached to the chest, and which moves with it when it is wheeled about the room. This figure leans with its right arm upon the table, and in its left hand holds a Turkish pipe, in the attitude of a person who has just been smoking. It plays with its left hand,—a circumstance which the inventor says was due to his own inattention, and not discovered until the work was too far advanced to rectify it. "But what does it signify," asks Windisch, "whether Titian painted with his left hand or his right?" Before the automaton is a chess-board, screwed down to the table, to which its eyes are constantly directed. M. de Kempelen opens the front door of the chest and takes out the drawer at the bottom. The chest is divided by a partition into two unequal parts: that on the left hand is the narrower; it occupies little more than one-third of the chest, and is filled with wheels, cylinders, levers, and other pieces of clock-work. In that on the right are also seen some wheels, spring-barrels, and two horizontal quadrants. There is also a box, a cushion, and a tablet, on which are traced some characters in gold. The inventor takes out the box, and places it on a small table standing near the machine: he also removes the tablet, which is to be placed on the chess-board as soon

as the game is over, to enable the automaton to answer such questions as may be put to him.

In the drawer above-mentioned are red and white chess-men on a board, with which they are taken out and placed on the side of the chess-board. There is also a small oblong box, containing six small chess-boards, each showing the end of a game. Any one of these situations being set up on the automaton's chess-board, he undertakes to win, whether he play with the red or the white men.

In showing the interior of the machine the inventor not only opens the front but also the back doors of the chest, by which the wheel-work becomes so exposed as to afford the most thorough conviction that no living being can possibly be concealed; and in order to make this exposure more complete, the inventor generally places a wax light in the chest, so as to illuminate every corner of it. He then lifts up the automaton's robe, and turns it over his head, so as to display the internal structure, which consists of levers and wheel-work, of which the body of the automaton is so full that there is not room to hide a kitten. Even his trousers have a little door in them, which is opened to remove even the shadow of suspicion.

M. de Windisch assures us that the inventor does not shut one door as soon as he opens another,—“no, you see, at one and the same time, the uncovered automaton, with his garments turned up; the drawer and all the doors of the chest open.” In this state the inventor moves it about, and submits it to the inspection of the curious.

After allowing sufficient time to examine it closely he shuts all the doors, and places it behind a balustrade, which prevents the company from shaking the machine by leaning upon it while the automaton is at play, and leaves room for the inventor to walk about, and approach the cupboard on either side, but he never touches it except to wind up the works. He then introduces his hand into the body of the automaton, in order to arrange the movements properly, and concludes by placing a cushion under that arm of the automaton with which he plays.

The inventor places the little box (before spoken of) on a table near the machine: there is, however, no visible communication between the automaton and the table or the little box; but while the automaton is playing, the inventor frequently opens this box, to examine its contents, which are unknown to the company. It was generally supposed that this box was merely a plan calculated to distract the attention of the spectators, but the inventor assured M. de Windisch that it was so indispensable that the automaton could not play without it.

We are now prepared to see the machine play. When the automaton is about to move he lifts his arm leisurely, and directs it to the piece which he intends to play: he suspends his hand over it,—opens the fingers,—takes it,—places it on the proper square,—and again removes his arm to the cushion. In capturing a piece he first removes his adversary's man, and then substitutes one of his own. A slight noise of wheel-work, somewhat resembling that of a repeater, is heard during every move of the automaton. This noise ceases as soon as a move is made and the automaton's arm replaced on the cushion; and not till then can the adversary make a fresh move. The automaton always claims first move, and moves his head so as to look over the whole board whenever the adversary makes a fresh move. He nods his head twice when the adverse queen is attacked, and thrice when check is given to the king.

If the adversary makes a wrong move, the automaton shakes his head, returns the piece to the square from which it had moved, and then plays his move; so that the adversary loses his move as a punishment for his inattention or wilful mistake: this often happens, from a desire on the part of the player or the company present,

to see the automaton detect a mistake, and take advantage of it. This condition is one among others which facilitates the winning of games by the automaton.

The inventor requests those who play with the automaton to be careful to place the pieces exactly in the middle of the squares, lest the automaton in opening his hand to take the piece should miss it, or receive some damage. A move once made on either side is not allowed to be retracted.

The machine cannot make above ten or a dozen moves without being wound up again; but it is evident that the simple operation of winding up the springs of the arm of the machine can produce no other effect than that of restoring to it the *vis motrix*, without having any influence on its *vis directrix*. In this latter quality consists the principal merit of the machine, and here also lies the mystery: for the operation of winding up is the only one the inventor is seen to perform, and this the only time when he touches the machine. Mathematicians of all countries have examined it with the most scrupulous attention without being able to discover the least trace of its mode of operation.

I have frequently been in the apartment, (says Windisch,) where the automaton was at play, with twenty or thirty more persons, who kept their eyes rivetted on the inventor. We never saw him approach within two or three yards of the machine, nor do we see him look occasionally into the box before mentioned; nor ever betray himself by the least motion which to us appeared capable of influencing the machine in any shape whatever.

To show also that magnetism has nothing to do with the movements of the chess automaton, the inventor permits any one to place the most powerful magnet on the machine.

The automaton also performs the feat of moving the knight over the sixty-four squares of the chess-board in as many leaps. One of the spectators places a knight on any square: the automaton immediately takes it, and observing the knight's peculiar move, begins at the square occupied by the knight, and causes the piece to cover the sixty-four squares in the same number of moves without missing one, and without touching one square twice: this is ascertained by one of the spectators putting a counter on each square he touches.

Such, then, is an account of the appearance and performances of the chess automaton, as exhibited soon after its first invention. We have given our description in the present tense, as being better calculated to afford the reader an idea of the extraordinary sensation caused by this very remarkable machine.

Of all his inventions M. de Kempelen prided himself least on his automaton chess player. He frequently spoke of it as a mere trifle, and though considering it merely as a machine, (without reference to the plan adopted for putting it in motion,) it certainly possessed some mechanical merit, yet that the greater part of the reputation it had acquired was owing to a happy deception.

M. de Kempelen was far from coveting the celebrity which his automaton obtained for him, nor did he desire that it should be considered as a prodigy. He wished it to be understood that the wonderful effects of his machine were due to a certain boldness of thought on his part, and a happy choice of means employed in the deception. He was unwilling to part with his secret, and refused considerable offers made to him by persons who hoped to make their fortune by exhibiting it. He even threw aside the automaton in order to devote his mechanical abilities to new researches and inventions of a more serious nature, and more calculated for public utility; and although frequently visited by travellers from different countries, who wished to see his famous automaton, he declined showing it, stating that it had received damage in being moved about from place to place. He had, in fact, partly taken it to pieces, and left it for some years in a dilapidated state, in which condition it would

have remained, but for the following circumstance:—the Grand Duke Paul of Russia, with his consort, under the travelling titles of the Count and Countess du Nord, paid a visit to the Emperor Joseph the Second, at the Court of Vienna, who, wishing to gratify as much as possible his distinguished guests, bethought himself of de Kempelen's machine. In compliance, therefore, with the desires of his sovereign, de Kempelen got the automaton into working order within the space of five weeks. It excited the greatest surprise and admiration in the minds of the Count and Countess, who, as well as the principal nobility, advised the inventor to send it to some of the chief cities of Europe. The emperor approved of this plan, and gave de Kempelen leave of absence for two years for that purpose. The chess automaton was therefore despatched on its travels. In 1783 it first appeared at Paris with the greatest applause: it was beaten at chess by the professors at the Café de la Régence, but this circumstance by no means detracted from the merit of the machine, if such we may call it; nor did it tend to elucidate the mystery which was the grand cause of the excitement, which everywhere attended the presence of this automaton.

De Kempelen found the automaton so profitable an exhibition in Paris that he determined to visit London, where we hope to find him in our next article at No. 8, Savile Row, Burlington Gardens.

IN no province of science, in no part of the vast and diversified scenery of nature, are the various attributes of God more wonderfully and impressively displayed than upon the bright field of astronomy. In the contemplation of the brilliant scenery of the starry heavens, the man whose mind is stored with the rich and varied results of modern discovery has an advantage over those who are uninitiated into these sublime mysteries of nature, attended with correspondent obligations of piety and devout admiration. When an ignorant and uninstructed person looks up to the ethereal concave, he sees nothing but a vast canopy mantling the globe on which he dwells, and studded with so many spangling points. To him it is nothing but a scene of gay confusion, in which he can discover no law beyond that of a periodical appearance above the horizon, nor conceive any end suitable to the variety and the magnitude of the means which seem to have been employed. But the man of science sees with other eyes; he looks up to that glorious theatre of wonders, which has been spread above him and around him, with other notions, and, unless his mind be blinded by prejudice, and incased in impiety, he cannot fail to be led to other reflections. Where the untaught eye saw nothing but a promiscuous assemblage of twinkling lights, he beholds the most perfect regularity, harmony, and order. Where the ignorance of the former could perceive only the dispositions and arrangements of chance, his knowledge can trace the footsteps of the most consummate design. To his enlightened vision the speck enlarges into a world, and the spark swells into a luminary. While conducted by the hand of science, he ranges over the fields of ether, and follows the planets in their course; while he contemplates these vast bodies wheeling through the sky, under the influence of a combination of forces, which can be reduced to the laws of the most rigid demonstration, spinning each upon its own axis, and at the same time travelling with inconceivable velocity along its orbit; while he passes on from star to star, from system to system, the centre of one being probably only a planet moving with its attendant satellites around some more distant centre: and when the line of scientific observation having now failed him, his imagination takes the helm and conducts him among those remoter worlds, which as he advances are found to rise in thicker clusters over the face of the abyss; while he is engaged in this voyage of discovery, or rather in this tour of observation over the manifold works of God, at every step must be rising higher his conceptions of the power and majesty, of the wisdom and goodness of that Being, the very threshold of whose dominions he has scarcely been able to pass. Overwhelmed with the immensity and variety of the objects of his contemplation, he sinks down in the conscious acknowledgment of his littleness, and seeks repose to his wearied faculties in the homage of silent adoration.—DAVIES'S *Harvardian*.

BEEF-ROOT SUGAR.

1. THE VARIETIES AND CULTIVATION OF THE BEET.

We often find that plans formed by individuals for the gratification of their own private ends lead to results which they little contemplated, and which frequently tend to the public good; thus, Bonaparte, influenced by bitter hatred towards England, strove to cripple her commerce by endeavouring to render France quite independent of the British colonies in obtaining a supply of the necessaries of life. One of his plans was to obtain sugar from *Beet-root*, and although the feeling with which this plan was prosecuted has long since passed away, yet the results of numerous experiments made in conformity with it belong to the cause of science, and can neither be forgotten nor despised.

Nearly a century ago, Margraf, a German chemist, found that sugar may be obtained from the white beet-root in greater quantity than from any other European plant. Achard and other experimentalists subsequently investigated the subject, with a view to determine the best mode of obtaining sugar from the beet. It will, therefore, be desirable to preface our notice of this branch of industry with a brief account of the principal varieties of the beet, in order to indicate the qualities in which the white variety differs from the others.

The botanical name for beet is *Beta*, so called from the resemblance which the plant is thought to bear, while the seed is swelling, to the form of the Greek letter β . It is ranked among the class *Pentandria*; order *Digynia*. There are three or four species, each of which presents several varieties. The *Beta cicla*, or common culinary beet, includes the common green-leaved beet, the large white beet, and the chard, or great Swiss beet. The *Beta major*, or *Great German Beet*, commonly called *Mangel-wurzel*, presents the dark-green-leaved, the light-green-leaved, and the red-veined-leaved varieties. Lastly, there is the *Beta rubra*, which includes the common red beet and two or three other varieties nearly allied to it. The principal features presented by these three species are the following:—The *Beta cicla* has a small oblong white root; producing from its crown many large, oblong, succulent leaves, on broad foot-stalks, and erect branching seed; stems two or three feet high, garnished with close setting leaves, and long spikes of greenish flowers, which are succeeded by plenty of ripe seed in autumn. The *Beta major* has a large, long, reddish, or sometimes whitish-red root; and very large, oblong, thick, succulent, leaves. The *Beta rubra* presents a large red eatable root, crowned by many large, oblong, reddish-purple leaves; and when it shoots, sends up erect stalks and branches, terminated by long spikes of flowers and seed.

The purposes to which these varieties of beet are applied, or rather, we should say, the modes in which they have been applied as food, are many. In some instances the root itself is cut up and eaten; in others, the stalks and mid-rib of the leaves are stewed and eaten like asparagus; in a third kind the leaves, being large and succulent, are occasionally used in the manner of common beet, and particularly to boil as spinach, or to put into soups. As food for cattle, the variety termed *mangel-wurzel* has been much used of late years; and the reader may frequently see, on the pier or quay of Hungerford market, immense heaps of this root, landed from barges and vessels, for the London market.

It does not form part of our plan to extend farther the notice of beet generally; but we shall now proceed to the consideration of the mode in which one particular variety of the plant is cultivated, for the production of sugar. The researches of Achard and Gottling have combined to educe a regular and systematic train of operations.

Achard recommends that the soil for the growth of the beet should be one in which wheat has been grown. A

low situation, not exposed to great or lasting drought, is to be preferred. The ground should be ploughed thrice over, and as deep as the nature of the soil will admit. Immediately after the third ploughing, which should be done in April or the beginning of May, the ground is to be brought smooth by the harrow; and by means of a rake, whose teeth are distant from nine to twelve inches, lines are to be traced along the surface. Then, by drawing the rake in transverse lines across these, the ground becomes divided into squares, measured by the distances of the rake's teeth. Into each intersecting point of the lines thus drawn, one capsule containing several seeds is to be inserted, to the depth of an inch; a process which may be easily attended to by children. When the plants have germinated and six or eight leaves are formed, the ground must be weeded, and if the young plants be too much accumulated on a particular spot, the superabundant ones are to be pulled out. After the ground has been once cleared of the weeds, the plants grow up so speedily, that their leaves soon completely cover the ground; and thus absolutely prevent the growing of any more weeds. In consequence of this circumstance, an acre of ground cultivated with beet occasions no more trouble till the time of gathering; which circumstance greatly facilitates the cultivation, because the time of the cultivator, who is then busied in his corn harvest, is not required to be at all employed on this object.

Respecting the choice of seed, care must be taken that it be not obtained from roots which, after their germination, have been transplanted on seed-beds; but from such as remained on the spot where they grew from the capsules, till autumn, and which likewise have produced the true oblong, thin, conical roots, the best suited for preparing sugar. This is necessary, because the seed of untransplanted beet produces roots more partaking of the spindle form, which, as we have remarked, is that which has been found most profitable.

Among those varieties of the beet which have that shape of root deemed most favourable for the production of sugar, Achard enumerates four of different colours. Some have a pale red rind, and are internally quite white; others, with a rind usually of a deeper red, have internally reddish stripes; others again, of a more or less deep red, have red circles; and lastly, there are some which, with a rind almost white, have the internal parts yellow. These varieties have different degrees of value, in the preparation of sugar. That which is white, with a light red rind, deserves the preference above the others, yielding much sugar, and an agreeably sweet syrup. The red-striped or circled roots, whose rind is of a darker colour than the kind just spoken of, afford sugar; but the syrup is bad, on account of its retention of the taste of the root, which cannot be removed but by expensive chemical processes. Those with a white rind and yellow interior afford much crystallizable sugar; but are not calculated for the production of moist or raw sugar, on account of the exceedingly disagreeable taste of the syrup.

Achard made some very ingenious inquiries into the effect of *light* on the development of a saccharine principle in the beet. It is known that asparagus becomes more sweet and pleasant to the taste when kept excluded from the light than when exposed to it. Endive, too, has a tough harsh-tasted leaf when exposed to the free action of light; whereas, when the inner leaves are defended, by tying the outer ones together, they change their colour, which passes from green to yellow; the firmness of their texture is weakened; they become tender, soft, brittle, and full of juice; and their taste, which was before exceedingly disagreeable, becomes mild and pleasant. Reasoning from these facts, he inquired, not only whether any particular principle, such as the saccharine, was affected by light, but also whether all parts of a plant were similarly affected, or whether differ-

ent members of the plant. His researches led him to these two conclusions:—1. That the absence of light augments the saccharine liquor in almost all roots, or in the genus arising therefrom; that its presence diminishes it; and that to shade the whole surface of a piece of ground, on which such roots are raised, adds very much to the increase of their saccharine matter. 2. That light has not the same effects on the different parts of the same plant; for, in the case of the *fruit*, so far from being influenced in the same way as the root, the saccharine matter is augmented by the presence of light, and, on the contrary, is not only retarded but diminished by the absence of light. As a further support of his opinion, he states that the upper parts of carrots, parsnips, beet, and other vegetables, which are not covered by the earth, lose the sweet taste naturally belonging to them; while the root, which is enveloped in the ground, possesses much of the saccharine principle.

The way in which Achard proposes to take advantage of these effects is, to shield as much as possible the beet root from the action of light during growth, and to expose the upper part of the plant freely to its influence, in order that the saccharine principle, naturally belonging to the plant as a whole, may settle down more and more completely in the root. It is for a similar reason, that he prefers the spindle-shaped roots to those of a more globular form, as being more likely to keep from the influence of light. Of the different varieties of root which were tried, Achard found sugar to result more abundantly from those which were of small size, and consequently had grown near one another; or whose heads had been buried underground; or which had flat heads, and therefore, from which the leaves had not been taken off; or, finally, which possessed a conical or spindle-shape, and had not been transplanted, but had received their full growth in the places where they germinated from seed. On the contrary it was found that only pulp and ill-tasted syrup were formed from roots which were strong and thick, and consequently grew at a greater distance from one another, or from those whose heads were large and round.

It therefore appears, that in order to produce roots which shall yield a remunerating quantity of saccharine matter, the plants should be planted with that degree of proximity to each other, that the leaves shall spread over the whole surface of the ground, and form a kind of umbrageous canopy. These leaves are not to be cut until about the month of September or October, when the root itself is taken up.

The reader will then understand, that according to the experience of Achard, the cultivation of the beet for the production of sugar is not a difficult process, considered in an agricultural point of view; but that care is necessary to keep the root excluded from the action of light. The plant will then attain, by the month of October, the condition which is required for this purpose. We shall in another paper, therefore, trace the routine of processes by which the sugar is obtained from the beet-root.

HYMN.

God of Nature, God of love!
Seen below, around, above,
Traced in every varied form,
Heard in every awful storm;
Glorious in the noonday light,
Mild and beautiful in night;
Now, O bounteous Lord! to Thee,
Low we bend the suppliant knee.
'Tis thy goodness glows around,
Docks the fields, and clothes the ground;
'Tis thy breath, in gentle gales,
Sweeps along the dewy vales;
'Tis thy bounteous hand distils
Healthful waters from the hills;
To Thee, O God! our lives we owe,
And every blessing here below.

THE TRUE USE OF TALENT.

THERE can be no doubt that the great primary end, to which every man of talent should consider his powers, in whatever line of intellect or attainment they may predominantly lie, as solemnly and sacredly pledged, is the promotion of the glory of the great Author of his being. This was the very object for which such an order of mind was bestowed upon him, and proportioned to the superior energy and capability of that mind is unquestionably the force of the obligation by which he is bound to give its exertions a sound and salutary direction. This is the central point, to which every ray throughout the whole circle of human endowments should steadily and uniformly converge. It is true indeed that the object may be promoted in various ways—that it may be advanced by different habits and modifications of intellectual exercise. In establishing the glory of the Deity as the great standard to which all the efforts of the mind should be ultimately referred, there is no necessity that the faculties should be cramped in their exercises—that they should be confined in their attainments, partial in their application, and timid in their researches. With this object, on the contrary, their most unfettered development—their most extensive and loftiest excursions, so far from being incompatible, are in the highest degree congenial. In the grand system of the moral universe, while the glory of its Author, as the sun, occupies the centre, there is range enough both for the flaming comet, which wheels through its distant round—still however paying the homage of a strict and undeviating gravitation—and for the milder planet, which appears to pursue a more regular and uniform course. Whatever may be the amount of the talents which any individual has received, there is abundant scope for their exercise, and for carrying on such a profitable negotiation in the varied intercourse of human society, as may enable him, on the great day of account while he feels himself to be at best an unprofitable servant, to return them, in the language of the parable, with usury to Him that gave them. As the scenes of nature are infinitely diversified—as its laws require to be investigated and its beauties to be displayed, by the exercise of appropriate powers of mind, and as the attributes of Deity admit of various modes of illustration, there is obviously opportunity afforded for the development of every order of talent, and for the indulgence of every pure and well-regulated taste, while the end is still uniform and the same. Science, history, philosophy, poetry, and the fine arts may be cultivated in all their departments with all the enthusiasm which the most devoted adherent of these pursuits may desire, without any necessary dereliction of that primary design to which they must all be subordinate. The intellect may prosecute its researches and delight itself with the discoveries of truth; the judgment may arrange her materials and form them into trains of reasoning; the memory may accumulate her treasures and make still fresh additions to her stores; the imagination may embody her visions, and fancy may weave her garlands; while the eye of the mind is still firmly fixed upon that which gives a character of sacredness to every effort. All that is really wanted is simplicity of purpose and a sublime rectitude of aim. The spirit of man was never designed to be stretched upon a Procrustean bed, to the form and dimensions of which the elastic powers of the soul are to be rigidly adapted and measured. But while the mind may justly assert its native liberty of action—while it may refuse to have its kindling energies smothered beneath the choking layers of antiquated notions and predilections, and to shape its conceptions into a servile conformity to the model of prevailing and ordinary sentiment—while it is privileged to expatiate with freedom over the varied field of thought, there must still be a point with which it will be found to move in harmony. Though it may rise above the influences of earth, there must still be a luminary in the heavens—there must be a fixed, a never-varying regard to the glory, the majesty, the will and the purposes of its beneficent Creator, whose sway it must unreservedly own; and until it has been brought under this legitimate and salutary control it is as incapable of guiding itself aright as the fabled Phaeton of directing the chariot of the sun.—DAVIES'S *Handmaid*.

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THE BANKS OF THE THAMES. V.



WINDSOR CASTLE.

Here hills and vales, the woodland and the plain,
Here earth and water seem to strive again;
Not chaos-like together crushed and bruised,
But, as the world, harmoniously confused
Where order in variety we see,
And where, though all things differ, all agree.
Here waving groves and checquered scene display,
And part admit, and part exclude the day;
There interspersed in lawns and opening glades,
Thin trees arise that shun each others' shades.
Here in full light the russet plains extend;
There wrapt in clouds the bluish hills ascend:
Even the wild heath displays her purple dyes,
And midst the desert fruitful fields arise,
That crowned with tufted trees and springing corn,
Like verdant isles the sable waste adorn.
Let India boast her plants, nor envy we
The weeping amber or the balmy tree,
While by our oaks the precious loads are borne,
And realms commanded which those trees adorn.—POPE.

WHEN Mr. Ireland wrote his description of the Thames, nearly half a century ago, he said, "Were I to fix on a spot for a picture, it should be at turning the bend of the river at Clewer, when by the evening sun the parts are so beautifully discriminated, and so happily massed by the shadows, as to form a splendid object, in which beauty and dignity are equally combined." How far the progress of building during the last fifty years may have lessened the picturesque beauty of the scene, would perhaps be estimated differently by different persons; but there can be no doubt that the view of Windsor Castle, and other places near Clewer, is one of the most interesting which the banks of the Thames afford. The

VOL. XIX.

whole neighbourhood teems with associations: Windsor Castle, the residence of so many sovereigns; Eton, with its distinguished seminary; Datchet Meads, and Herne's Oak, with their Shaksperian associations; all arrest the attention of the Thames tourist at this spot.

The Thames passes between Windsor and Eton, having the former town on the south bank, and the latter on the north. The town of Windsor has frequently the additional epithet of "New" attached to it, to distinguish it from Old Windsor, a village a mile or two distant. Like many other towns in England, it seems to have owed its origin to the castle built near it.

The Castle was commenced by William the Conqueror, who chose the summit of a lofty hill for the site, partly as a matter of security, and partly for the pleasantness of the situation. He enclosed parks, made large forests for hunting, and enacted laws for the preservation of game. Henry the First added a chapel and other apartments, as well as walls and ramparts. This monarch, as well as John, and the first two Edwards, made Windsor a frequent place of residence. Edward the Third pulled down nearly the whole of the Castle, and erected the greater part of the present splendid structure. The work was accomplished under the direction of William of Wykeham, afterwards Bishop of Winchester, and one of the most able architects of his time. He received *seven shillings per week* as his professional emolument,—a large sum in those days. It is said that he was on the brink of disgrace by having cut in a stone

of the new building the words, "This made Wykeham," a sentence capable of a double meaning, but which he explained as intended to imply that the castle was the making of his fortune. St. George's Chapel was begun by Edward the Third, and finished by Edward the Fourth, who was buried there, and whose remains were found in 1789, in a coffin beneath his monument.

Nearly all the successive monarchs down to the time of Elizabeth made some additions or improvements to the Castle; and indeed the same may be said of subsequent sovereigns. Henry the Seventh made additions to the chapel and upper ward; Henry the Eighth rebuilt the principal gateway; Elizabeth constructed the terrace on the north side of the Castle; and Charles the First also made some alterations. During the fury of the Republicans, the Castle suffered much damage; but Charles the Second, on his restoration, repaired the injuries which it had sustained, furnished the royal apartments in a costly manner, formed a collection of paintings, and also a magazine of arms.

Passing over the intermediate monarchs, we come to the time of George the Third, who made very great alterations under the superintendence of Mr. James Wyatt. These consisted chiefly in rendering the apartments habitable, and introducing the more modern comforts into their arrangements; in the rebuilding of the great staircase; the restoration of the pointed style of architecture, which Charles the Second had displaced for others inconsistent with the general character of the building; the thorough repair of St. George's Chapel; and the preparation of a mausoleum for his Majesty and his dependants. After the death of that monarch, his successor George the Fourth planned other and still more extensive changes, upon which Sir Jerry Wyattville was engaged throughout the king's reign. Even since that period, considerable alterations have been made, and great outlay has been incurred in making the palace fit for the residence of the sovereign of a great country.

The buildings composing the Castle are about a mile in circumference, and are contained in or surrounded by three wards or courts. The upper ward contains on the north side the state apartments, and the hall and chapel of St. George. On the east and south sides are the sovereign's private apartments and those of the royal household. The old principal gateway, being low and inconvenient, was replaced by a new one, of noble and imposing appearance, opposite to the grand entrance of the state apartments, and directly in a line with the Long Walk in the Great Park, which thus forms a magnificent avenue in the approach to the Castle. On either side of the gateway is a tower, one called York and the other Lancaster tower. Around the south and east sides of the court runs a fine corridor, more than five hundred feet in length, forming a medium of communication between the different buildings and apartments which surround it.

As we cannot attempt in this place to describe the state apartments which surround the upper ward, we shall pass to the lower ward. This is much more spacious than the other, and is divided into two parts by St. George's Chapel, behind which are the residences of the dean and canons. The apartments of the minor canons, clerks, and other ecclesiastical officers, are situated at the west end of the chapel, in what are termed the Horseshoe Cloisters. The collegiate chapel of St. George, considered as an ecclesiastical establishment, consists of a dean, twelve canons, seven minor canons, thirteen lay clerks, ten choristers, a steward, a treasurer, and inferior officers. Various towers, appropriated to different purposes, occupy portions of the buildings surrounding the lower ward.

The middle ward is occupied almost solely by the celebrated Keep, or Round Tower, the most conspicuous object in the Castle. It contains the apartments of the constable or governor of the Castle, who has the com-

mand of the Castle, its garrison, and magazine of arms, holds a court of record, and is judge of the pleas between parties within the precincts of Windsor Forest. In ancient times the custody of distinguished state prisoners was committed to his care. John, king of France, David, king of Scotland, the Earl of Surrey, the Earl of Lauderdale, the Earl of Lindsay, and the Marshal de Belleisle, are among the distinguished men who were at different periods confined in this keep. In the view enjoyed from the battlements of this tower, the windings of the Thames, with the succession of villages, mansions, and detached farm-houses, the luxuriant landscape of the parks and forest, the bird's-eye prospect of the town, and a vast tract of country extending to the hills in the remote distance, combine to form a panorama which, for beauty and magnificence, is considered to be almost unequalled. Twelve counties are included within the range of view, viz.: Middlesex, Essex, Hertford, Bedford, Buckingham, Berkshire, Oxfordshire, Wiltshire, Hampshire, Surrey, Sussex, and Kent.

Two parks are attached to the royal domain. The Little Park contains about five hundred acres, and is four miles in circumference, extending on the north and east sides of the Castle to the river Thames. It was enclosed with a brick wall by William the Third, and is chiefly stocked with sheep, cattle, and a small herd of red deer. In this park, which abounds with hares, George the Third frequently took the diversion of coursing; and on the south-east side of it stood a venerable tree, known by the name of Herne's Oak, and which, according to tradition, was the identical tree mentioned by Shakspeare. "Master Page" informs us that

There is an old tale goes, that Herne the hunter,
Some time a keeper here in Windsor Forest,
Doth all the winter time, at still midnight,
Walk round about an oak with great ragged horns,
And there he blasts the tree, and takes the cattle,
And makes milch-kips yield blood, and shakes a chain,
In a most hideous and dreadful manner.

It has been said that Herne, who was keeper of the forest in the time of Queen Elizabeth, having committed some great offence, was hung on this tree; and that the credulity of the times easily worked on the minds of the ignorant to suppose that his ghost should haunt the spot. It was cut down a few years ago, and converted into various little articles of furniture and ornament, as Shaksperian relics. Frogmore Lodge, formerly belonging to Queen Charlotte, and afterwards the property and residence of the Princess Augusta Sophia, is separated from the Little Park only by the London road.

The Great Park adjoins the south side of the town. At one time it consisted of four thousand acres, and was fourteen miles in circumference; but King George the Third set apart about half of it, for the formation of experimental farms, and other purposes connected with agriculture. The scenery of this park, which is stocked with several thousand heads of deer, is both varied and picturesque. It is intersected by several roads, the principal of which, known as the Long Walk, skirted by an avenue of majestic trees, commences at the new entrance gateway of the upper ward, and extending nearly three miles in length, terminates at the summit of a bold rise, commanding a superb view of the Castle, Eton College on the other side of the river, and the country beyond them. At various parts of the park have been erected lodges or cottages, as retired summer residences for different members of the royal family; among which were the Royal Lodge and Cumberland Lodge. One of the rides in the park forms the principal approach to Virginia Water, a beautiful lake at the southern extremity of the park, and terminating at a fanciful building called the fishing temple. This spot was a favourite resort of his Majesty George the Fourth; and was by him adorned with miniature frigates and pleasure boats. Several bridges, one of them with a single arch of a hundred and sixty-five feet span, cross this fine piece of

water, which, near the road to Basingstoke, forms a beautiful cascade, and then flows on in a stream that winds through the western part of Surrey, and falls into the Thames near Chertsey.

To enumerate the various points of interest and attraction presented by Windsor Castle, would be wholly out of place in a series of articles such as the present; we must therefore proceed onward in our tour. Passing under Windsor Bridge, and along the margin of the playing fields of Eton College, the bend of the Thames presents a fine view of the north front of Windsor Castle. Winding round the Little Park, the river pursues its course to Datchet, a pretty village on the northern shore; at a short distance from which is Ditton Park, the residence of Lord Montagu. The original mansion, a venerable structure which had been enlarged at various times since its first erection in the reign of Edward the Third, was destroyed by fire in 1812. On its site has been built, from the designs of Mr. Atkinson, a handsome castellated edifice, with turrets and battlements, surrounded by a moat, and having its principal entrance defended by an embattled gateway, flanked with towers. A drawbridge crossing the moat, connects the house and grounds with the park.

On the opposite bank of the river soon appears Old Windsor, which has been termed a "village of villas." Near the margin of the river is situated Old Windsor Manor House, partly surrounded by a moat, and exhibiting on the water-front the appearance of an ancient manorial edifice. But the most conspicuous object at Old Windsor is Beaumont Lodge, built a few years ago on the site of an older structure erected in the early part of the last century. The mansion is remarkable as presenting a specimen of what has been termed a new style of architecture, viz. the British. The principal front is of considerable elevation; its chief feature is a corridor consisting of coupled columns, or rather columns in imitation of twin trees growing from one root; between the stems is introduced the shield of a knight; and the capitals are formed after the caps worn by the Knights of the Garter, the star of the order forming a centre; and the whole is finished with Ionic volutes, and emblematic figures of the arms of England. The metopes are ornamented by the George and Collar; the decorations of the frieze over the columns are composed of ostrich feathers, tied with ribbons and blended with acorns; while the continued frieze is made up of naval and military trophies. This attempt to form a national style of architecture was made by a Mr. Emlyn of Windsor; but it does not appear to have met with encouragement.

THE OIL-BEETLE AND THE BLISTERING-BEETLE.

The genus of coleopterous insects, named *Meloe* by Linnæus, belonging to the section Heteromera and the family Cantharidæ, includes some very remarkable insects, which may be generally described as having the body large and distended, the wings entirely wanting, and the elytra short, oval, and folding partially over each other at the base: the antennæ are eleven-jointed, of nearly equal thickness throughout, or dilated and knotted in a singular manner, or elbowed in the centre, especially in the males. The body is generally of a deep black, bordering in many species on bluish and violet, and very much punctuated. These insects are of a comparatively large size: they are very inactive, crawling sluggishly upon the ground, in the fields, tilled lands, on the edges of highways, or among low herbage upon which they feed; but they seem to prefer sandy or calcareous places exposed to the sun. When seized or disturbed they emit, from the articulations of each knee of their legs, a viscous fluid, similar to oil, of a yellow colour and disagreeable odour. This oil was once highly

celebrated for its supposed efficacy in rheumatic pains when used as an embrocation to the parts affected: for this purpose also oil was obtained by crushing the insects in a press. This oil was also used as a specific against madness; and farriners in some cases employed oil in which these insects had been macerated. These insects, of which eight or nine species occur in Britain, are most frequent in spring and autumn, and some of them, especially the type, *Meloe proscarabæus*, are not uncommon. They possess to a certain extent the vesicatory powers of the Cantharides, and are used in some parts of Spain instead of the true blister-fly. The females, when filled with eggs, become greatly dilated, and exceed the males in size. Goëdard preserved a female proscarabæus, and fed it with anemone and ranunculus leaves. Between the 12th of May and the 12th of June it laid 2212 eggs, besides about as many more which were not counted. These eggs were produced at two separate times, the insect depositing the eggs in a hole in the ground, which it had made with the posterior extremity of its belly. These eggs were yellow, and resembled small grains of sand pressed together. The larvæ, according to this observer, have the body long, cylindrical, sprinkled with hairs, composed of eleven rings, almost equal, and with an oval head, furnished with two eyes and two longish antennæ. They have six legs, of rather large size, compared with the body; which is terminated with two long appendages, in the form of silky hairs. Goëdard was not able to rear these larvæ, although he fed them with a variety of animal and vegetable matter. This want of success has attended the efforts of many other entomologists.

These larvæ are supposed by some observers to be parasitical on the bodies of winged insects. Degeer having noticed that a strong resemblance existed between the larvæ of *Meloe* and a small insect which he found adhering to the body of a fly resembling the humble bee, placed some domestic flies among the larvæ of the *Meloe*, and found that in less than half an hour a very great number of these larvæ had become attached to the breast and belly of the flies. After some vain efforts to get rid of the larvæ the flies perished on the second or third day, and the larvæ abandoned the body. Having been furnished during many days with living flies, they fastened on them. As soon as a fly passed near them there were always some which directly seized it by the foot or wing, and never quitted their hold until in a favourable situation to attack the body. Degeer found, however, that they did not increase in size, and, neglecting to supply them with victims, they all died.

Other observers have contended that the larvæ spoken of above were not those of the *Meloe*, but of some other insect; but as the information does not rest upon Degeer's information alone, the early history of the *Meloe* must be considered as quite unsettled.

The *Meloe vesicatorius* of Linnæus (*Cantharis officinalis* of Geoffroy) is the celebrated blister-fly, or Spanish fly, so much used in medicine. It is distinguished generically by the possession of complete wings and wing-covers, by having the joints of the tarsi entire, and not bilobed, and the thorax nearly ovoid: the body is long and narrow, with the head rather longer than the thorax: the second joint of the antennæ is very small. This insect varies very much in its size, being sometimes not more than half an inch long, while others are twice that length. It is of a rich green and golden colour, very shining, and delicately punctured, with the antennæ (except the first joint) black. It is very rare in this country, but has been seen occasionally near Cheltenham and elsewhere.

The *Cantharis* is one of those insects which have been most anciently and most universally known. Physicians, who were the first natural philosophers, and the first observers of nature, have made mention of the cantharides in the remotest times. But they have only considered them

under that relation which was most suitable to their own profession, and as furnishing to medicine one of its most powerful agents. The naturalist, who is less anxious about becoming acquainted with the medicinal virtues of the dead, than with the peculiar habits of the living cantharides, is yet very far from having acquired in this respect certain, extensive, and satisfactory information. The only species which has been deemed to be endowed with useful properties has caused a forgetfulness of all the others which compose the entire genus; and all that we know in general respecting these insects is, that in our European climates they live on plants, devour the leaves of certain trees, shun the cold, appear at the commencement of spring, and disappear at the beginning of autumn. We are therefore unable to do any more than present some general ideas respecting the cantharis which is peculiarly consecrated to the purposes of medicine.

It is more than probable that experiments on insects relatively to their utility in medicine and the arts, have been too much neglected in general. Their diminutive size has doubtless caused them to be too much despised. It cannot, however, be doubted that there must be a great number of them whose virtues are at least equal to those of the cantharides, and many others which are less acrid and less caustic, might in many cases be taken internally, with less danger and a greater chance of success. We may rest assured that all the species which belong to the genus *Cantharis* possess pretty nearly the same virtues as the species which is most generally known, and consequently in all the countries in which they are found, the same usage might be made of them. Among the insects taken from other genera, which might furnish caustic and irritating particles, and which might be substituted for the cantharides to a certain extent, we may range *meloe*, *mylabris*, *carabus*, *tenebrio*, *cicindela*, *scaribes*, *coccinella*, &c. The cast skin of the majority of the caterpillars produces a dust, which scattered by the winds, raises pustules on the face with which it comes in contact. The same effect is occasioned by the hair and wool of certain phalæne when they are touched. Marian found at Surinam some species of the larvæ of lepidoptera, which one could not touch without being suddenly attacked with inflammation.

The early history of this insect is but little known. The female deposits her eggs separately, forming them into an agglutinated mass, and burying them underground. The larvæ have a soft body, of a yellowish white, composed of thirteen rings; the head rounded, somewhat flat, and furnished with two short antennæ: the mouth is provided with two tolerably solid jaws, and four antennulæ. They have six short and scaly feet. They live in the earth and feed on various roots. When they have attained their full growth, they change into the nymph state in the earth, and do not come out of it until they have assumed the perfect insect form.

The cantharides are abundant in Spain and in the south of France, especially in the month of June, when they assemble for the purpose of pairing. This is the time when they must be seized, especially at the hour of sunset or sun-rise, when they are in a somewhat torpid state. They are found upon ash-trees, Tartarian honey-suckles, lilacs, rose-trees, poplars, elms, &c., the leaves of which they devour, and when this sort of food is wanting, they throw themselves upon corn and grass, and commit great damage. As they appear in large troops or swarms, and are accompanied by a very penetrating odour, somewhat similar to that of mice, it is not difficult to discover and collect them, provided certain precautions are adopted which should never be neglected. The odorous particles exhaled by them are so very corrosive, that people have been violently affected whilst gathering them during the heat of the day with bare hands, or even when they have fallen asleep under trees where swarms of them have gathered. The persons who collect them are protected by masks and gloves.

There are two modes of collecting cantharides. The first and most simple consists in spreading under the tree which harbours these insects several cloths on which they are made to fall by shaking or beating the branches. The insects are then gathered on a hair sieve, and held over the vapour of boiling vinegar, which kills them; or

they are collected on a linen cloth, which is folded and steeped several times in vinegar and water. This is the method most generally adopted.

The second method is to spread cloths about the tree, and the vapour of vinegar is diffused by causing it to be boiled in earthen pans placed in chafing-dishes. The trees are then shaken to cause the cantharides to fall: they are picked up immediately, and enclosed for twenty-four hours in vessels of wood, earth, or glass.

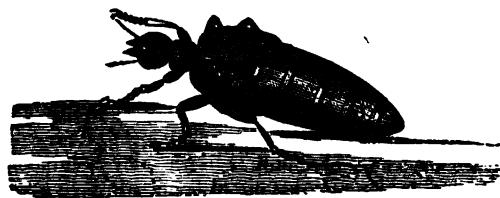
When the insects are dead it is necessary to dry them thoroughly, otherwise they would contract a most detestable odour, and be rendered unfit for medicinal purposes. For this purpose they are exposed to the heat of the sun, or of a stove, or they are placed in a well-aired attic on hurdles covered with linen cloth or paper. They are occasionally stirred about with a stick, or with the hands protected with gloves, for without this precaution the workmen would be exposed to the most painful sensations. When properly dried, the cantharides are so light that fifty of them weigh scarcely a dram.

The insects are preserved in boxes or bands lined with paper, and firmly closed. A part of our supply of cantharides is from Astracan and Sicily: but though bearing the name of Spanish blistering flies, the greatest quantity is obtained from St. Petersburg; and the Russian insects are said to be superior to those from Sicily and France. Cantharides are liable to the attacks of many insects and worms, but as these feed only on the inert part, they do not destroy the vesicant property.

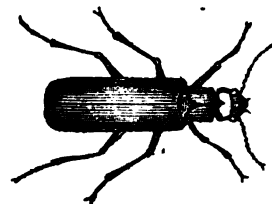
Chemists have subjected cantharides to analysis, and have separated from them a peculiar substance, which is called *cantharadin*: this is the vesicating or blistering principle of the insect. It is a white substance under the form of small crystalline plates; when pure it is insoluble in water; it is soluble in ether, in boiling hot alcohol, and in the fixed oils. Some chemists regard it as a kind of animal camphor.

Cantharides also yield to analysis the following substances:—1. A greenish fluid oil, insoluble in water, but soluble in alcohol. This is inert. 2. A black matter, also inert; it is soluble in alcohol but not in water. 3. A yellow viscid matter soluble both in water and in alcohol. This has no blistering property. 4. A little fatty matter; phosphates of lime and magnesia; acetic and uric acids also occur in cantharides.

The external application of cantharides is made by reducing them to powder, mixing them up with some fatty substance and applying a plaster thus formed to the surface of the body. It immediately begins to act, and detaches the outer skin from the dermis with great rapidity. When given internally it is in the form of an ethereal or alcoholic tincture; but it is a medicine requiring the utmost degree of caution and circumspection in its administration; and the cases in which it is proper to give it as an internal remedy are very few.



Meloe proscarabeus, Linn. THE TEN OIL BEETLE.



Meloe vesicatorius, Linn. THE BLISTERING-BEETLE



POINTER AND SETTER.

RURAL SPORTS FOR THE MONTHS.

JULY.

THE present month is not distinguished for any special employment which can be designated a rural sport: the angler continues to ply his vocation, and we might dwell on many interesting particulars in connection with this sport, but as we have already given a brief outline of his proceedings, and are engaged in a course of articles descriptive of several of the most highly-prized among the inhabitants of our rivers, it appears unnecessary to devote further space to this subject. The approaching season, however, presents so many attractions to the sportsman, and enters so largely into his anticipations of pleasures to come, that we shall not be considered as deviating from our course, if we also look forward to the "Shooting season," and make a few observations on the sagacious and truly interesting animals employed by the shooter to secure the different kinds of game which will shortly become the object of his pursuit.

England has long been celebrated for the superior excellence not only of its horses but of its sporting-dogs. Our grey-hounds, fox-hounds, and harriers are unequalled, and that they are so results from the care which is taken to keep the species distinct. The instinct and the fine olfactory powers of these animals are remarkable; but in the pointer and setter the instinct manifested is still more extraordinary. These latter animals appear to be endowed with their peculiar qualities especially for the service of man, while those of all other animals are calculated for the supply of their own individual wants, as well as being secondarily of importance to the human race.

When the intellectual endowments of the domesticated races of dogs are permitted to weigh in the scale,—when we begin to consider the faculties which the bounty of nature has bestowed upon them,—the sincerity and disinterestedness of their attachment,—the sagacity, strength, velocity, courage, and perfect obedience which they proffer to man,—we cannot refuse them our admiration and affection. To what other species could we look for voluntary association with our fortunes? Which of them would, like the dog, lend us the full use of senses so acute as his? Which can

rejoice in our joy, be vigilant and bold in our defence, obedient to order, faithful in our adversity, understand our least words and signs, and die on our graves from pure attachment? These qualities, we all know, dogs possess. Here, then, we find the source of that consideration which is granted them by all men near a state of nature; and although conceded by them with niggardly hands, the wild man of the old world, the stoical hunter of the new, the half-frozen Esquimaux, and the savage of Australia, differ only in their mode of acknowledgment from the expressions of favour with which the drover, the shepherd, the sportsman, and the fine lady of civilized society regard them.

As the dog alone, of all the brute creation, voluntarily associates himself with the condition of man's existence, it is fair to presume also that he was the first, and therefore the oldest of man's companions; that to his manifold good qualities the first hunters were indebted for their conquest and subjugation of other species. We do even now perceive, notwithstanding the advance of human reason and the progress of invention, that in a thousand instances we cannot dispense with his assistance.—LIEUT.-COL. SMITH.

Doubtless it required, at first, a long course of patient education and careful management to produce even a distant approach to the perfection of the present breed of pointers; but certain it is that an instinct favourable to "pointing" must have existed in this race of dogs in particular, for of no other animal can it be said, that with proper training he would form a substitute for the true pointer.

The pointer was originally a native of Spain; and among our English breed, such dogs as have the most Spanish blood in their veins are esteemed the best. The Spanish pointer is about twenty-one inches in height. He has a large head, is heavily made, broad-chested, stout-limbed, with a large dew-lap; his eyes are full and widely separated, and his nose broad; his tail is straight, short and thick, and his ears large, pendulous, and fine; the finest dogs have a round and not a flat foot. When pointing, he raises one of the fore-legs, and stands on three only, with his face and tail in a line with his back. This is the position he always assumes when he comes gradually upon the scent; but whenever, by running with the wind, or any other circumstance, he comes suddenly upon game, he will stand in the most extraordinary

attitude, and will have, sometimes a very picturesque, sometimes a very grotesque appearance. The disposition to stand at the sight of game is manifested even by puppies of this breed, and is a remarkable instance of the transmission of propensities, which are undoubtedly in part acquired. And when a dog of this breed is incapacitated through age from maintaining his "point" in the natural posture, he will sit down on his haunches with his face towards the game, turning his head occasionally to see whether the gun be approaching.

Notwithstanding the acknowledged excellence of British pointers, it is frequently lamented by true sportsmen, that there is not the same care taken to keep the species distinct as in the case of hounds, and in consequence that the number is comparatively few where the qualities of that race remain unmixed with those of other dogs. Many dogs, esteemed by their owners as first-rate, are found to bear little resemblance in point of shape and appearance to the true pointer; and if, as it is maintained by high authority in the sporting world, the instinct of pointing be an inextinguishable and indestructible principle in the blood of the pointer, and that the further any dog is removed from the original Spanish pointer the worse the dog is, then such dogs, however they may be improved as to beauty of form, will necessarily possess a admixture of qualities rendering them inferior to the original breed.

The trouble in training mongrel dogs is double that of true pointers. The usual price paid for "breaking a dog," as it is termed, is from two to five guineas. Much of the future usefulness of the dog depends on the temper and judgment of the person employed in educating him. To give our uninitiated readers a specimen of the shooter's vocabulary we quote a list of some of the words made use of by the breakers and sportsmen to the dogs.

"*To-ho*" spoken in an under-tone, when the dog is ranging, is a warning to him that he is close upon the game, and is a direction to him to stand. There is no necessity for using it to a dog that knows his business. Spoken in a peremptory manner it is used to make the dog crouch when he has flushed game, or been otherwise in fault. "*Down-charge*," or "*down-to-charge*," is used to make the dog, whether it be near or at a distance, to crouch when the shooter charges, that the dog may not flush game when the shooter is unprepared. When the dog will not crouch, but continues beating, the leg-strap may be put on. "*Take heed*," and "*Be careful*," are used when the dog ranges over ground where it is customary to find birds. "*Take heed*" is a word of correction; "*Be careful*," of encouragement. The former is used by way of caution or notice to prevent the dog flushing birds by running over the ground too fast; the latter is likewise a caution, but used when the dogs beat slowly or carelessly. "*Ware fence*" is used to prevent dogs passing a fence before the gun. The dog should never, on any account, leave an inclosure until his master has left it. "*Ware*," or "*Beware*," is used to rate a dog for giving chase to a hare, birds, or cattle, pointing larks, or approaching too near the heels of a horse. "*Seek*" is the direction to the dog to look for a dead, or wounded bird, hare, or rabbit. "*Dead*" is used to make a dog relinquish his hold of dead or wounded game.—*Oakleigh Shooting Code*.

The *Setter* is endowed with sagacity and intelligence equal to that of the pointer, but is reckoned inferior in fineness of scent, and is less staunch. It partakes of the character of the pointer and spaniel, from which it has most probably descended. The setter will face briars and gorse bushes, and also delight in water, in which respects it has the advantage of the pointer who shows a repugnance to them; thus the setter is preferred on marshes for snipe shooting, and also in heavy covers; while the pointer is far superior on open ground, and will endure the greatest share of fatigue.

The disposition of the setter is mild and gentle, and it shows much attachment and gratitude towards a kind master. In colour it is in general white, with large spots or blotches of liver colour or red. The hair is not so smooth as that of the pointer, but possesses the wavy

character of the spaniel's; the ears also resemble those of the latter animal. Mr. Bell gives an interesting account of one of these animals as to its domestic qualities. It was a setter bitch, which, although not regularly trained, was an excellent dog in the field. The animal appeared to be always on the watch to evince love and gratitude to those who were kind to her, and the instinct of attachment was in her so powerful that it showed itself in her conduct towards other animals as well as to her human friends. A kitten lately taken from its mother, was brought up with the dog, and at first showed all the usual horror on the approach of its companion. But Juno seemed determined to conquer the antipathy, and by the most winning and persevering kindness and forbearance—advancing and receding as she found the waywardness of her new friend's temper required—she completely attached the kitten to her; and as she had lately lost her puppies, and still had some milk left, the pair were often seen lying together before the fire, the kitten sucking her kind foster-mother, who was licking and caressing her as her own offspring. On another occasion when a Spaniel bitch had puppies, of which all, excepting one, were destroyed, Juno would take every opportunity to steal the remaining one from its mother's nest, and carry it to her own; where she would lick and fondle it with the greatest tenderness. The mother, also a good-tempered creature, as soon as she had discovered the theft, hastened, of course, to bring back the little one, which was again to be stolen on the first favourable opportunity; until, at length, the two bitches killed the poor puppy between them as they were endeavouring each to pull it from the other; and all this with the most perfect mutual good understanding.

Such anecdotes might be multiplied with respect to the next species of sporting-dog we have to notice, *ie.*, the *Spaniel*, for of all dogs, this is perhaps the most affectionate in its nature, the most grateful for kindness, and the most patient in enduring ill-treatment. The spaniel is the best dog for beating covers, provided he can be kept near the gun: He is generally expected to give tongue when game is flushed; some spaniels will give notice of the game before it springs, which is not amiss where wood-cocks only are expected to be found; but wood-cock and pheasant shooting are usually combined, and the latter sport cannot be conducted too quietly. Whatever the species of game may be spaniels are the best dogs, where the cover is so thick that the shooter cannot keep his eye upon the dogs.

The dogs called *Retrievers*, are those employed to find lost birds. Newfoundland dogs are reckoned the best for this purpose. A good retriever has a very fine sense of smelling, and is as sure to follow the track of the wounded bird, on whose scent he is first put, as a blood-hound that of a human being or deer.

SCIENCE has scattered her material benefits so lavishly wherever she has been in presence, that no small number of her followers—and all the multitude—have left off gazing on the resplendency of her countenance in their eager scramble for her gifts. From those who frequent her courts with such views, she veils her brightness and withdraws her spirit, leaving them to grovel, poring like Mammon on the golden pavements of her mansion, while their ears are deaf to its celestial harmonies, and their mouths closed to its breathings of paradise.—*Quarterly Review*.

I know that eastern winds have power
To nip the young and tender flower;
Clouds may obscure the rising day,
And its young glories fade away:
And so, my hopes may meet with blight,
My early days seem dark as night;
Blessings may leave me one by one,
And yet I shall not be alone.
God will be with me, and his love,
Through weary years of care, will prove
Amid the desert one green spot,
One hope that still deceiveth not

BEET-ROOT SUGAR.

II. THE EARLY MODES OF PRODUCING SUGAR FROM THE BEET.

IN our last article on this subject, we briefly enumerated the different kinds of *Beta*, or Beet-root, and also the mode which had been recommended for the cultivation of those varieties of the root which abound most in saccharine matter. We now proceed to notice the process of obtaining the juice from the root, and of converting it into sugar. The researches detailed in the last paper were chiefly those of M. Achard; but the method of obtaining the sugar, which we shall describe, is that adopted by Professor Gottling, as being rather more easy in practice than that of Achard.

Gottling recommends the roots to be taken out of the ground about the end of September or the beginning of October, in order to have good weather for drying them. They should be well washed as speedily as possible, and their small fibres should at the same time be cut off; as likewise such part of the root as in growing had risen above the surface of the earth. The roots are to be afterwards wiped with a cloth, and laid upon a dry floor; their heads are to be cut off and given to the cattle; and the roots should be then sliced lengthwise down the middle, each half again cut into thin slices, and loosely hung upon strong thread upon nails, in an airy chamber or place sheltered from rain. The slices should not be placed too near together, lest they spoil, nor too many be put upon one string; it is advisable to turn the strings upside down once or twice, to effect a speedier drying. In the course of ten or twelve days they become so dry that the strings may be removed nearer together, in order to allow fresh roots to be hung up, if there should be scarcity of room. Instead of placing the sliced roots upon strings, stages may be made in outbuildings; and the slices may be laid on netted frames. If the drying season be far advanced, or a frost be expected, the beet-roots should not be exposed to the external air, but should be dried in a warm room on strings or netted frames, resembling the flakes formerly used in Yorkshire for drying oat-cakes.

The slicing of the beet-root may conveniently form an evening occupation; and no more should be sliced at once than can be strung or placed on frames to dry, as it is not advisable to let the roots remain in slices long in a heap. The roots may be dried in stove-rooms by artificial heat; but great care is in that case required to keep them free from being smoked or burned, as the sugar would hence become dark-coloured, and of an unpleasant flavour. It is better therefore not to dry the roots by means of stoves, unless in case of necessity, such as where the frost may prevent the roots from being dried in the open air. Where opportunity will not permit the beet-roots to be sliced soon after being taken out of the earth, they should be placed in cellars and covered with straw, or put into holes in dry sandy earth, and preserved till wanted.

The roots should be dried throughout, and not partially. If they appear grey on the outside, they should be white or red on the inside; and, if chewed between the teeth, they should have a very sweet taste, free from must or acidity. When dry, the roots are ready to have the sugar extracted; and, to effect this, it is necessary to provide three wide but shallow wooden tubs, made of oak, ash, willow, or some other non-resinous wood. Each tub should have a cock or spigot near the bottom, and should be placed at such a height from the ground that a smaller vessel may stand beneath it, to receive the liquor when drawn off. The three vessels are thus placed near each other, in a place where the temperature is about 52° Fahr.; and where good clear water may conveniently be pumped into the upper vessels.

The dried slices of beet-root, after being sifted from us and loose fibres, are put into one of the upper tubs.

Clear cold water is then poured on the roots, to about one-third in height above them. After the beet has been thus steeping for three hours, being stirred at intervals with a wooden paddle, the second tub is supplied with about as much beet as had been put into the first; and the sweet liquor from the first tub, is drawn into the vessel underneath, and poured upon this second. Sufficient clear water is then put into the first tub to cover the beet; and the beet in both tubs is stirred occasionally for another period of three hours. The liquor in the second tub, which, if the beet were of the proper kind, would now be very sweet and of an agreeable red colour, is drawn off, and filtered through a sieve or flannel, into the vessel beneath.

After this, the second supply of liquor is drawn from the first tub, and poured into the second; more fresh water is poured on the first tub; and both are left to steep for three hours, as before. Then the third tub is brought into requisition in the same way as the other two, by putting into it an equal quantity of dry beet, to which is added the liquor from the second tub. After which, the liquor from the first tub is removed to the second; and the beet in the first tub, being now deprived of saccharine matter, may be used for feeding hogs or cattle.

When another period of three hours has elapsed, the liquor is drawn from the third tub, by filtering as before; and the liquid from the second vessel is poured into the third. Another supply of fresh water is poured into the second vessel, and is allowed to remain three hours, being stirred occasionally. During this time the first tub is cleansed, and a new supply of beet is put into it. This goes through the same routine of processes as before; and thus the operations continue until the saccharine matter has been obtained from all the beet. It will be seen that this apparently circuitous employment of the three tubs, and the interchange from one to another, is for the purpose of obtaining all the saccharine matter from the beet, without loss; but it will not be necessary to trace the steps further. The spent roots having been given as food to cattle, and the juice being ready for boiling into sugar, the operations proceed as follow.

The extracted saccharine liquor is boiled down to the consistence of syrup; then put into a copper, and boiled over a moderate fire until that degree of thickness is obtained that a phial which holds one ounce of water will contain eleven drachms of the syrup. As the scum or froth rises, it must be carefully taken off. When the syrup is brought to the desired consistence the fire must be removed from the copper, and the syrup gradually poured through a thin woollen cloth, placed over a wooden or stone vessel. The syrup must not cool too much before thus filtered, otherwise it becomes "ropy."

When the filtered syrup is somewhat cool, it is laded into shallow wooden or stone vessels to crystallize; vessels made of tin, and also shallow earthen vessels, such as are used to produce cream, may however be adopted for this purpose. The vessels, filled with syrup, are placed in a room heated to about 70°; and care is taken to keep the syrup clear from flies and dust. If the syrup has been of a proper consistence, crystals will soon begin to form at the bottom of the vessels; and in the space of eighteen or twenty days, the crystallization will be completed. The mass must then be put into a strong linen sack, well secured, and placed under a press to squeeze out the liquid from the sugar which remains in the bag; a cheese-press or long lever will serve for the purpose of pressure. The liquid matter may be set to crystallize a second, and even a third time, and will yield sugar of a coarser quality.

The sugar first obtained may be rendered purer by well mixing therewith a small quantity of clear spring-water, and placing it again under the press; the coloured syrup will then run out, and leave the sugar in the bag

in a much purer state than before. By repeating the operation the sugar becomes so far improved, that it assumes, when dried and rubbed, the state of a fine white powder. The separated syrups being again carefully boiled, more sugar will be obtained from them by crystallization.

If the sugar produced by the first pressure be dissolved in as much clear water as will form a syrup, and placed again in a warm room to crystallize, it will yield a much purer and harder sugar. The syrup may then be separated without pressure from the sugar, merely by inclining the vessel, and allowing the syrup to run off from the crystals. The remaining thick syrups may be used as treacle or molasses, and will serve the purposes of the distiller.

Such is the process which Professor Gottling suggested for the preparation of beet-root sugar, and which was first made known in England by Mr John Taylor. We may here follow up these details by a notice of the constituent elements of beet-root, as determined by Professor Lampadius, of Freyberg.

Beet-root contains or consists of water, fibrous matter, sugar, mucilage, albumen, starch, and three substances which, for want of better names, are termed the colouring, the odoriferous, and the bitter principles. The following very interesting train of experiments was made by Professor Lampadius, with a view of determining what substances he could obtain from one-hundred and ten pounds of the white beet-root, the *Beta cicla* of Linnæus. The beet, when washed, peeled, cleaned, and grated, gave a mass weighing eighty-seven pounds; out of which were pressed forty-one pounds and a half of juice. This juice was boiled with twenty ounces and a half of charcoal powder; by which it was made to yield, when filtered and evaporated down until crystallized, five pounds of a brownish-yellow grained sugar, and five ounces of brown syrup. This brown sugar, after being dissolved in six pounds of lime water, mixed with one pound of blood, was boiled, filtered, and evaporated; from which resulted four pounds five ounces and a half of purified brown sugar, and six ounces and a half of syrup. The purified sugar thus produced, was then dissolved in six pounds of lime water, mixed with one pound of milk, and boiled for a quarter of an hour; during the boiling a small quantity of white wine vinegar and a little more milk were added; the saccharine matter was filtered and treated as before; and the product was four pounds of well-grained white powder sugar. The residuum after pressure, the brown syrups of the first two processes, and the remains of the filtrations, weighed, when collected, forty pounds. They were then mixed with one quart of yeast and eighty quarts of water, heated to 112° Fahr.; and, after fermenting forty-eight hours, were distilled. They furnished, at the first distillation, fifteen quarts of weak spirit, which, on a second distillation, gave eight quarts of a better spirit; from which, when rectified, were produced three quarts and a half of spirits resembling rum.

We must beg the reader to bear in mind, that the foregoing details give a view of what had been done by Margrat, Achard, and Gottling, at various periods preceding the commencement of the present century. In the next paper on this subject, we shall detail the circumstances under which, and the mode in which, the French government took advantage of these experiments, in encouraging the cultivation of the beet-root in that country.

THE study of nature requires two qualifications of the mind, which at first sight appear to be opposed to each other:—the comprehensive view of a bold genius that embraces the whole, and the minute and careful inspection of an unwearied industry that lives upon the smallest objects.—BUFFON.

BIRTHDAY LINES.

THOU wakest from rosy sleep to play,
With bounding heart, my boy!
Before thee lies a long bright day
Of summer and of joy.
Yet, ere the cares of life lie dim
On thy young spirit's wings,
Now, in thy morn, forget not Him
From whom each pure thought springs.
And then, my child, in future years,
Wherever thy path may be,
When strength is gone, or grief appears,
He will remember thee!—MRS. HEMANS.

It would be easy to produce from the writings of Infidels many testimonies to the excellence of Christianity. Bolingbroke affirms, that if Christianity has been a human invention, it is the most amiable invention that ever was imposed on mankind for their good; that it contains a most simple and intelligible rule of belief, worship, and manners; and that the Gospel is one continued lesson of the strictest morality, of justice, of benevolence, and of universal charity.

It is no unusual thing for men of the most abandoned character to be struck with profound awe, and restrained from their vile purposes, by the presence of an eminently pious person. There is a power in real godliness, which commands the reverence of those who hate it; and this the proudest sinners often so far feel, as to be unable to carry on their violent opposition against it, while yet no saving change is effected upon them.—ROBINSON.

THE human body considered simply as an engine to be worked by a superior agent—as a system of combined and organized matter, to be actuated and controlled by a living spirit, is a most wonderful instance of creative power and plastic skill. It may be considered as a world in miniature, as an epitome of all the sciences, as an abridgment of the great book of nature. To whatever part of it we direct our attention, we discover a most remarkable exemplification of the general laws of physics. In its optics, as expressive of the functions of the eye, we have mathematics of the highest order. In the formation of the bones, and in the arrangement of its various joints and ligaments, we have the principles of mechanics most strikingly exhibited to our view. In the circulation of its fluids, the heart, the arteries, and the veins, may be regarded as a hydraulic apparatus. The process of respiration is an example of pneumatic action. In the gradual formation of its general substance—in the precipitation of the various elements which constitute its specific parts, we have chemistry in some of its finest and most beautiful combinations. Over and above all these subordinate agencies, however, there is a master principle—there is life, the grand chemist, the mighty engineer, who superintends and regulates the whole. And although he is invisible to the keenest eye, and baffles the strongest microscope, the effects which he works are too palpable to admit a rational doubt of his separate and distinct existence, and the very obscurity of his retreat tends only to raise our admiration of the power and wisdom of that Being, by whom he was originally created, and by whose will he has been attached to our frame. Truly then may we say in the view of this mysterious union of body and soul—of matter and spirit in the present condition of our nature, that we are “fearfully and wonderfully made.” This is therefore doubtless the just and legitimate method of studying the science of physiology—to regard it as exhibiting throughout a most remarkable illustration of the “manifold wisdom of God.” So forcibly was the celebrated heathen philosopher and physician, Galen, struck with this fact, that he remarked, that if there was no other proof of it, the examination of the human eye alone would be sufficient to demonstrate the existence of a Supreme Being.—DAVIES'S *Handmaid*.

LONDON:

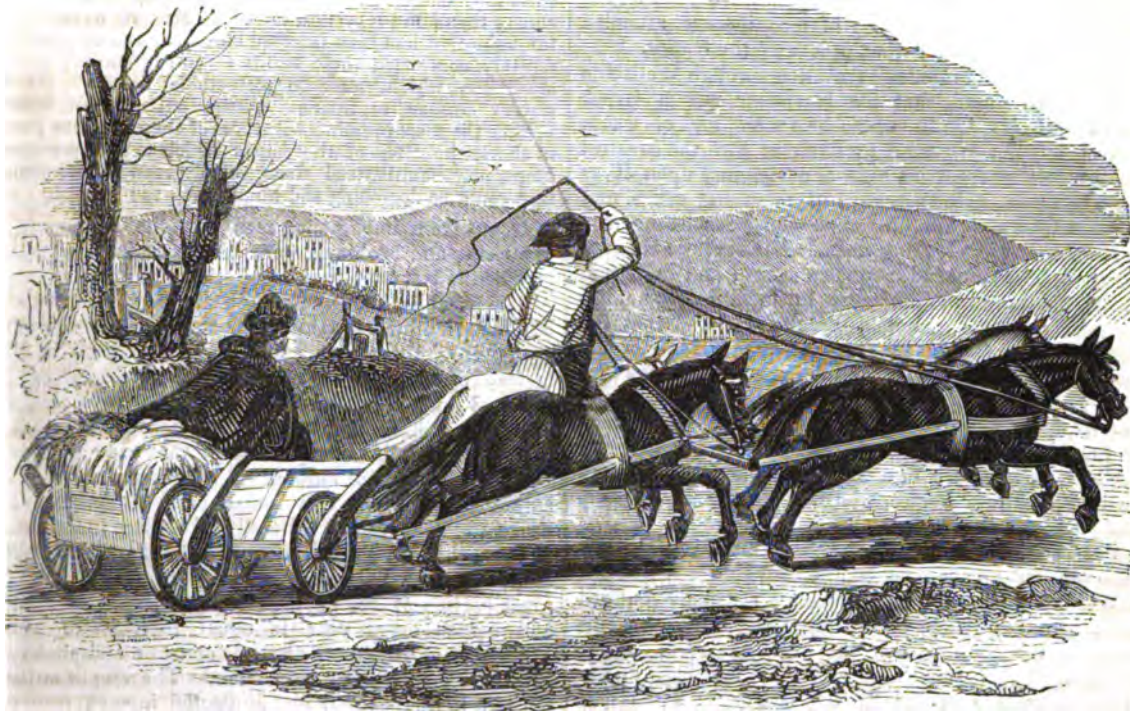
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TURKEY AND THE TURKISH PROVINCES.



TRAVELLING POST IN WALLACHIA AND MOLDAVIA.

WALLACHIA AND THE WALLACHIANS.

In our recent article on Moldavia, we stated that this province was bounded on the south by Wallachia. The two together seem indeed to have formed the ancient province of Dacia, in the time of the Romans; but to have been separated at a subsequent period in their history.

Wallachia is bounded on the north by Moldavia, and the Austrian province of Transylvania; on the west by Banat and Servia; and on the south and east by the Danube, which separates it from Bulgaria. The proximity of the Black Sea on one side, and of the Carpathian mountains on the other, give a variable character to the climate; but this variability is not so gradual as in England: the summer comes in very suddenly and fiercely, but is of short duration; while the winter is both long and severe. The Danube is generally frozen over for six weeks; the ice being of such a thickness as to form a road for the heaviest artillery with perfect safety. Generally speaking, Wallachia may be deemed a cold country; and this, together with a damp quality in the soil, and the existence of many marshy places, produces a marked effect on the animal and vegetable productions of the district. The vegetables are said to be of inferior flavour; the flowers deficient in perfume; the domestic animals remarkable for mildness; the bears, wolves, foxes, and other wild animals, much more timid than in other countries; and lastly, man himself, dull and heavy, with weak passions, no strength of mind, and an utter aversion to a life of industry. Such are said to be the characteristics of Wallachia and Moldavia, so far as the influence of climate is concerned.

VOL. XIX.

In our former paper we took occasion to describe the humbler classes of inhabitants; their avocations and their weaknesses. We will here glance at the more wealthy inhabitants; for Wallachia and Moldavia bear a close resemblance in these respects.

We have said that these provinces are governed by voyvodes, more frequently termed *Hospodars*; and that by recent treaties between Turkey and Russia, these *Hospodars* have become more than ever independent of the former, and elective on the part of the inhabitants. Throughout the whole of the last century, although the choice of these governors was nominally in the hands of the people, yet the Sultan in fact appointed them with as little deference to the will of the people as in any other of the Turkish provinces. This being the case, it was matter of state policy not to appoint a native Wallachian or Moldavian to this post, lest feelings of patriotism might induce him to rebel against the extortionate demands of the Sultan. On the other hand, there were reasons why it was deemed imprudent to appoint native Turks to this office, since, being Mohammedans, they were wholly estranged from the people of those provinces. The plan acted on, therefore, was to appoint Greeks, residing at or connected with Constantinople, to the office of *Hospodar*; because, although their religion corresponded with that of the Wallachians and Moldavians, yet they fawned upon the Ottoman court, and looked in that quarter for support and promotion. We mention this circumstance as an explanation of the fact, that a number of wealthy Greek families are found in these provinces, connected more or less with the *Hospodars*.

When the choice of the *Hospodar* was thus virtually

in the hands of the Sultan, the Greek chosen to fill the office received his investiture at Constantinople with great pomp. The military crest was put on his head by the Muzhur Aga, and the robe of honour by the Vizier himself. He was honoured with military music, and made his oath of allegiance in the presence of the Sultan. From the palace he went in solemn procession to the patriarchal Greek church, where prayers and ceremonies were performed similar to those which were formerly observed at the inauguration of the Greek Emperors. He was then accompanied to his principality by Turkish officers, and made a public entry into the capital of the province with a great display of magnificence, attended by the nobles and the higher orders of the clergy.

When Captain Frankland travelled through Wallachia in 1827, he found that the Hospodar was a Greek named Nicholas Ghika, whom he visited, and of whom he says:—"His Highness received us with the greatest affability, rising from his sofa, and standing upon it as he received us. He then gave us pipes and coffee, and we conversed with him in Italian and French: he is a middle-aged, good-looking man. His revenue is about three hundred thousand pounds sterling; and he is said to have amassed an immense fortune, which he has lodged at Vienna." Captain Frankland found that the Hospodar was at that time embroiled with some of the nobles on account of certain public monies which he was suspected to have appropriated to his own private use. Dr. McMichael well characterized the Hospodars, at the period of the recent changes, as exhibiting the extraordinary phenomenon of a nearly pure despotism exercised by a Greek Prince, who was himself at the same time an abject slave to the Ottoman Porte.

The Boyars, or native nobles of Wallachia and Moldavia, are but a rude class, compared with a parallel class in Western Europe. Their education is usually confined to the mere knowledge of reading and writing the language of the country, and the modern Greek. Some few add to this superficial stock of learning, a few of the rudiments of the French language; and a few others converse in it without understanding anything of its grammar or principles. A slight acquaintance with two or three ancient authors, or the power of composing a few verses, is sufficient to obtain for them the titles of literati and poets, and the admiration of their acquaintances. In short, the inducements to mental culture are so few, that early discipline and instruction are scarcely thought of. They cannot be taxed so much with any actual propensity to vice, as with the absence of any ennobling characteristics: ignorance and established prejudices are their worst enemies. They are greedy in the acquisition of wealth, and heedless in its expenditure: averse to the trouble of superintending their private affairs, they entrust them to the hands of stewards, who too often enrich themselves at their employers' expense. A lax state of morality is thus engendered, which sheds its pernicious influence through the humbler classes.

Those Boyars who have no public employment, spend their time in a very idle manner, resorting to the capitals Bukharest and Jassy, for the sake of society, and leaving the management of their country estates in very inadequate hands. They attend clubs and masked balls at the capitals; but seldom appear to engage in anything which can advance or aid their country, except when some political ferment arises.

When we state that two hundred and ten days of the year are regarded by the Wallachians and Moldavians as holidays or fasts, during which no work must be done, the reader will easily conceive, not only how stagnant must be the state of manufacturing and commercial industry throughout the country, but also how large a scope is opened for temptation and immorality of all kinds; the Boyars are "killing time" in their pursuit of pleasure; and the poor visit brandy-booths or cellars, where the mind and body suffer equally.

The Greek population of these provinces bears a considerable resemblance to that of the higher classes of society in the Morea, in dress, religion, and manners. The causes which led to their appointment in the government of the provinces we have already detailed, and the line of conduct which they pursued there was such as naturally resulted from subservience to the Sultan, and the absence of any patriotic feeling for the country which they governed. It has been well observed of the moral condition of the Greeks in the last century:—

Humiliated, degraded, and oppressed as the Greeks were since they had ceased to be a nation, civilization degenerated among them, in proportion to the weight and barbarism of the yoke that had been imposed on them; and they had insensibly contracted those habits of corruption and servile obedience, which must be inseparable from a state of slavery similar to theirs. Dissimulation and falsehood became the most prominent features of their character; and, in short, the force of the causes which acted upon them incessantly familiarized them, by degrees, to everything that could be degrading and humiliating to man.

It was from among such men that the Hospodars of Wallachia and Moldavia were chosen during the greater part of the last century.

The great bulk of the people are employed more or less in agricultural pursuits, the poorer classes cultivating the lands of the richer, and receiving payment in kind instead of money. Mr. Wilkinson, in describing the mode of husbandry in these provinces, says that the manner of tilling does not materially differ from that of other countries in Europe, except that oxen are always employed instead of horses. Wheat is sown during the autumn; and barley and Indian corn in spring. The harvest of the first two generally takes place in the month of July, that of the latter at the beginning of September; and as Indian corn is required for the nourishment of a great portion of the population, the quantity of it sown and reaped every year is equal to that of wheat. Barley, being used only as food for cattle and poultry, is sown in much smaller proportion. The vine is cultivated to a limited extent, and is planted in such places as are most sheltered from the weather: the grape is seldom gathered before the end of September, and as it does not come to a perfect state of maturity, it makes but indifferent wine of a light quality and sourish taste. The same writer observes:—

The great waste of land left in both provinces in a state of nature, and the universal custom of not cultivating the immediate vicinity of the high roads, give to the country, in many parts, an appearance of desolation; and a traveller, who only judges by the scenery within his view, is apt sometimes to think himself in a wilderness; he meets with few habitations on his way, except those attached to the post-houses, and hardly perceives any other population.

It need perhaps scarcely be said, after a due consideration of the character of the inhabitants, that good roads, and good modes of conveyance from town to town, are not to be looked for. Our cut represents a vehicle which we may term the "post-chaise" of the inland parts of these provinces. These vehicles are made entirely of wood, without a single particle of iron about them; consequently, they are very light, readily upset, and as easily righted: they are about three feet high, and four feet long, and capable only of holding a portmanteau upon which a small quantity of hay being placed, the traveller sits. The rudeness of their construction makes them easy of repair; they are changeable at every post-house, and four horses are harnessed to each. These vehicles are driven by postilions, who generally wear a rough goatskin cap.

In our sketches illustrative of Turkey and the Turkish Provinces, we aim at taking as varied a course as our narrow limits will permit; dwelling sometimes chiefly on the antiquities, at others on the historical associations, at others on the topographical beauties of the district selected. In these two papers on Moldavia and Wallachia,

we have directed our attention mainly to the character and condition of the inhabitants, rather than to the number and ranks of their towns, &c., since the peculiar condition of these districts with respect both to Russia and to Turkey, makes the state of the population a matter of much interest.

A SCENE IN THE BICÊTRE.

THE Bicêtre is the Bedlam of Paris, and Pinel, the chief actor in the following triumph of humanity, was an accomplished physician of the time. We have before alluded to the incident at page 60, Vol. XVI., *Saturday Magazine*, but the wisdom, courage, and humanity which the act displays, render it worthy of a more extended notice.

Towards the end of the year 1792, Pinel, after having many times urged the French Government to allow him to unchain the maniacs of the Bicêtre, but in vain, went himself to the authorities, and with much earnestness and warmth advocated the removal of this monstrous abuse. M. Couthon, a member of the Commune, gave way to M. Pinel's arguments, and agreed to meet him at the Bicêtre. Couthon there interrogated those who were chained, but the abuse he received, and the confused sounds of cries, vociferations, and clanking of chains in the filthy and damp cells, made him recoil from Pinel's proposition. "You may do what you will with them," said he, "but I fear you will become their victim." Pinel instantly commenced his undertaking. There were about fifty whom he considered might be unchained without danger to the others; and he began by releasing twelve, with the sole precaution of having previously prepared the same number of strong waistcoats, with long sleeves, which could be tied behind the back, if necessary.

The first man on whom the experiment was to be tried was an English Captain, whose history no one knew, as he had been in chains for forty years. He was thought to be one of the most furious among them; his keepers approached him with caution, as he had in a fit of fury killed one of them on the spot with a blow from his manacles. He was chained more rigorously than any of the others. Pinel entered his cell unattended, and calmly said to him, "Captain, I will order your chains to be taken off, and give you liberty to walk in the court, if you will promise me to behave well and injure no one." "Yes, I promise you," said the maniac, "but you are laughing at me, you are all too much afraid of me." "I have six men," answered Pinel, "ready to enforce my commands, if necessary. Believe me then, on my word, I will give you your liberty if you will put on this waistcoat."

He submitted to this willingly, without a word; his chains were removed, and the keepers retired, leaving the door of his cell open. He raised himself many times from his seat, but fell again on it, for he had been in a sitting posture so long that he had lost the use of his legs; in a quarter of an hour he succeeded in maintaining his balance, and with tottering steps came to the door of his dark cell. His first look was at the sky, and he cried out enthusiastically, "How beautiful!" During the rest of the day he was constantly in motion, walking up and down the staircases, and uttering short exclamations of delight. In the evening he returned of his own accord into his cell, where a better bed than he had been accustomed to had been prepared for him, and he slept tranquilly. During the two succeeding years which he spent in the Bicêtre, he had no return of his paroxysms, but even rendered himself useful by exercising a kind of authority over the insane patients, whom he ruled in his own fashion.

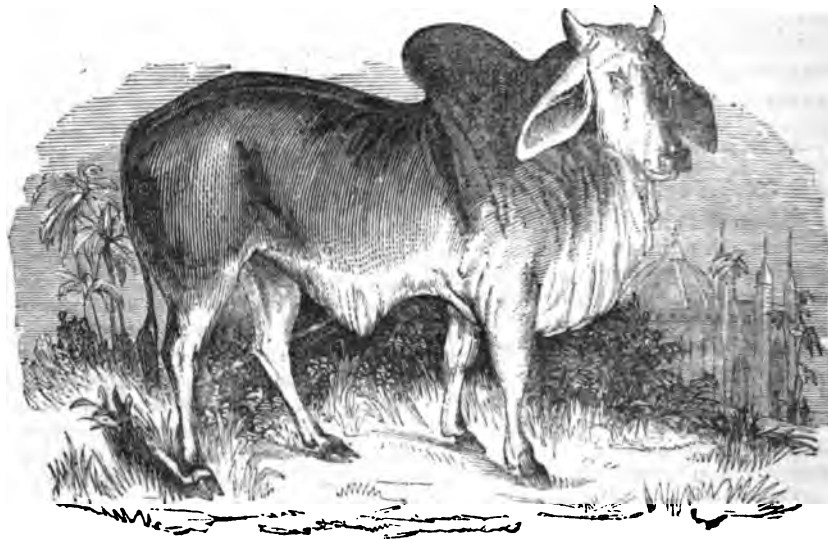
The next unfortunate being whom Pinel visited was a soldier of the French guards, whose great fault was drunkenness: when once he lost self-command by drink,

he became quarrelsome and violent, and the more dangerous from his great bodily strength. From his frequent excesses, he had been discharged from his corps, and had speedily dissipated his scanty means. Disgrace and misery so depressed him that he became insane; in his paroxysms he believed himself a general, and fought those who would not acknowledge his rank. After a furious struggle of this sort, he was brought to the Bicêtre in a state of the greatest excitement. He had now been chained for ten years, and with greater care than the others, from his having frequently broken his chains with his hands only. Once when he broke loose, he defied all his keepers to enter his cell until they had each passed under his legs; and he compelled eight men to obey this strange command. Pinel, in his previous visits to him, regarded him as a man of original good nature, but under excitement, incessantly kept up by cruel treatment; and he had promised speedily to ameliorate his condition, which promise alone had made him more calm. Now he announced to him that he should be chained no longer; and to prove that he had confidence in him, and believed him to be a man capable of better things, he called upon him to assist him in releasing others who had not reason like himself, and promised, if he conducted himself well, to take him into his own service. The change was sudden and complete. No sooner was he liberated, than he became obliging and attentive, following with his eye every motion of Pinel, and executing his orders with as much address as promptness; he spoke kindly and reasonably to the other patients; and during the rest of his life was entirely devoted to his deliverer. And "I can never hear without emotion," (says M. Pinel's son, the author of this memoir,) "the name of this man, who some years after this occurrence shared with me the games of childhood, and to whom I shall always feel attached."

In the next cell were three Prussian soldiers, who had been in chains for many years, but on what account no one knew. They were in general calm and inoffensive, becoming animated only when conversing together in their own language, which was unintelligible to those about them. They were allowed the only consolation of which they appeared sensible,—to live together. The preparations taken to release them alarmed them, as they imagined that the keepers were come to inflict new severities, and they opposed them violently when removing their irons. When released, they were unwilling to leave their prisons, and remained in their habitual posture. Either grief or loss of intellect had rendered them indifferent to liberty.

In the course of a few days, Pinel released fifty-three maniacs from their chains; among them were men of all conditions and countries,—workmen, merchants, soldiers, lawyers, &c. The result was beyond his hopes. Tranquillity and harmony succeeded to tumult and disorder, and the whole discipline was marked with a regularity and kindness which had the most favourable effect on the insane themselves, rendering even the most furious more tractable. Humane physicians in every part of the civilized world, sooner or later, responded to the feelings which dictated this memorable act, the remote consequences of which brought sympathy to a thousand cells of suffering and neglect.

NEVER were the splendour and magnificence of courts, and numerous trains, and noble retinue, set in a truer light, than when the King of kings contented himself with the ministry of his meek mother, and chose to receive the first respects of a few humble shepherds. Never was the true use of power more nicely taught, nor its haughty arrogance and insolent abuses more effectually reproached, than by this proof, that God was then strongest, when he put on the greatest appearance of weakness. The princes, and great ones of this world, are then most truly great, most like their glorious Original above, when they think no condescension below them for a general good.—DEAN STANHOPE.



THE ZEBU.

THE domesticated Asiatic Ox, or Zebu, from the perfect agreement of its internal structure with that of the common ox, is generally believed to be merely a variety of that animal. It is difficult to account for the production of those distinctive characters which now mark the two races, and separate them from each other; but whatever may have been the cause of the differences between the common and the Indian ox, these differences rapidly disappear by the intermixture of the breeds, and, at the end of a few generations, are entirely lost.

Not only does the anatomical structure of the zebu exactly correspond with that of the ox, but the more essential particulars of external conformation are the same in both animals. The form of the head presents no difference whatever. In both, the forehead is flat, or slightly depressed, of a height nearly equal to its breadth, thus giving a square outline. An angular protuberance passes directly across the skull, between the bases of the horns. The size and direction of the horns vary much. In some they are short and sub-erect, in others they are comparatively long and point backwards. The ears of some are of the ordinary size, but in others they are long and pendulous. The dewlap is, in many cases, very largely developed.

These animals are chiefly distinguished by the large fatty hump on the shoulders. Numerous breeds of this humped variety are scattered, more or less extensively, throughout Southern Asia, the Islands of the Indian Archipelago, and the Eastern Coast of Africa, from Abyssinia to the Cape of Good Hope. They differ in size from that of a large mastiff-dog, to that of a full-grown buffalo. The colour of this animal varies in different climates. Its ordinary hue is a light ashy grey, passing into a cream-colour or milk-white, but it is not unfrequently marked with various shades of red or brown, and it has been known to become perfectly black. The hump is sometimes elevated in a remarkable manner, and retains an upright position; but it often becomes half pendulous, hanging partly over towards one side. Those furnished with a second hump are of a distinct breed, said to be very common in Surat. Among the other breeds there are some altogether without horns, and others having only the semblance of them, the external covering being destitute of the support of bony processes, and consequently flexible and pendulous.

The Indian ox is employed throughout the various countries we have named for nearly the same purposes as the European one. It is a beast of burthen, and an article of food and domestic economy. In some parts of India it executes the duties of a horse, and is used both

to the saddle and harness. It is said to perform journeys of twenty and thirty miles a day, though the old writers speak of fifty or sixty miles a day as its usual rate of travelling. The beef afforded by this animal is far from equalling that of the European ox: the hump, which is chiefly composed of fat, is reckoned the most delicate part.

The whole of the different breeds of zebus are held in great veneration among the Hindus. They do not in general object to work them, but to deprive them of life under any pretext whatever, is accounted a sin; and to partake with those who eat of their flesh is considered the height of impiety. A select number of these animals are, however, exempted from all services, and deemed especially sacred. They have the privilege of straying about the towns and villages, and taking their food whence they please. They are not allowed to want for anything, and the most delicate food is cheerfully prepared for them by the devotees, who impose on themselves this charitable office. Respecting the superstitious respect paid to these sacred animals we have the following remark from the *Oriental Annual*.

On the banks of the river (Cavery), in the neighbourhood of a small pagoda, we saw a couple of Braminee bulls, so sleek and fat as to form a perfect contrast with the population around them, everything suffering from the sad scarcity of grain, while the bones of these sacred animals were loaded with an encumbrance of consecrated flesh. It was melancholy to see that while thousands of human beings were starving, the bulls dedicated to the stern divinity, Siva, were so pampered that they would eat nothing but the most delicate food, and this was generally taken with a fastidious and pallid appetite. These bulls were very small but very beautiful; the dewlap of one of them hanging from his throat and between his fore-legs, almost touched the ground. I could not help feeling deeply the sad fact, that the miseries of their fellow-creatures were looked upon with cruel indifference by the wealthy members of the Hindoo community; while before the dumb creatures devoted to their gods, and those senseless blocks which form the disgusting effigies of their divinities, that food was scattered which would have saved whole families from perishing with hunger.

In Benares, and other cities which are crowded with the more wealthy Hindoos of high caste, these animals are exceedingly numerous, thronging the streets, and the courts, and areas of temples. They are very fat, indolent, and inoffensive.

Benares is accounted the holiest of the Hindoo cities, and occupies a somewhat similar position to that which Rome once held among the cities of Christendom. Bishop Heber tells us that the more conspicuous parts

of the houses in this city are adorned with gaudy paintings of flower-pots, men, women, bulls, elephants, gods, and goddesses, in all their many-formed, many-headed, many-handed, and many-weaponed varieties.

The sacred bulls devoted to Siva (says this author), of every age, tame and familiar as mastiffs, walk lazily up and down these narrow streets, or are seen lying across them, and hardly to be kicked up (any blows indeed given them must be of the gentlest kind, or woe be to the profane wretch who braves the prejudices of this frantic population) to make way for the Tonjon.

At the famous Hindoo festival called *Ponjol*, celebrated on the last three days of the year, the concluding ceremony is the worship of the cow, the emblem of *Bhavani*. The animals are first sprinkled with holy water; then the devotees make four prostrations before them; their horns are then painted with various colours; garlands of flowers and strings of cocoa-nuts and other fruit are put round their necks, which being shaken off as they walk or run about, are eagerly picked up, and preserved as sacred relics by the crowd. The consecrated animals are then driven in a body through the villages and followed by crowds of people, who make a discordant noise upon various musical instruments. During the remainder of the day the cows stray whithersoever they please, and feed in every field without restraint.

Who hastens to be rich, resembles him
Who is resolved that he will quickly swim,
And trusts to full-blown bladders! He, indeed,
With these supported, moves along with speed;
He laughs at those whom untried depths alarm,
By caution led, and moved by strength of arm;
Till in midway, the way his folly chose,
His full-blown bladder bursts, and down he goes!
Or, if preserved, 'tis by their friendly aid,
Whom he despised, as cautious and afraid.—CRABBE.

THE propriety of cultivating feelings of benevolence towards our fellow creatures, is seldom denied in theory, however frequently the duty may be omitted in practice. It has been recommended by the eloquence of heathen philosophers, and enforced by some extraordinary examples of heathen philanthropy, but as the foundations on which they built their beautiful theories of virtue were narrow and confined, the superstructure was frail and perishable, and never was the true foundation discovered, till brought to light by Jesus Christ. He first taught how the obstacles to benevolence were to be removed by conquering that pride, self-love, and vain-glory, which had till then constituted a part of the catalogue of human virtues. He first taught the universality of its extent by connecting it with the love of the common Father and Benefactor of all; and made the love of our fellow-creatures the test and criterion of our love to our Creator, while from true devotion to the Supreme Being, he taught that benevolence to man must necessarily flow. He likewise taught that upon all who were convinced of these truths, and were anxious to fulfil the Divine commandments, Divine assistance would be bestowed. He alone ennobled virtue, by the assurance of an eternal reward, and gave dignity to this probatory scene, by representing it as introductory to a glorious and ever-during state of felicity.—ELIZABETH HAMILTON.

How manifold are thy deep wonders, Lord!
Night after night into thy heavens I gaze,
And watch, as circling through the starry maze,
The golden planets move in sweet accord.
O blasphemy of fools, O thought abhorred!
That would th' eternal characters erase,
Which to the creature show in living blaze
Creative Wisdom, and a God record:
Yea—characters, that they who run may read,
Writ every where, throughout each land and sea,
In telling of His power are all agreed.
Yet nought on Earth beneath, in Heaven above,
Declares like Jesus, sinner! given for thee,
A God of holiness, a God of love.—REV. C. STRONG.

ON SWIMMING.

SELF-PRESERVATION FROM DROWNING.

IT is much to be regretted, that with the abundant supply of water assured to this metropolis, more use of it is not made for the purposes of personal health and comfort. Perhaps no capital in Europe is so poorly supplied with baths, and certainly in none is bathing so little practised. This is much to be lamented, for there can be no doubt that frequent bathing is highly conducive to health, and would tend to prevent or mitigate many of the evils usually found in overcrowded cities. From this little familiarity with immersion in water, it doubtless happens that so few persons are acquainted with the art of swimming, and with the mode in which they should conduct themselves when risk of drowning presents itself. The English above all other people should be good swimmers, exposed as they are by their insular situation and commercial pursuits, and disposition to visit other lands, so frequently to perils by sea: yet, while several towns on the Continent have their swimming schools, none such exist in London.

It is to be regretted that Dr. Franklin did not put into force his intention of establishing one. However, were public baths more numerous, this would be the less to be regretted, as, when frequent opportunities of practice are afforded, self-instruction is by no means difficult. The Romans expressed their opinion of a man's great stupidity by saying "he can neither read nor swim."

Most animals have a natural aptitude for swimming, not found in man, for they will at once swim, when even first thrown into the water; but it must be observed that the motions they then employ, much more resemble their ordinary movements of progression, than those made use of by man under similar circumstances.

The children of several uncivilized nations, especially when warmth of climate exists, frequent the water from an early age, and seem almost to swim by instinct: the remarkable powers of endurance, agility, and strength manifested while in the water by many individuals of savage tribes are well known; powers which often enable them to come off victorious in struggles with some of the fiercest inhabitants of their rivers and coasts.

The art of swimming is by no means of difficult attainment, and several authors (especially Dr. Franklin) have supplied directions to facilitate its acquisition. Above all things self-confidence (not rashness leading into danger) is required, and when this is possessed all difficulty soon ceases, especially if the learner be assisted at first by some friend who is a swimmer. Dr. Franklin (himself an expert swimmer) recommends that at first a familiarity with the buoyant power of water be gained, and to do this he desires the learner, after advancing into the water breast-high, to turn round so as to bring his face to the shore: he is then to let an egg fall in the water, which being white will be seen at the bottom. His object now must be by diving down, with his eyes open, to reach and bring up this egg: he will easily perceive that he is in no danger in this experiment, as the water gets shallower of course towards the shore, and, because, whenever he likes, by depressing his feet, he can raise his head again above water.

The thing which will most strike beginners will be the great difficulty they experience in forcing themselves through the water to reach the egg, in consequence of the great resistance the water itself offers to their progress; and this is, indeed, the practical lesson derivable from the experiments; for the learner becomes assured of the very great supporting or sustaining power afforded by water, and hence derives a confidence essential to rapid progress. This sustaining power of water is shown under many circumstances; thus, a stone, which on land requires two men to remove it, might in water be easily carried by one.

A man may walk with impunity upon broken glass in

deep water, because his weight is supported by the water. But many men have been drowned in attempting to wade across the fords of rivers, from not being aware that the body is supported by the water, and does not press on the bottom sufficiently to give a sure footing against a very trifling current. A man, therefore, carrying a weight on his head or shoulders, may safely pass a river, where, without a load, he would be carried down the stream*.

In fact, the knowledge of this "fluid support," constitutes the ground-work of all efforts at self-preservation from death by drowning.

That a person exposed to danger by water should swim well is important, as adding to his security, but it is still more important that he should know that he can be supported in the water, even without swimming, (provided he retains his presence of mind,) by a very trifling effort; for, while the best swimmer, by his exertions, would in no very long time become exhausted, by means of merely floating on the water much fatigue would be spared him, and his chance of being saved much increased. In fact to do this is exceedingly easy, for the human body is, when the chest is filled with air, as by an ordinary inspiration, of a less specific gravity (that is, weight in proportion to bulk) than the water which supports it, and, therefore, must float; and it does so naturally, having about half the head above the water; so that the person exposed to danger has only to turn upon his back, in order that that half consist of the face, and free respiration be thus secured. But, to float thus upon the water, the greatest care must be taken not to elevate the arms or other parts above its surface, and it is in remembering this caution, that presence of mind at the time of danger confers so much benefit, for, in the moment of terror, a person thrown into the water almost instinctively stretches out his hands aloft to grasp at some object, thereby depriving himself of a means of proceeding which would frequently keep him afloat until succour arrived. By elevating any part of the body in this way, we remove it from the support afforded by the water, and thus render sinking inevitable.

Mr. Nicholson in his journal relates an instructive instance of the importance of this caution. While the ship Worcester was sailing along the Ganges, at the rate of seven or eight knots per hour, a man, who was unable to swim, fell into the water. When first perceived, his head was above water; he held up his hands, and after a few seconds splashing he sank; soon after he rose again, and the officer of the ship, who had a trumpet in his hand, called out to him, "Keep your hands down in the water." He obeyed, and remained a considerable time afloat, while a boat was manned for his assistance; by a blunder of the sailors in their haste the boat was considerably delayed, and the ship was rapidly distancing him; alarmed at this, he forgot his instructions, again raised his hands, dashed them in the water, and soon sank: he however speedily rose again, and obeying the same instructions, incessantly repeated to him by the captain, by means of his trumpet, again floated. Whenever he deviated from this rule he sank, and this he did at least five times before the boat reached him, when he had been almost carried out of hearing; when taken up he was so little hurt as to be able to assist in rowing back to the ship. Mr. Nicholson concludes with the following simple rule: "When a man falls into deep water, he will rise to the surface by floatage, and will continue there if he do not elevate his hands. If he move his hands *under* the water in any manner he pleases, his head will rise so high as to allow him free liberty to breathe. And if he move his legs, as in the action of walking (or rather walking up stairs), his shoulders will rise above the water; so that he may then use less exertion with his hands, or apply them to other purposes."

Dr. Arnott, in allusion to this subject, observes

* Arnott's *Elements of Physics*.

that so many persons are drowned who might be saved, for the following reasons: 1. Their believing that continued exertion is necessary to preserve the body from sinking, and their hence assuming the position of a swimmer with the face downward, in which the whole head must be kept out of the water in order to enable them to breathe, whereas, when laying on the back, only the face need be above the water. 2. From the groundless fear that water entering by the ears may drown as if it entered by the mouth or nose, and their employing exertions to prevent this. 3. The keeping the hands above the surface already alluded to. 4. Neglecting to take the opportunity of the intervals of the waves passing over the head to renew the air in their chests by inspiration. 5. Their not knowing the importance of keeping the chest as full of air as possible, which has nearly the same effect as tying a bladder full of air around the neck would have.

We have dwelt thus long upon the power of water (especially salt water by reason of its greater density) to support the weight of the human body, as not only is it the principal circumstance to be remembered when exposed to danger of drowning, but because, when a due confidence in it is acquired, all difficulty in learning to swim soon ceases. It is to this end the practice recommended by Franklin is directed, and by reason of ignorance or forgetfulness of it, so many persons in the hour of peril, by their fruitless and injurious exertion, as it were *drown themselves*, who might by tranquillity and presence of mind be saved.

Although floating in water is sufficient to preserve from immediate danger, yet ought not the acquisition of the art of swimming to be neglected. Progression by this means depends, like the flight of birds, upon the law in mechanics of every action being followed by a corresponding action, (*i. e.* reaction,) but in an opposite direction; and, thus, the reaction of the air, compressed by the downward motion of the bird's wings, causes it to mount aloft in proportion to the force it communicates by that motion; so, the backward stroke communicated by the simultaneous movement of the hands and feet of the swimmer, causes his forward progress in the water. When once familiarized with the support he derives from the water itself, he soon learns to make this stroke correctly, especially if aided and supported by some more experienced friend, a means far more desirable than the use of corks or bladders. Mr. Nicholson makes the following interesting remarks upon the subject:

Dr. Franklin's method of learning to swim by struggling to descend to the bottom is better calculated to give courage than skill; but at the same time it must be allowed that he who has acquired the former will require very little of the latter to become a swimmer. I have nevertheless remarked that those boys who were the most daring plunging into the water before they could swim, have most arrived at the art later than others who have attended with some care to the method of striking their arms and legs. I have known several persons who, after acquiring the method of striking the arms separately, so as to have gained confidence to walk in water rising above the shoulders, and striking the legs while the body was supported by the hands bearing on the ground in shallow water, have swum well at the first trial to combine both together. The rules of swimming swiftly and with little fatigue are few. The body must lie as near the surface, and the head as low as conveniently may be. The knees must be kept wide asunder, in order that the obliquity of action in one leg may counteract that in the other, instead of their joint action producing a libratory motion of the body; and the stroke or impulse must be given with much more velocity than that employed in drawing the legs up again.

Many persons recommend that the motions of frogs when swimming should be observed, as so nearly resembling those employed by man.

In conclusion, we wish to impress upon all learners the necessity of knowing well the character, both

depth, &c., of the places wherein they practise. To learn to swim, it requires that the water should reach at least to the shoulders, but when higher than this, or beyond the depth of the swimmer, he should never go unaccompanied by an experienced person. J. C.

THE inward pleasure and satisfaction arising from the practice of virtuous actions, may be greatly overclouded in the present state by bodily diseases and misfortunes; and the inward pain and remorse generally felt on, or attending the commission of vicious and wicked deeds, may be greatly smothered, or not so much felt, from an eager pursuit after sensual gratifications, or an attendance on business and secular employments; but in another world there will be no diseases or misfortunes to overcloud the one, nor sensual gratifications or secular employments to smother or prevent the other being felt to all eternity.

THE belief of a supernatural assistance is so reasonable, so consonant to our ideas of the Divine goodness and of human frailty, that philosophers, even in the heathen world, were sensible how much it was wanted, and have expressly asserted, that without Divine assistance no man could make a progress either in wisdom or virtue. What reason suggested to them, Revelation has ascertained to us, which represents us as temples and habitations of the Holy Spirit.—REV. G. CARR.

UNDER the persuasion that no disaster can reach us without the permission of Him who watches over us with an eye that never slumbers, and a tenderness which nothing but guilt can withdraw from us, we can face those unknown terrors from which pagan philosophy turned away dismayed; we can look forward, unmoved, into futurity, and contemplate all the possible contingencies that may befall us, with intrepidity and unconcern; with the cheerfulness of a mind at perfect ease, reposing itself in full confidence and security on the great Disposer of all human events.—BISHOP PORTERUS.

LABOUR, though it was at first inflicted as a curse, seems to be the gentlest of all punishments, and is fruitful of a thousand blessings: the same Providence which permits diseases, produces remedies; when it sends sorrows, it often sends friends and supporters; if it gives a scanty income, it gives good sense, and knowledge, and contentment, which love to dwell under homely roofs; with sickness come humility, and repentance, and piety; and affliction and grace walk hand in hand.—JORTIN.

THE slave who digs in the mine or labours at the oar, can rejoice at the prospect of laying down his burden together with his life; but to the slave of guilt there arises no hope from death. On the contrary, he is obliged to look forward with constant terror to this most certain of all events, as the conclusion of all his hopes, and the commencement of his greatest miseries.—BLAIR.

It was an excellent rule which Marcus Antoninus prescribed to himself in his private meditations: "Manage," says he, "all your actions and thoughts in such a manner, as if you were just going out of the world."

As the Supreme Being has expressed, and, as it were, printed his ideas in the Creation, men express their ideas in books, which, by this great invention of our latter ages, may last as long as the sun and moon, and perish only in the general wreck of nature. Thus Cowley, in his poem on the Destruction, mentioning the destruction of the universe, has these admirable lines:

Now all the wide extended sky,
And all th' harmonious worlds on high,
And Virgil's sacred Work, shall die.

There is no other method of fixing these thoughts which arise and disappear in the mind of men, and transmitting them to the last periods of time; no other method of giving a permanency to our ideas, and preserving the knowledge of any particular person, when his body is mixed with the common mass of matter, and his soul retired into the world of spirits. Statues can last but a few thousands of years, edifices fewer, and colours still fewer than edifices.—ADDISON.

FRESH-WATER FISH.

VI.

THE CARP, (*Cyprinus Carpio*, LINN.)

THE Carp family (*Cyprinoideæ*) is the first of the five families into which Cuvier divides his second great division or order of osseous fishes. This order (*Malacopterygii Abdominales*) includes those fishes whose ventral fins are attached to the abdomen, behind the pectorals, and unconnected with the bone of the shoulder. This order includes the greater part of the fresh-water fish.

All the species of the genus *Cyprinus*, of which the common carp is the type, are inhabitants of fresh water; most of them have the faculty of bringing their lips forward, and drawing them back, in consequence of the anterior part of the mouth being formed of very small bones, connected by elastic ligaments. The mouth is small, the jaws feeble, and very often without teeth, but with teeth on the pharynx, which compensate somewhat for their absence on the jaws. Their bodies are scaly, and they have not the soft dorsal fin which occurs in the salmon family. They are the least voracious of all the finny tribes. The different species so much resemble each other, that it is often difficult to distinguish between them. Most of them are esculent, but their flesh is not of the first quality.

The common carp is found in the fresh waters of the southern and temperate parts of Europe; and it is only in consequence of the care bestowed on them that they are found in the more northern parts of the continent. Beckman says,—

We are told that these fish were brought from Italy to Prussia, where they are at present (1797) very abundant, by a nobleman whose name is not mentioned. This service, however, may be ascribed with more probability to the Upper Burggrave Casper von Nostitz, who died in 1588, and who, in the middle of the sixteenth century, first sent carp to Prussia from his estates in Silesia, and caused them to be put into the large pond at Arensburg, not far from Creuzberg. As a memorial of this circumstance, the figure of a carp, cut in stone, was shown formerly over a door at the Castle of Arensburg. This colony must have been very numerous in the year 1535, for at that period carp was sent from Königsberg to Wilda, where the Archduke Albert then resided. At present a great many carp are transported from Dantzic and Königsberg to Russia, Sweden, and Denmark. It appears to me probable that these fish after that period became every where known and esteemed, as eating fish in Lent and on fast days was among Christians considered to be a religious duty, and that, on this account, they endeavoured to have ponds stocked with them in every country, because no species can be so easily bred in these reservoirs.

Since the time when Beckmann wrote, until the present time, the sale of the carp has formed part of the revenue of the nobility and gentry in Prussia, Pomerania, Brandenburg, Saxony, Bohemia, Mecklenburg, and Holstein; and the treatment of this useful fish has long since been reduced in these countries to a kind of system, founded on numerous experiments made during several generations in the families of gentlemen well skilled in every department of husbandry. They construct carp ponds, and stock them with a few breeders, which in a short time fill the pond. It is recommended to have three ponds, viz., a spawning pond, a nursery, and a pond for adult fish. It has been found that such ponds as are surrounded by poor, clayey soils, or are exposed to the north and east winds, or have much wood about them so as to obstruct the rays of the sun, or contain hard or very cold water, or such water as issues from mines, moors, or mosses, will never allow the fish to thrive. Water-fowl must be kept away from the ponds during the spawning season. Every full-grown carp must be allowed a space in the pond equal to a square of fifteen feet: the more room they have, the more quickly will they grow, and the oftener they are fed the better. Mr. Forster has

known them to attain the weight of twenty-five pounds by being carefully attended to. During winter, should the pond be covered with ice, it must be broken in many parts, as without the admission of air the fish would soon perish.

An extraordinary but cruel method of improving carp for culinary purposes is described in the *Philosophical Transactions* for 1754.

It is very doubtful at what time the carp was introduced into England. The year 1514 is mentioned by Fuller as the time when Leonard Maschal, a gentleman of Plumstead in Sussex, introduced the tench, but there is some reason for doubting whether we ought to give him the honour of introducing the carp also. Carp are mentioned in the *Boke of St. Albans*, published by Wynkyn de Worde, as early as 1486. This *boke* contains a treatise on fishing and several more serious tracts, compiled by Dame Julvans Barnes, prioress of the nunnery of Sopwell near St. Albans, a lady celebrated for her learning and accomplishments. The reason for her publishing the treatise on fishing in the manner in which it appears, is given by her in the following words:—"And for by cause that this present treatyse shoulde not come to the hondys of eche ydle persone whyche wolde desire it, yf it were empynted allone by itself and put in a lytyll plaunflet; therefore I have compylyd it in a greter uolume, of dyuerse bokys concernynge to gentyll and noble men, to the entent that the forsayd ydle persones whyche sholde haue but lytyll mesure in the sayd dysporte of fysshynge, sholde not by this meane utterly dystroye it." Speaking of the carp, she says, that, "it is a deyntous fysshe, but there ben but fewe in Englonde. And therefore I wryte the lasse of hym."

In this country the carp usually attains the length of from about twelve to sixteen inches; but in warmer climates it will grow to two, three, or four feet, and attain a weight of twenty, thirty, or even forty pounds. Its general colour is a yellowish olive, much deeper or browner on the back, with a slight hue of gold on the sides: the scales are large, rounded, and distinct; the head large, and the mouth furnished on each side with a cirrus or beard, and above the nostrils a smaller pair: the lateral line is slightly curved, and marked by a row of blackish specks; the fins are violet-brown, with the exception of the anal, which has a reddish cast: the dorsal fin is broad, or continued to some distance from the middle of the back towards the tail, which is slightly forked.

The carp attains a great age: specimens have been spoken of as being 150 or 200 years old. Their colour is less deep as they get old, and in advanced age it borders on white. In old age, too, they are subject to a singular malady: the head and back become covered with moss-like excrescences. This disease seems also to affect young carp which inhabit snow-water, or water which has become putrid: snow-water also produces pustulous germs under the scales, which fishermen call the small-pox. Their intestines also often contain worms, and their liver is subject to ulceration.

The food of the carp is larvæ of insects or worms, small testacea, grains, roots, and the young shoots of plants. They devour readily the leaves of lettuce, and other tender plants, which are thrown into the water. The leaves and seeds of salad, according to Blotch, fattens them more quickly than any other food. They may also be observed darting out of the water to seize the insects which hover over its surface. The concussion of their jaws or lips in eating, occasions a peculiar noise which may be heard at some distance. They can remain a long time without food, yet when it is offered them in abundance they often overfeed themselves, and perish from the effects of their gluttony.

Carp delight most in waters where the current is not strong. In summer they frequent weed beds and are particularly fond of those aquatic plants of stagnant

waters which spring from the bottom and rise to the surface. In rivers they frequent the still deeps which have an oozy bottom, with rushes and reeds, where they find a convenient nidus for their spawn. During winter they conceal themselves in the mud and pass many months without food, collected side by side in great numbers. In the spring, those that inhabit running waters quit their winter abode to seek more tranquil haunts. If their progress should be obstructed by any barrier, they endeavour to leap over it by placing themselves on their side, bringing the head and tail together and then suddenly letting go this sort of circular spring.

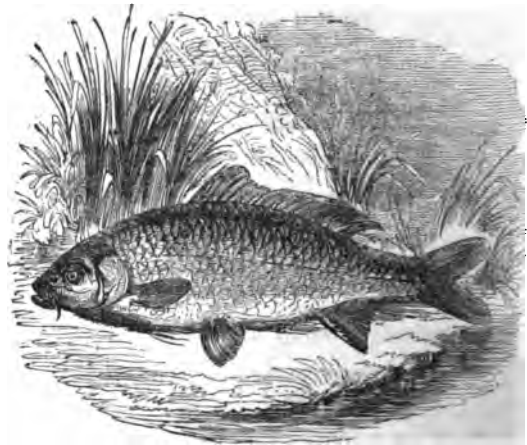
The carp is surprisingly prolific; the quantity of roe is so great, that it is said sometimes to have exceeded the weight of the emptied fish when weighed against it. As it frequently happens with prolific animals, the greater portion of the spawn is devoured by other animals; and the young ones are exposed to numerous dangers. The carp grows rapidly, and at the age of three years it has few enemies to fear, except the otter and the larger pikes. The eggs of the carp, as well as those of the sturgeon, are made into caviar, which is highly esteemed. The bile of the carp furnishes a green colour to painters, and was formerly used in medicine.

The carp is so tenacious of life that it may be kept for a considerable time in any damp place, though not immersed in water. In winter they may be transported to a considerable distance by packing them up in plants, in moistened linen, or in snow, and putting a bit of bread steeped in brandy in their mouth. In Holland they are suspended to the roof of a cellar in nets full of damp moss, which is frequently watered; and they are fed with bread and milk or with chopped vegetables.

They are transported to Paris in well-boats, which are often stocked at the distance of more than a hundred leagues from that capital.

The *Cyprinus auratus*, gold fish, or golden carp, has been already described in *Saturday Magazine*, Vol. XVI., p. 134.

* See *Saturday Magazine*, Vol. XVIII., p. 92.



THE CARP.

The scandal brought upon religion, as it was not contracted by the irregularities of one or two persons, but by associated and common crimes; so neither will it be removed by a few single and private reformatations. There must be combinations and public confederacies in virtue, to balance and counterpoise those of vice, or she will never recover that honour which she acquired by the general piety of her professors.

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SUPPLEMENT,

JULY, 1841.

{ PRICE
ONE PENNY.

A BRIEF HISTORY OF THE FINE ARTS. No. I.



TERMINAL FIGURE OF PAN.
(From the Townley Gallery.)

O Greece! thou sapient nurse of finer arts!
Which to bright science blooming fancy bore;
Be this thy praise, that thou, and thou alone,
In these hast led the way, in these excelled,
Crowned with the laurel of assenting Time.—THOMSON.

INTRODUCTION. ORIGIN OF THE FINE ARTS.

THE Fine Arts are usually understood to include those productions of human genius and skill which are more or less addressed to the sentiment of taste. Their origin has been the subject of much learned display and speculation; but considering them to be purely *imitative* in their nature and origin, and that their highest aim is, by a delicate combination, to draw to a single point the scattered excellences of nature, so as to excite pleasurable emotions, capable also of informing, elevating, and improving the mind, we must refer the invention of these arts, not to any single people, but to every country where human reason has been at all cultivated. There is a love of ornament and display naturally implanted in the human mind, and a strong tendency to copy surrounding natural objects. Even the savage finds delight in adorning his body, and passes much of his time in executing the rude carvings on his spear shaft or canoe, which simple exhibitions of his skill require only a general cultivation of the mind of the artist to raise into tasteful decorations.

The imitative arts may therefore be considered indigenous in every country; but, like the productions of the earth, they assume different forms according to the nature of the climate and the wants it produces. Not only do the fine arts exist in some form or other in every country, but we

VOL. XIX.



PHOCION.
(From a Drawing by Flaxman from the Antique.)

find them in about the same stage of advancement among all nations of the same degree of civilization in every age and clime. It is not therefore either necessary or philosophical to go back to the ancient Egyptians, to the Scythians, or to the aboriginal Greeks, for the origin of the fine arts. It is true that little diversity is found even among distant nations in the gradations from rude art to refined invention. In the early stages of society men of all countries closely resemble each other in their feelings, wants, means of gratification and improvement. Hence that resemblance of style which has been traced in the arts of many distant nations ought not to be taken as evidence of a common origin. The early Egyptian and Grecian statues display similar lineaments and corresponding attitudes; simply because the artists of each had to overcome the same difficulties, and brought nearly the same amount of information to bear upon them.

As the mechanical arts originated in the physical wants of man, so the fine arts originated partly in the desire to embellish the rude productions of necessity, and partly also to supply certain sensible representations of sentiments and ideas which to the circumscribed capacity of unenlightened ages must be extremely vague. "A supreme, spiritual, invisible intelligence being infinitely beyond the reach of vulgar apprehension, was under the necessity of being shadowed out to their senses through the medium of some more obvious and familiar imagery. The attributes of this intelligence—power, justice, mercy, or goodness—distinctly considered, were separately personified, and converted into objects of sense. The various passions and affections of

humanity—joy, sorrow, love, hatred, fear, and revenge—were in like manner embodied and clothed with material shape and form. To this it may be added, that the first civilizers of mankind, or inventors of useful arts, were in that rude state of nature beheld with a distant reverence, nearly allied to adoration. The advantages resulting to society by their discoveries and institutions seemed so perfectly consonant to the idea of a superior existence, that the grateful simplicity of their admirers readily subscribed to their deification. This system, then, of mythology, this state of polytheism, were, as it seems, more particularly favourable to the introduction of sculptors and painters, whose works alone could furnish sensible representations, and thus determine the object of devotion. The want, perhaps, of their earlier assistance had before that time directed the indiscriminate worship of mankind, not only to animals, but to inanimate substances, and even rude unorganized matter.

—GRATTAN.

The early history of the fine arts, now veiled in a mist of fable and antiquity, involves details which appear marvellous and incredible, as distant objects when beheld through a dense medium, will generally assume an extravagant and unnatural magnitude. The national vanity of the imaginative Greeks was gratified in referring the origin of the politer arts to their tutelary divinities. Love, celebrated by the mythologists as the governor of nature, was the parent of the arts; and music, his first born. The first artist was a young girl, who, perceiving the profile of her lover's features cast on the wall by the strong light of a lamp, drew the first recorded outline from this cherished object of her affections. From such a trivial beginning, according to the Grecian apologue, arose those arts whose softening and humanizing qualities have moderated the barbarism of man, and alleviated the disastrous effects of vice. The Greeks represent Dædalus as the restorer of the arts after the deluge had involved in ruin all arts, whether elegant or useful, however imperfect or however improved. Although a portion of the excessive admiration bestowed on him originated probably in the ignorance of his admirers, yet he is generally esteemed the founder of the Athenian school. Before his appearance, the Grecian statues were mere shapeless stocks, their eyes closed, their arms hanging down as if glued to the body, and their feet joined without life, attitude, or gesture. Dædalus infused some spark of life into these stiff, motionless trunks; and his disciples, gradually improving, attained the difficult path which led to the production of those existing models of symmetry, elegance, and grandeur.

Although we must dismiss as groundless any theory which advocates the exclusive discovery of the fine arts, yet the attainment of excellence in the pursuit and practice of the arts generally has been easier to some nations than to others. "How far moral and physical causes operate on the genius of an age, has been a subject of inquiry frequently discussed from the days of Velleius Paterculus to our own. Certain it is, that at particular revolutions of time, some kind of supernatural influence, or, as it were, some celestial emanation, seems to descend on a particular people, lights up their invention, heightens and spiritualizes their imagination, and calls into life and action their dormant faculties. Genius will ever demand a friendly soil to flourish and dilate itself, while, like the sensitive plant, it ever shrinks and sickens at the rude touch of tyranny and oppression." We do not propose to confine our inquiry to the progress of the arts among one particular people; but among the nations of antiquity, as far as may be convenient, in chronological order.

COMPARISON BETWEEN PAINTING AND SCULPTURE.

Before we enter on the task of sketching the history and progress of the noble art of *Sculpture*, it may be well to make a comparison between it and the sister art of painting, and to endeavour to explain some of the causes which operate in producing the very different emotions, which all persons of taste must be conscious of, in viewing representations on stone and on canvass. In doing this, we shall have occasion to adopt the sentiments of Mr. Milman on the subject, and where we deem it desirable, we shall present those sentiments to our readers in the eloquent language of their author.

Sculpture and painting address the imagination through the sense of sight; and although in their essence strictly imitative of forms really existing, and whose existence is conceivable, yet by awakening and keeping alive the imagination, they become purely ideal, and present us with forms,

closely adhering to their types in nature, but wrought to supernatural grandeur or beauty. To the imagination we chiefly owe the emotions of elevation, of terror, or of mild and placid delight thus excited; emotions differing with our constitutional and mental temperament; and in some respects with our habitude and familiarity with addresses of this nature. The mind breathes life and motion on the images represented in stone or canvass, and the imagination wavers from the representation to the thing represented, and forms for itself a sort of indistinct existence from the qualities of both. The ideas of motion, breath, animal warmth, are so inseparably connected with our notion of the animal form, that a figure in marble or in colour inevitably suggests what it cannot express: and in this sense imagination supplies the deficiency of art. But previous to this address to the imagination, painting has an advantage which sculpture has not at all, or in a far less degree. The harmony of rich and brilliant colours has doubtless a gratifying effect on the sense, and produces a pleasing irritation on the organ of sight. The spotless white and glossy smoothness of marble may indeed make a sort of cool and soothing impression on the organ, but this is faint and feeble in comparison with the sensual enjoyment proceeding from the mellow contrast and rich variety of a Venetian picture. Thus painting in a manner conciliates a welcome reception by its previous flattery of the sense: for doubtless we should look with delight on a mass of hues, mingled and harmonized with the consummate art of Titian, though there were no representation of nature, but an unmeaning surface of colour. The pleasure would indeed be brief, and the subsequent dissatisfaction and disappointment of the mind at being thus neglected and sacrificed to the sense, would be unpleasant and even painful; but still the interval between the first glance and the discovery of the deficiency would assuredly be pleasurable."

A very striking advantage likewise results to painting from the wide scope afforded by perspective, and by colouring, and its consequences of light and shade. The range of objects selected for imitation is much more extensive, and the powerful aid of accessories is brought to increase the illusion. Painting has the power of fixing the attention to the point where she wishes it to center, and diverting it from what it is her interest to conceal. Sculpture on the other hand is cold, naked, and severe, without accessories to aid the illusion, and destitute of power to dazzle the sense. It must therefore be exquisitely conceived and finely wrought, before the imagination will yield to its impression, and endow it with motion and life. The concentration of mind necessary to imbibe the spirit of a fine piece of sculpture, is, however, very favourable to our enjoyment of the ideal. "Once beyond the world of positive reality, we expatiate readily, as far as the artist will lead us. It is then, after this effort and exaltation, nothing objectionable that the shapes we behold surpass all that we have hitherto seen in human limb and feature. We have already stepped beyond nature, by looking on a stone with somewhat similar feelings which we experience in looking on a human being; and it is but little farther to sympathize with what differs from humanity only in its perfection, with what is incompatible with truth only in its untrue degree of excellence."

The peculiar connection of sculpture with the Grecian polytheism, and of painting with Christianity, has often attracted attention. Grecian artists appear to have known little of the breadth and depth of colouring, the magical effect of light and shade, and the delicate perspective of modern painting. The inferiority of all sculpture on Christian subjects is equally notorious. A German critic accounts for this by saying that the mind of the Grecians was, like his atmosphere, all light, while that of the Christian, like his variable northern sky, presents an interchange of light and shade. The mythology of the former was a series of self-existent beings of different powers and attributes. Many of his divinities were mere immortal men, who lost only the grosser parts of their nature, but retained their distinctive forms and qualities. The Greek artist therefore collected from the human form all that was noble and majestic, and purified it from that which was gross, or inharmonious, and thus embodied the very essence of grace, dignity, and power. The Christian, with a mind influenced by his climate, and awakened by the revelation with which he has been favoured, looks into the most important and mysterious subjects, and meditates on eternity, on his own nature, and on the relation in which he stands to the Omnipresent God. Much that is mysterious and incomprehensible meets him at every point of his inquiry, and calls for the exercise of faith and

humility. He feels that it is impossible adequately to personify the subjects which most affect him. The sublime with him has always a mixture of the vague and indefinite, and is therefore the sublime of painting, and not of sculpture. The partial sight and half revealing of objects is in the power of painting, but not of sculpture.

"From its material and character, sculpture must be defined and decisive; painting may be indeterminate and vague: in sculpture all meets the eye; in painting more often is meant than meets the eye: sculpture must show all fully and absolutely; painting but partially and indistinctly: the mind grasps the whole in sculpture; in painting it ever thinks there is more to grasp: sculpture satisfies and fills the imagination it addresses; painting excites it till its own powers fail, rather than the matter suggested to it. It is this filling and satisfying the imagination that makes unity so absolutely necessary in sculpture: all must be a balance, an harmony, a severe simplicity. Sculpture must excite one general emotion, one tone must predominate, one character pervade the whole; for the imagination, if diverted, is ever willing to wander; if it wanders, it cannot be satisfied.

"The softer magic of beauty seems also to work by a different spell in the two arts; and this appears the source of the difference. In sculpture we behold the most exquisite symmetry, a graceful melody of lineament; each feature is, as it were, the sister of the other; the hair is clustered with a light regularity. Still we feel an indescribable want; whatever emotion we have is not merely passionless, but somewhat cold. Our admiration is not merely devoid of the grosser attraction of sense, but even of feeling; the beauty is there which enraptures the mind, but not the loveliness which enthralls the heart. This want is expression, which the hue of the countenance only and the eye can give. The stronger passions alone affect the whole face, draw down the lip, arch the brow, or give a languid or contracted cast to the general features. But the mild affections speak and breathe in the colouring of the face, in the settled light or the fugitive blush, but chiefly in the eye. From these two sources the infantile smile and the maternal look of love, all those softer enchantments of beauty which need only to be truly embodied, being too fine and delicate to admit any heightening of the imagination, are in the power of the painter alone."

While it is acknowledged that painting has the power of going more deeply to the heart, and of striking those fine chords which respond not to the touch of sculpture, yet it is undoubtedly true that the contemplation and study of the faultless beauty and majesty of the statuary's master-pieces refine the mind from what is gross; the imbibing their grand and chaste spirit nourishes that loftiness of soul and delicacy of feeling which is indispensable to true taste.

Taking this view of sculpture, and regarding it as the elder sister of painting, we proceed to notice the most ancient existing monuments of the art, and to take a brief survey of Egyptian Sculpture.

SECTION I. ON EGYPTIAN SCULPTURE.

Among the existing monuments of the ancient Egyptians, examples are found of their rudest as well as most perfect workmanship, thus favouring the opinion that we have specimens of their earliest as well as latest productions.

The institutions of the Egyptians did not permit the introduction of improvement or change, so that, for a long and unknown period up to the conquest of Egypt by Cambyses, the style of art is exceedingly rude and tasteless. The lines forming the general contour are destitute of the graceful curves of nature;—they are straight and projecting; the position of the figures is stiff and unnatural. In sitting figures the legs are parallel, the feet squeezed together, and the arms fixed to the sides; but in the figures of women the left arm is folded across the breast; the bones and muscles are scarcely discernible; the eyes are flat and looking obliquely, and the eye-brows sunk,—features which quite destroy the beauty of the head; the cheek-bones are high, the chin small and pointed, the ears generally placed higher than in nature, and the feet too large and flat. Drapery is almost absent, and the few specimens that occur only serve to show the incapacity of the hereditary artists who executed it.

The remains of ancient grandeur still existing on their native site, and the numerous remains preserved in European museums, afford abundant means of testing the merits of the original or native sculpture of the Egyptians. These remains consist of colossal statues; groups or single figures of

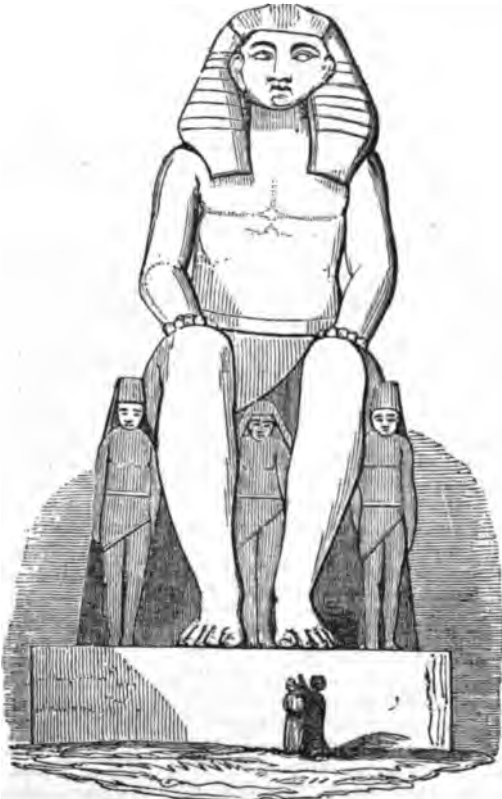
about the natural size; and hieroglyphical and historical reliefs. These productions were not only formed by the chisel, but also carefully polished. Even those on the summit of an obelisk, which could only be viewed at a distance, were finished with as much assiduity as if they were to be subjected to a close inspection. As they are generally executed in granite or basalt stones of a very hard texture, it is impossible not to admire the indefatigable patience of the artists.

The number of colossal statues in ancient Egypt, as recorded by ancient writers, would seem incredible, were it not authenticated by numerous existing remains. These and other enormous works have struck every visitor with wonder and awe. Herodotus says, "One of their buildings is equal to many of the most considerable Greek buildings taken together;" and a modern observer remarks, "These works are so prodigious, they make everything we do look little." Another says, "The Egyptians had notions of durability in their works which no other nation has succeeded in imitating; they seemed to work as if they laughed at time, war, barbarism. Quantity was everything with them, or almost so; quality but little. They wished to please themselves and astonish posterity, and they succeeded. It would, perhaps, be impossible to adduce a more striking example of disregard of time and patience of toil than the formation of a statue of granite, sixty or seventy feet high. "Of these mighty labours," says Dr. Memes, "some are hewn from the living rock, and left adhering to the natural bed; as the celebrated Sphynx, near the Pyramids of Ghizeh, and various sculptures on the rocks of the Thebaid, which look the shadows of giants cast by a declining sun." Others appear to have been first built up of square blocks and then worked into shape. But the greater part are formed of one block of enormous dimensions. Many figures of the colossal Sphynx appear to have been ranged in considerable numbers on the opposite sides of the approach to the great temples. Some of the human colossi were isolated, and were probably regarded as objects of worship; others were used as columns. The largest statues now known are in a sitting posture; these are at Thebes; the altitude of each figure, exclusive of the lower plinth of the throne, is fifty feet, the material, red granite; the head in each figure is looking straight forward; the arms are pressed close to the sides; the palms and fore-arm extended, and resting upon the thighs; the lower extremities are perpendicular and apart. This posture, which may be described as characteristic of the entire class, is little calculated to convey any sentiment of grace or ease. Yet, in these vast, although comparatively uninformed labours, we discover more of the sublime than arises from mere vastness, or even from the recollections of distant time with which their memory is associated. They are invested with a majestic repose—with a grand and solemn tranquillity, which awes without astonishing; and, while they exhibit the greatest perfection to which Egyptian art has attained, in colossal statues generally, we discover occasional approaches to truth and nature, with no inconsiderable feeling of the sweet, the unaffected, and the flowing in expression and contour."

Some of the earliest efforts of Egyptian sculpture seem to have been made, not upon detached masses of stone, but upon the rock itself, in the process of excavating caverns for the purposes of devotion. Such statues do not greatly exceed the natural size, and, being detached when finished, were removed to other situations, and frequently copied in detached blocks. Hence, probably, arose that singular feature in Egyptian statues, viz., a pilaster running up the back of the figure. In the remains of sculpture preserved in the excavations of Philoe, Elephantia, Silsilia, and at El-Malook, in the tombs of the Theban kings, the ornaments vary from simple reliefs to complete statues. In these latter, the figures are not completely detached, a posterior portion being always left adhering; while, if the statue be formed by cutting round a recess, a pilaster behind runs up the whole height, intended probably to save labour, or to increase the strength. When such statues are detached for the purpose of removal, the pilaster is still retained, probably from the same motives or perhaps in order to obtain a surface for the inscription of hieroglyphics, or probably from a blind adherence on the part of the sculptor to the types left him by his ancestors. There is a remarkable sameness about all these efforts: the design and the attitudes are strangely limited, altogether showing the operation of prescriptive rules and fixed models, whereby the skill and imagination of the artist were almost as effectually constrained, as the productions of his chisel.

The surfaces of many of the ancient Egyptian structures are frequently covered with reliefs. In these, where variety of action and situation is required, the Egyptians display their deficiency in the knowledge of anatomy, mechanics, and geometry. In all these monuments the king or hero is represented three times larger than the other figures. Whatever is the action,—a siege, a battle, taking a town by storm,—there is not the smallest idea of perspective in the place, or magnitude of figures or buildings. Figures in violent action are equally destitute of joints, and other anatomical form, as they are of the balance and spring of motion, the force of a blow, or the just variety of line in the turning figure. "In a word," continues Flaxman, "their historical art was informing the beholder, in the best manner they could, according to the rude characters they were able to make. From such a description, it is easy to understand how much their attempts at historical representation were inferior to their single statues."

It must however be mentioned, that occasionally, in the historical reliefs, there appear the rudiments of higher art, with less of convention, and more freedom of imagination. The hero of the piece is always represented in the bloom of youth, and there is something approaching to grandeur and beauty of conception, in his figure as represented on some of the monuments. Yet these separate excellencies are completely obscured by the absurdity of representing him at least double the stature of the figures surrounding him.



EGYPTIAN COLOSSAL STATUE.

Winkelman has attempted to class Egyptian sculpture into three periods or epochs: The first he calls the ancient epoch, which was the era of original or native sculpture, including the time which elapsed from the origin of the Egyptians to the reign of Cambyses, in the sixty-second Olympiad, or five hundred and twenty-six years before Christ: the middle epoch, or era of Greco-Egyptian sculpture, embraces the period during which Egypt was under the dominion of the Persians and Greeks: and the third, or last, being the era of imitative sculpture, improperly denominated Egyptian, prevailed about the time of Hadrian. By a subsequent alteration of his plan, Winkelman extended the first of his periods to the establishment of the Greeks under Alexander the Great and his successors. This extension of the ancient period is generally considered just, for Plato, who flourished about a hundred and thirty years after Cambyses, expressly states that in painting and the other imitative arts, the Egyptians had made no change; their

productions were neither more beautiful, nor worse, than in remote ages. The art of sculpture, like the other arts, was in Egypt subject to strict laws, and all works of a religious nature were subject to the forms and attitudes prescribed by the authority of the priesthood. The constitution of the Egyptian government was likewise opposed to changes and innovations of any sort, and even the trades and professions of the people were made hereditary in the respective families. The exertions of art were necessarily feeble under such a system as this: taste and invention were excluded; artistical ambition was kept down; and the art remained unchanged for ages. All the sacred figures of Egypt present a resemblance, or rather identity, which renders it very difficult to fix the relative antiquity of the specimens: in general, the information is gathered rather from the situation in which the figure is found, and the signs of rude antiquity or of Grecian art which surround it, than from any evidence presented by the statue itself. The representation of animal and vegetable forms could hardly be subject to the same strict laws, and it is here that we expect to find some tokens of the various degrees of ability in artists. Accordingly we find a nearer approach to correctness of form and natural roundness of figure in representations of animals, than in the sculpture of the human shape.

The materials used in Egyptian sculpture were wood and stone, metal and clay. The wooden figures often found on mummies are of the native Sycamore of Egypt, and this was also, probably, the material of their larger statues in wood. Herodotus tells us that King Amasis sent two wooden statues of himself as a present to the temple of Hera (Juno) in Samos. The same historian informs us that the high priests of Jupiter at Thebes, preserved the remembrance of their priesthood by each making, during his lifetime, a colossal wooden figure of himself; and that as many as three hundred and forty-five were to be seen at Thebes, when Herodotus visited that city. Belzoni found two wooden figures of very fine workmanship in the tombs of the kings at Thebes; these were about seven feet in height.

In their labours on stone, the Egyptians employed several kinds of material: one soft, a species of sandstone; and three very hard, a calcareous rock out of which the tombs, with their sculptures, are hewn; basalt or trap of various shades, from black to dark grey, generally used in the smaller statues; granite, more commonly of the description named by mineralogists *granites rubescens*, of a reddish hue, with large crystals of feld-spar; or of a dark red ground, with black specks, as in the magnificent head in the British museum known as the head of Memnon. The latter description of granite is rarely used. Small figures have been found of a composition similar to the bronze of later times, but metal appears to have been sparingly used. In the tombs, small images of porcelain and *terra cotta* are not unfrequent.

Differing from the views of Winkelman with regard to the epochs of Egyptian sculpture, Dr. Thomas has come to the conclusion that there was but one period really characteristic of the nation, and that the genius of this indigenous and aboriginal art is to be discovered only in the most ancient monuments; it having suffered various changes under the Greeks and Romans. The methods employed by the Egyptian sculptors in working their materials, are matters of mere conjecture. Modern tools are found to make little impression on their porphyry, granite, and basalt, and our ideas become confused, when we reflect upon the amount of patience and labour required to produce only a few of those gigantic forms, which are scattered in such profusion throughout that remarkable country. The great proof of the superior antiquity of Egyptian sculpture over that of Asia is found in its uniform simplicity; the grand lines of composition are few, accessories are sparingly introduced, and where they are made use of, they bear the same sober, massive character. While many of those nations once possessing the finest regions of Asia, have left scarcely a single memorial of their ancient greatness, and while a shapeless mass of ruins remains in some cases the sole testimony of their proudest works, the monuments of Egypt seem to bid defiance to time and change, and to stand in their stern majesty as a lasting example of the perseverance and toil of a most extraordinary people.

SECTION II. ON TUSCAN SCULPTURE.

Of Phœnician sculpture we shall not attempt any description. We read of temples adorned with statues, and glittering with gold and emeralds, but all their great works

have been destroyed, and the medals of the Carthaginians (though this people was a colony of Phœnicians) do not permit us to judge of the merits of their ancestors.

The Etrurians, Etruscans, or ancient Tuscans, called by the Greeks Tyrrhenians or Tyrsenians, and by themselves Rasena, are the people who inhabited ancient Etruria, and who at a period when the rest of Europe was immersed in ignorance and barbarism are said to have attained a high degree of civil and social refinement; they are also said by some writers to have made considerable progress in sculpture, at an earlier period than the Greeks; but this opinion has been doubted by many, and it is even doubted whether the Etruscan has any right to be considered a distinct school of sculpture. Works of art were probably executed in Etruria, previous to the arrival of the Greek colonists in North Italy and South France; "but," says a writer on this subject, "the more rude and ancient specimens are exactly in the style of the very ancient Greeks; from whom they appear to have learnt all they knew; and whose primitive style they continued to copy, after a more elegant and dignified manner, founded upon more enlarged principles, had been adopted by the Greeks themselves. Hence their works may be justly considered as Greek, or, at least, as close imitations of the Greek; they having followed their archetypes strictly and servilely, though at a great distance, if reckoned by the scale of merit. The proximity of Italian colonies, where the arts were cultivated with the most brilliant success at a very early period, afforded them the most favourable opportunities of obtaining instruction; and if they availed themselves of it at all, it is rather wonderful that their progress should have been so slow and comparatively imperfect."



ETRUSCAN PATERA.

Another writer on this subject says:—

"The renown which belongs to a nation that excelled in the arts, has become, as it were, the inheritance of the Etruscans. But, from the peculiar constitution of government and society in ancient Etruria, it has been conjectured, not without appearance of reason, that the works in bronze and clay, and the bas-reliefs attributed to them, were the produce, not of the dominant race, but of their subject bondsmen or serfs; and that in reality the Etruscans, properly so called, were as little given to the arts as the Romans, by whom, in their turn, they were subdued. The striking difference observable between Tarquinii and Arretium in their works of art, seems to correspond with the different origin of the earlier inhabitants of Northern and Southern Etruria. Volaterra was naturally led, by the stone quarries in its neighbourhood, to engage in the works for which it became celebrated. The two former cities, however, wrought only, or chiefly, in clay. Arretium made red vases, with elegant figures in relief, in a style altogether peculiar. Those of Tarquinii were painted, and both in colour and design resemble some discovered near Corinth, of which Dodwell has given engravings. Painted vases are found only in the district of Tarquinii, and where they occur those of Arretium are never met with; besides, they differ from the Campanian in all those peculiarities for which the Greek works of the same kind are distinguished. The resemblance which is thus found to exist between the vases of Tarquinii and of

Corinth irresistibly reminds us of the story of Demaratus, who is said to have been accompanied by the potters Euchir and Engrammus; a circumstance evidently designed to express that Tarquinii derived from Greece her skill in handling clay, and the elegant drawing with which her vases were adorned. The earliest Etruscan statues were of clay; but the statues belonging to the first ages of Rome were almost uniformly of bronze, and the master-pieces which shed lustre on Etruscan art are all of the same material. That this art received its refinement from the Greeks, cannot, we think, be reasonably questioned. Works of primitive antiquity attest its original rudeness; and to the Greeks alone, improving on Egyptian models by a close study of the finer forms and proportions of nature, belonged that skill which throws life and beauty into the delineation of the human figure. Hence the subjects of many of the most beautiful Etruscan works of art are obviously taken from the Greek mythology, which, in Etruria, was found as well adapted to the purposes of the artist, as in the land to which it was native. But the Etruscans, when their taste had once been formed, treated their own conceptions in the spirit of their masters; and, though no doubt inferior in grace and delicacy of execution, they acquired a correctness in drawing which may almost be stated as a national characteristic. In the she-wolf of the Capitol, we have an example of the perfection to which Etruscan art had attained about the middle of the fifth century of Rome; nor are the finest gems probably of a much more recent date."

The authenticity of many of the specimens, called Etruscan, which have reached our times, is liable to be questioned. Of the statues in marble, it is difficult to say whether they are early Greek or Etruscan; the smaller ones in bronze are less to be doubted, being household divinities or merely ornaments. On the ancient reliefs found in various parts of Italy, several are admitted to be genuine Etruscan; but the more elegant examples are believed to have been executed after the conquest of Etruria by the Romans, two hundred and eighty years before Christ.

The style of Etruscan sculpture is hard and overcharged, and became proverbial among the Romans on account of these defects. Quintilian has expressly noticed it, and, when speaking of the work of some Greek sculptors, says, "Callon and Egesias made statues in the harder styles, and very like the Tuscan figures: Calamis introduced a style which was not so stiff, and Myron made figures still more soft and bending." The most curious and interesting among Etruscan remains belong to the class of engraved bronzes, or *patæra*, small vessels used in sacrificing; circular, and, in the single instance of the Etruscan, with a handle. Etruscan gems are also of exquisite workmanship. Gem engraving was brought to great perfection at an early period, both in Italy and Greece.

SECTION III. ON GRECIAN SCULPTURE.

We come now to the history of Grecian sculpture, and to the consideration of the causes which produced so great a superiority in the works of the artists of Greece, over those of all other nations. Ancient history informs us, that the Greeks did not emerge from a state of barbarism till long after the Egyptians, the Chaldeans, and Indians had arrived at a considerable degree of civilization. By means of colonies from Egypt and Phœnicia, the original rude inhabitants of Greece were gradually civilized and led to adopt the arts and the religious worship of those countries. The first efforts of Grecian art were rude, and in no way superior to those of other nations; and the ancient, or *archaic* period, as it is called, of Grecian art extended through eight almost unknown centuries nearly to the time of Phidias.

A variety of causes appear to have contributed in rendering the Greeks famous as sculptors. Their beautiful country was peopled, by the warm imagination of its people, with those beings, either divine or heroic, which constituted its theology. Their winding streams, flowery plains, and azure mountains, were looked upon as at once the residence and the representatives of these beings, and it is no wonder that attempts to present these objects in a more tangible form should lead to the exercise of skill, and should excite the emulation of ardent minds. The influence of climate over the human body is too evident to require that we should dwell on it here: and we may say with a modern writer, "Perhaps no country in the world enjoys a more serene air, less tainted with mist and vapours, or possesses, in a higher degree, that mild and genial warmth which can unfold and expand the human body into all the symmetry

of muscular strength, and all the delicacies of female beauty, in greater perfection, than the nappy climate of Greece; and never was there any people that had a greater taste for beauty, or were more anxious to improve it."

The opportunity given to artists of studying their models in the public places, where the youths of Greece performed their exercises quite naked, may also be mentioned as a reason for the wonderful progress of this people in sculpture. Also, the high regard bestowed on those who attained to eminence in the art. "An artist could be a legislator, a commander of armies, and might hope to have his statue placed beside those of Miltiades and Themistocles, or those of the gods themselves. Besides, the honour and success of an artist did not depend on the caprice of pride or of ignorance. The productions of art were estimated and rewarded by the greatest sages in the general assembly of Greece; and the sculptor who had exercised his task with ability and taste, was confident of obtaining immortality."

We have already spoken of Dædalus, the first sculptor among the Greeks who attained sufficient celebrity to ensure the existence of his fame. More than one artist, however, bore the name of Dædalus, and, indeed, this name among the ancients, appears to have been synonymous with universal genius; for Dædalus is said not only to have constructed the labyrinth of Crete, but to have been the inventor of the wedge, and of wings, besides being the greatest sculptor of his time. His invention of wings is said to have formed his means of escape from Crete, to avoid the revenge of Minos. Some understand this merely to mean that he put sails to the vessel which bore him from the island. The works of Dædalus were in wood: the first Greek sculptors that became famed for working marble are said to have been Dipœnus and Scyllis, about 580 years before Christ. At about the same period the art of casting brass, and melting it into statues, was taught by Rhœcus and Theodorus, both Samians. The plastic art, or modelling in clay, appears to have been known considerably earlier. A fragment of a statue, believed to be the work of Rhœcus, is now in the British Museum. It is a head of Diomedes of the size of life, and forms one of Mr. Knight's collection of bronzes.

It would be foreign to our purpose to give a list of the numerous sculptors who adorned the age previous to the birth of Phidias. The little islands of Samos and Chios produced many skilful artists, and the cities of Sicyon, Ægina, Corinth, and Athens, whence arose the primitive schools of Greece, still continued to send forth sculptors worthy of their ancient celebrity.

The birth of the great master of the art of statuary, the renowned Phidias, took place at Athens, in the 73rd Olympiad, about four hundred and eight years before Christ. His mind is said to have been early adorned with all the knowledge which bore on his profession. He was skilled in history, poetry, fable, geometry, and the optics of the day; and under the reign of Pericles, who commanded the treasury of Athens, and the allied states, he had the most favourable opportunities of exercising his talents. His chief talent appears to have lain in representing the divinities of his country. Cicero tells us that he did not copy visible objects, and thus represent their features and resemblances, but formed to himself an idea of true beauty, upon which he constantly fixed his attention, and which became at once his rule and model, and guided at once both his design and his hand. To the direction of this remarkable man, the public works of Athens were consigned, and under his superintendence the celebrated temple of the Parthenon was produced, the beauty of whose embellishments may be gathered from the remains of exquisite statues and alti and bassi relievi now in the British Museum and known as the Elgin Marbles. The Temple of Apollo Epicurius near Phigaleia was the work of the same master-mind, and it is believed that the Phigaleian (now also in the British Museum) were the early, and the Parthenon sculptures the finished, productions of Phidias's school.

The statues in bronze executed by Phidias, were, in point of number and excellence, quite unrivalled. His ivory statues* were also without parallel; and he even condescended to work in the meaner materials of wood and clay. Pliny and Pausanias have given us some account of the different methods used by Greek sculptors in the fabrication of their metal statues. The latter historian describes a brazen statue of Jupiter at Lacedæmon, the most ancient of all the works in that metal then known. This statue

* For an interesting notice of the *Ivory Statues of the Ancients*, see *Saturday Magazine*, Vol. XVI., p. 61.

was of hammer-work, fabricated in separate portions, which were afterwards closely riveted together. The artist was Learchus, said to be a disciple of Dipœnus and Scyllis, if not of Dædalus himself. Several statues of this hammer-work, made by Gitiadas, a citizen of Lacedæmon, were extant in the time of Pausanias. An improved method appears to have been subsequently adopted, the statue being formed from laminæ, placed one over another, like the weaving of a garment; that is, of plates carved and chased into the forms required. The casting of brass was afterwards discovered, as we have said, by Rhœcus and Theodorus. The latter artist, it appears, likewise cast figures in iron. The discovery of the art of soldering iron is attributed to Glaucus, a native of Chios; and among the works in that metal noticed by Pausanias, are a group of Hercules and the Hydra, by an artist named Tisagoras, and the heads of a lion and a boar, which he saw in Pergamus, dedicated to Bacchus. He also mentions a statue of Epaminondas made of iron.

We now proceed to give a brief account of the ideas of the Greeks concerning the standard of beauty in the different parts of the human body.

With respect to the head, their ideas of beauty were consistent with a noble and dignified expression, as may be observed in what we call a Grecian style of countenance at the present day. The profile of such a countenance consists of a line almost straight, or marked by such slight inflections as are scarcely to be distinguished from a straight line. The forehead and nose, in the case of young persons, form a line very nearly approaching the perpendicular.

The ideas of the Greeks respecting the forehead were very different from ours. Ancient artists and writers inform us that they reckoned a small forehead a mark of beauty, and a high forehead nothing less than deformity. To preserve the oval form of the face, it was customary to represent the forehead as partially hidden by the hair, which made a curve about the temples, and thus prevented the angular appearance of the upper part of the face, which would result from too great an exposure of the forehead. From similar ideas respecting beauty, the Circassians wore their hair hanging down over their foreheads almost to the eyebrows. As to the eyes, their form was deemed of more importance than their size, though large eyes were generally considered beautiful. In sculpture the eyes were always sunk deeper in the head than is natural, because by deepening the cavity the statuary increases the light and shade, and gains expression. In the statues of the different deities, the eye forms a very characteristic feature. The eyes of Apollo, Jupiter, and Juno are large and round. Those of Pallas are also large, but shaded and softened by the lowering of the eyelids. In the Venus de Medicis we have an example that large eyes are not essential to beauty. In this inimitable statue, the eyes are small, with the lower eyelid raised a little, and imparting an air of peculiar sweetness. The beauty of the eyebrows consists in the sharpness of the bones, and the fineness of the hair. The masters of the art considered the joining of the eyebrows a deformity, though it is sometimes found in ancient statues.

Much of the expression of the face depends upon the form of the mouth; much more, in fact, than can be imagined by a person who has not attempted the delineation of the human features. In beautiful statues, the lower lip is always fuller than the upper, in order to give an elegant rounding to the chin. The teeth were very seldom allowed to appear. The Grecian artists never admitted a dimple, except to distinguish individuals, for they considered it by no means beautiful.

Remarkable was the care and attention bestowed by the ancients on the execution of the ears. In their portraits they were as careful to secure an exact likeness of the ear, as of any of those features on which it is customary to lavish the principal share of attention. The careful finish of the ear is frequently sufficient of itself to distinguish an ancient statue from one of later times. Another distinguishing mark of antiquity is afforded by the manner in which the hair was formed. On hard and coarse stones the hair was short, and appeared as if it had been combed with a wide comb; in marble statues it was curled and flowing. In female heads, the locks were thrown back, and loosely tied behind in a waving manner; in very young persons the hair fell naturally over the shoulders.

The most perfect necks of youths, in ancient sculpture, are nearly circular, like a portion of a column. The commencement of the arms as they are affixed to the body has a bold and rounded form, and the whole of the limb, from its

union to the trunk down to the wrist, is a diminishing cylinder. The hands of young persons were moderately plump, with little cavities or dimples at the joints of the fingers. The male hand and finger had more breadth and flatness, and the knuckles were more square and decided even in youth. The female hand was more rounded and fleshy, and the fingers more decidedly tapering and cylindrical than those of the male. The terminating joint was not bent as it appears in modern statues. The nails in men are more squared, and in women more rounded, long, and delicate. The ravages of time have indeed deprived a great number of the ancient statues of hands and feet, but from those which remain it is evident that the artists of those times were anxious to reach perfection in these as well as in the more conspicuous parts of their work. As the ancients did not cover the feet as we do, they studied them with much attention, and gave to them the most beautiful turning. Winkelmann remarks that it is very rare to meet with beautiful knees in young persons, or even in the elegant representations of art. He states that the best-turned knees and most beautiful legs are preserved in the Apollo Sauroctones in the Villa Borghese; in the Apollo which has a swan at its feet; and in the Bacchus of the Villa Medici. The breasts, in statues of men, were broad and elevated; in women, consisting of a gentle elevation only. The female figure is generally one-tenth shorter than the male; the bones are more straight, and less rugged towards the joints; the forms of the body and limbs are more rounded. The shoulders of the female are narrower in proportion than those of the male; the loins are narrower, and the hips broader. In infancy the proportions are of course extremely different, and there is a general roundness of limbs and body, little distinguished by the marking of bone at the joints, or projecting muscle between the joints.

It seldom or never happens that equal perfection is found in every part of the same individual; hence, it becomes necessary that the sculptor should select the most beautiful parts from different models; and that with such judgment and care, that all these detached beauties may form a complete and symmetrical whole.

The Greek sculptors were very skilful in the disposition of the drapery in their figures, which was always so arranged as to heighten the general effect. The description of the vestments of the Greeks as given by Flaxman may be stated in an abridged form, that we may the better understand the draperies we find on antique statues. The largest and coarsest woollen garment worn by the men was the *pallium*, a large piece of cloth, square or nearly so, and seven feet in length, though considerably less in width. This was generally worn by being folded over, perhaps one-third of the breadth, one end applied to the left side of the body, carried under the right arm, and thrown over the left shoulder in front; it formed broad and simple masses before and behind, with a few bold and distinct folds, which left the body and limbs well accounted for beneath. It was, according to the convenience of the wearer, thrown in a variety of different manners: sometimes one arm was wrapped in it, sometimes the other, and sometimes nearly both: all the statues of philosophers, except the Cynics, are clothed in this manner. There were other garments much resembling the *pallium*; particularly the manly *peplus*, the chief difference in which was the finer texture of the material, and the more numerous folds into which it consequently fell. The corners of this garment were sometimes ornamented with tassels, or knots.

Of a still finer and lighter description was the *chlæna*, a garment of smaller size than the *peplus*, but still in the shape of a long square. This garment is particularly appropriate to youthful heroes. The *tunic*, or *kiton*, was an under garment also worn by men in early times; this had short sleeves, and hung over the left shoulder, leaving the right shoulder entirely bare, not to impede action; in after times it had short sleeves, was full in the body, and when not girded hung down below the mid-leg; but, when collected by the girdle, did not reach lower than the knees. This seems to have been made in general of the same material with the *chlæna*. The *chlamys* is a military and hunting cloak, fastened with a button on the right shoulder, as that worn by the Apollo Belvidere.

The dress of the Greek women was not materially different from that of the men. The tunic was generally made to pass over each shoulder, except in the case of Amazons, or female warriors, who sometimes had the right shoulder left bare; the tunic of females reached to the feet, and was

lower than the ankles, even when girded with a zone. It was made of a finer material than that worn by men, and produced long and variegated folds without lessening the distinct appearance of the figure underneath. The *peplus*, or long veil, is described as a dignified garment by Homer; it was worn in the same manner by women as by men, and is a characteristic of dignity, as Juno, Minerva, Vesta, and Ceres, are seldom or never seen without it in a placid state. Besides the tunic or *kiton*, the dignified Greek females had another garment called the *peplo-kiton*, which appears to have been one piece of cloth doubled over at the top, folded round the left side, the left arm having passed through the top. It was open on the right side, which presented two cascades of folds. This garment is very commonly represented on Greek vases. Many other garments were worn by women, and answered in some measure to those in use at the present time, but they are of less consequence to notice than the vestments above described.

It remains to notice the Roman toga, so entirely appropriated by the Romans, that they are thence called *gens togata*. Collected in its folds it appears to have been of an oval figure, through the opening of which, the head, the right arm, and half the body on the right side passed, the garment resting on the left shoulder, being supported by the left hand, falling below the middle of the right leg, and presenting almost innumerable curvilinear folds, which encircle the figure before and behind from the left shoulder downwards. A lap of this garment was brought from behind over the left shoulder, tucked into the upper part in front under the right breast, which fold was called the *cinctus Gabinus*, and was said to be a fashion brought from the city of Gabia. It was worn by emperors, consuls, noblemen, and Roman citizens; in general, it was made of a fine woollen cloth, as most of the Roman garments were.

"In reflecting on the beauty of drapery," says Flaxman, "we must always refer to the beauty of the human figure, which it covers; and as garments are worn as a defence against the weather, or from motives of modesty, they should never be such an incumbrance as to impede action or overload figure, either by their quantity, or mode of wearing; which rule being observed, the general idea of form and action will always be intelligible underneath; and thus, however the figure may be covered, the plainer parts of the garment will give a breadth of light and shadow to the mass, and its folds a beautiful variety of form, either in harmony with, or in opposition to, the form of the limbs and body. The cascade, or zig-zag fold of a long full garment hanging from the shoulder towards the feet, by the irregular geometrical effects of its light and shadow, shade the undulations of living forms on the opposite side of the figure, whether covered with drapery or not, with an advantageous variety.

"The fine and web-like draperies, such as that of the Flora Farnese, show all the forms of the body and limbs, with nearly the same distinctness as if they had remained uncovered, at the same time that the gentle radiated curvilinear folds, upon a near examination, contrast the beautiful forms of the body by variation of lines tenderly assimilated with the flesh, in such a manner as induces the spectator to believe that the least motion of the body will produce a different, and equally pleasing new arrangement of the drapery."

Grecian sculpture in general, may be distinguished as appertaining to the ancient style, the grand style, or the graceful style. The most authentic records of the ancient style are medals containing an inscription, which leads us back to very distant times. The writing is from right to left, in the Hebrew, and this alone is sufficient to prove their antiquity, since the practice was abandoned in the time of Herodotus. The statue of Agamemnon, at Etna, which was made by Ornatas, has an inscription from right to left. This artist flourished fifty years before the time of Phidias. In the primitive schools of sculpture, from the time of Dædalus to that of some of the more immediate predecessors of Phidias, (a period embracing several centuries,) sculpture can scarcely be considered as a regular art. The founders of those schools, with their pupils, were little more than ingenious mechanics, who followed carving among other avocations. Such were Endæus of Athens, celebrated for three statues of Minerva; Æpeus, immortalized as the fabricator of the Trojan horse; Icmulous, spoken of in the Odyssey as having sculptured the throne of Penelopa; and many others who kept up the knowledge of sculpture during the heroic ages, though they appear to have made but

little improvement in the art. The schools of Crete, of Samos, and Chios have been already spoken of. The Chian school claims the praise of having first introduced the use of the material to which sculpture is mainly indebted for its perfection, namely, marble. Malas, the father of a race of sculptors, and who is said to have lived about six hundred and forty-nine years before the Christian era, was the first to make the application of this material; and the beautiful marbles of their native island furnished to him and his successors, one rich means of superiority.

The age of Dipœnus and Scyllis, brothers, and of the school of Sicyon, forms an era in the history of ancient art, marking the first decided advances towards the succeeding style. Before their time the style of sculpture had been extremely dry and minute. The designing was energetical, but harsh; it was animated, but without gracefulness; and the violence of the expression deprived the whole figure of beauty. While the limbs and countenance were rude and incorrect in form and expression, the ornamental details were worked with the most elaborate care. This taste for extreme finish arose from the limited resources of the art itself, from the manner of dressing prevalent at that period, and more especially from the mediocrity of artists, leading them to bestow on parts, that application which should have been directed towards the perfecting of the whole.

The fault of fastidiousness and ill-bestowed labour also attaches to the works of the artists we have named, but a great improvement was effected by them, and their names are therefore deservedly recorded as the benefactors of the art in that period. Their execution was much more free, the whole effect more powerful, and the forms better selected and composed. There are at present in the British Museum, colossal heads of Hercules and Apollo, believed to be the work of Dipœnus and Scyllis, which admirably illustrate the style of art at this early period.

Sculpture was now practised throughout a large extent of country, and the school of Magna Græcia, which had long been rising in importance, now began to vie with those of Sicyon, Chios, &c. Five hundred and seventeen years before Christ the fame of all preceding sculptors suffered by the reputation of two Chian brothers, Bupalus and Anthemis, who brought to a high degree of perfection the discovery of their ancestors,—sculpture in marble. Their works were highly valued in succeeding ages, and formed part of the treasures removed to Rome by order of Augustus. The arts flourished at Athens under the government of Pisistratus, and under his protection many esteemed artists employed their skill with advantage to themselves and their country. A corresponding zeal for the arts, and for sculpture in particular, now manifested itself in various parts of Greece. The victory of Marathon, which took place four hundred and ninety years before the Christian era, gave fresh life and energy to the institutions of Greece, and by the artists of this period up to the time of Pericles the grand style was practised, and finally, by the renowned Phidias, brought to perfection. Of the immediate predecessors, or early contemporaries of Phidias, the following are a few of the principal names. Onatas and Glaucias of Ægira, Critias, Calamis, Pythagoras of Rhegium, Polyclethus, Scopas, Alcámenes, and last and greatest of the early school, Myron. From the severe and simple majesty of the grand style a progressive change commenced even in the life-time of Phidias, to one of more studied elegance and softer character. "Sublimity," says Dr. Memes, "is in its own nature a more simple sentiment than beauty, and the sources whence it springs infinitely more limited. If, then, we find the true sublime in Grecian sculpture confined almost to the age and labour of one man, is this to be wondered at, when the same is the case, not only in their poetry, an art far more abundant in resources, but in the poetical literature of every people? The sculptors, then, who followed the era of Pericles to the death of Alexander, can be called inferior to Phidias, only in the same sense as the poets who succeeded will be termed inferior to Homer. In both instances, the change was but the application of principles, which in their essence could not vary, the subjects requiring a modification of certain distinguishing qualities.

The third style of Grecian sculpture was the graceful or beautiful. It was introduced by Praxiteles and Lysippus. They designed to please rather than to astonish by their performances, and to raise admiration by giving delight. Praxiteles was a native of Magna Græcia, born about three hundred and sixty-four years before Christ. "Finding the highest sublimities in the more masculine graces of the art

already reached, perceiving also that the taste of his age tended thitherwards, he resolved to woo exclusively the milder and gentler beauties of style. In this pursuit he attained eminent success. None ever more happily succeeded in uniting softness with force,—elegance and refinement with simplicity and purity: his grace never degenerates into the affected, nor his delicacy into the artificial." Among the known works of this master are his Cupid, Apollo, the Lizard-killer, Satyr, and Bacchus with a Faun. The celebrated Venus of Gnidos was his work.

Lysippus, a Sicyonian, contemporary and rival of Praxiteles, is said to have wrought only in metal. This sculptor was born in the lowest walks of life, and was in a great measure self-taught. He was a diligent follower of nature, and seems to have been distinguished by a more masculine character than was common in art at that period. He produced colossal and equestrian statues in bronze, and his Tarentine Jupiter, sixty feet in height, was equal in magnitude to any of the undertakings of preceding sculptors. Alexander showed this artist particular favour, and to Lysippus alone was granted permission to cast the prince's statue. He also executed twenty-one equestrian statues of Alexander's body-guard who fell at the Granicus. Not only was he famous in works that demanded a forceful and vigorous composition, but he also excelled in delicacy of finish, and knowledge of symmetry. So great was the renown of this artist, that even the tyrannical Tiberias was seized with apprehension at an insurrection of the Roman people, caused by the removal of the figure of Lysippus from one of the public baths. On the death of Alexander, a fatal and immediate decline was visible in the fine arts, and the period of that decline extended from the dismemberment of the Macedonian empire to the final reduction of Greece into a Roman province,—a space of nearly two hundred years.

The unrivalled excellence of Greek sculpture is sufficiently attested by the works of ancient art still remaining; some of the most highly famed of these are as follows:—The Apollo Belvidere, justly deemed one of the most admirable works of Grecian art; the Dying Gladiator, greatly valued for its truth and beauty, and its admirable execution; the statues of Venus, Diana, Mercury, and Bacchus, illustrative of the best days of Grecian sculpture; the Faun of the Florence Gallery, restored by Michael Angelo. The ancient groups are perhaps yet more precious monuments of the sublimity, beauty, and heroism of Greece. The Laocœon, animated with the hopeless agony of the father and sons, is the work of Apollodorus, Athenodorus, and Agesander of Rhodes. The groups of Dirce, Hercules, and Anteus, Atreus, Orestes, and Electra, and Ajax supporting Patroclus, are examples of fine form, character, and sentiment. Niobe and her youngest daughter, by Scopas, is esteemed an exquisite specimen of art. The difficult but harmonious composition representing the Wrestlers must not be omitted, nor, for graceful proportion, Cupid and Psyche. The Elgin marbles, belonging as they do to a period when the art had reached its highest excellence, may well be considered a peculiar treasure to the British nation. For further particulars respecting these marbles, we refer our readers to the *Saturday Magazine*, Vol. XVI., p. 217 and 233.

Our frontispiece represents two antique figures illustrative of ancient Grecian art. One is a terminal statue of Pan playing upon a pipe. He is generally represented naked, but the long robe with which he is here clothed, and the diadem which decorates his head, not only evince the custom but likewise show the manner in which the ancients occasionally clothed the statues of their deities.

In this figure "the act of breathing into the instrument is so admirably expressed, that we may almost fancy we hear the sounds of the music; and it is not improbable, that this statue may be a copy of the one which gave rise to the Greek epigram of Arabius. The point of this epigram is, that the artist had animated the figure of Pan, by infusing breath into it."

The other figure is that of Phocion, an Athenian commander, one of the most virtuous characters of antiquity, who lived about 377 B.C.

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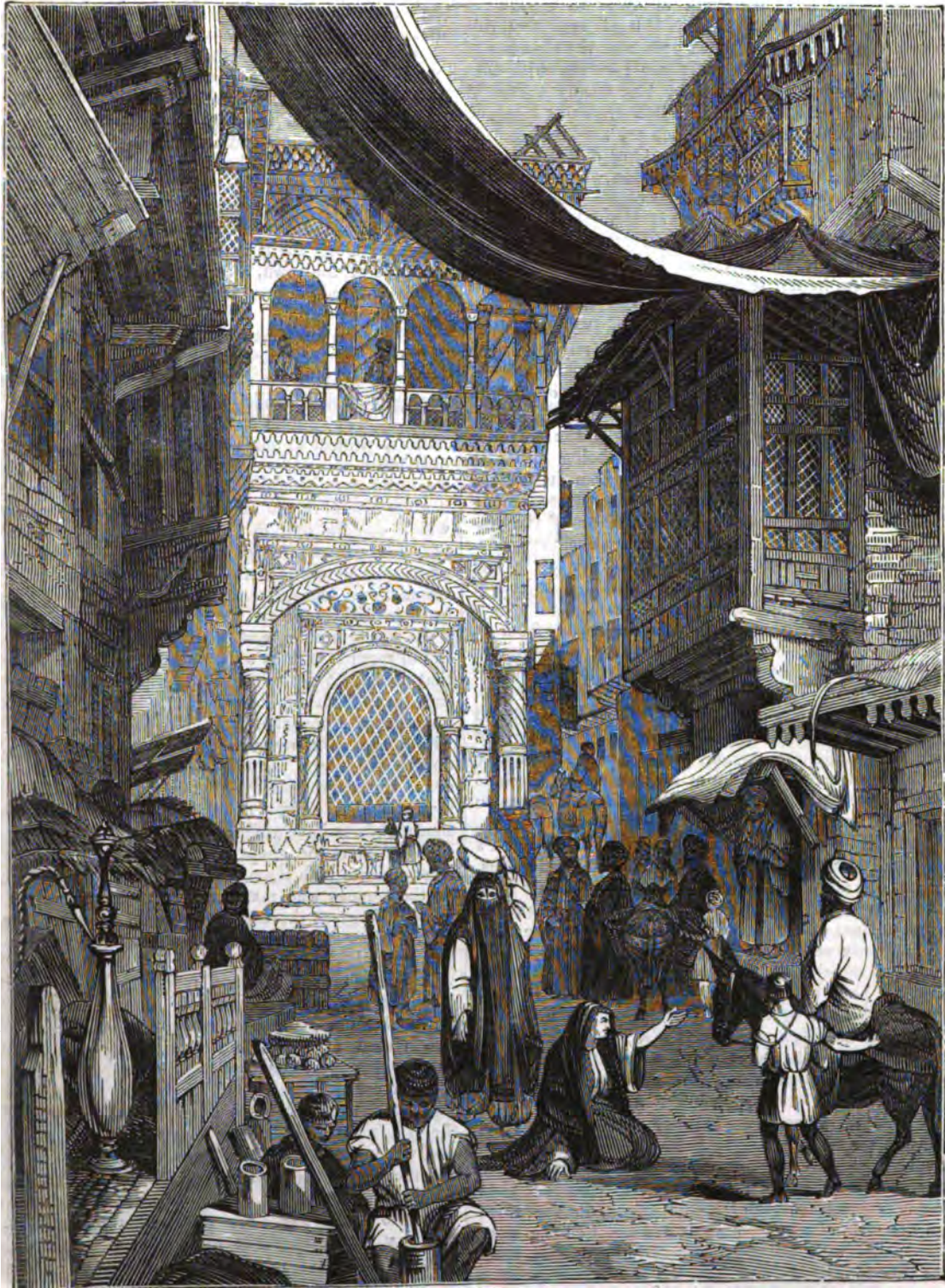
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STREET SCENE IN CAIRO.

SKETCHES OF CAIRO.

I.

THE desire of an intellectual people to become more intimately acquainted with the various nations of the world is one of the means which Providence has appointed of diffusing the blessings of civilization. Some men feel an ardent desire to visit distant lands,—to study the manners, laws, and customs of their inhabitants,—to examine the natural phenomena and productions with reference to science or to commerce,—and such men willingly expatriate themselves in order to gratify the ruling principle of their minds. But all men feel this principle in a greater or less degree, and the sketches of the artist and of the traveller are received with that respect and attention which show how deeply interested we are in the condition of our fellow-creatures in every part of the habitable globe. Such are the feelings of a people advancing in knowledge. How different is the view of this subject taken by a nation which for many centuries has occupied only a stationary position! the Arab looks with astonishment at the labours of the antiquary among the ancient monuments on the banks of the Nile, and is satisfied that he would not undergo such toil were he not seeking for hidden gold: even the more polished Egyptian regards the traveller either as a spy or as an emissary from his king, and it is difficult to convince him that this is not the case, so strange is the idea of a man's incurring great trouble and expense, for the purpose of acquiring the knowledge of foreign lands.

We feel, however, that the motives of the traveller are pure and disinterested,—his object being either to confer benefits on the people among whom he travels, or to contribute to the advancement of science among ourselves. At no distant period the details of the traveller were received with suspicion, even among ourselves,—his object was supposed to be to astonish and mislead,—and, referring everything to the standard of our own manners and customs, we received with contemptuous incredulity whatever differed greatly from it. This littleness of feeling has gradually given way under the exertions of first-rate men, who have visited and revisited distant climes, and have authenticated and enlarged the accounts already received. The artist and the traveller unite in conveying to us ideas so clear and precise of the different regions of the globe that we may well be content to remain at home, and yet become minutely acquainted with whatever region we desire to be informed of.

Egypt has ever been a land to which the traveller's curiosity has been directed; but while the antiquities, the manners, and customs of its ancient inhabitants have excited so much attention, it has been regretted that the modern tenants of this wonderful land should have been so imperfectly noticed. Through the exertions chiefly of two individuals this cause of regret no longer exists. Since Mr. Lane has published his *Account of the Manners and Customs of the Modern Egyptians*, and Mr. Robert Hay his *Illustrations of Cairo*, we are in possession of details so full, accurate, and minute that, although it would be too much to say that nothing more is left to be desired, yet it is probable that no other people have received a greater share of attention from the artist and the traveller. Mr. Lane resided among them for several years,—adopted their language, dress, manners and national peculiarities. Mr. Hay has furnished a noble volume* of lithographic prints, in the most exquisite style of art, from drawings made on the spot, accompanied with letter-press descriptions; and from these two sources, as also from the small but accurate

work of Mr. Kinnear, who visited Egypt in 1839, we propose to furnish a few sketches of Cairo, first offering our best thanks to Mr. Hay for the kind liberality with which he has allowed us to copy his drawings.

GRAND CAIRO, the modern Egyptian metropolis, now called MUSR, was founded by Jawhar, a Moggrebin general, in the middle of the tenth century. He gave his new city the name of AL-KAHIRA, or EL-CKAHIREH, (that is, The Victorious,) whence Europeans have formed the name of Cairo. It is situated at the entrance of the valley of Upper Egypt, midway between the Nile and the eastern mountain-range of Mookuttum. Between it and the river is a tract of land, mostly cultivated, which in the northern parts (where the port of Boolack is situated) is more than a mile wide, and at the southern part less than half a mile. The city occupies a space equal to about three square miles, and is divided into the new and old cities. The old city is on the eastern bank of the Nile, and now almost uninhabited. The new city, which is properly Cairo, is seated in a sandy plain, about two miles and a half from the old city, and on the same side of the river. It is extended along the mountain, near a point of which, at an angle of the town, a castle is built, the city having been removed hither, it is supposed, in order to be under its protection. The city is surrounded by a wall, and the gates are shut at night.

The streets of Cairo are in general narrow and intricate, especially in the Jews' quarter, where some of the passages barely admit of two persons passing each other. The windows, with curiously carved wooden lattices, project so much on either side as nearly to meet over-head, and exclude much of the light, and, although this produces a useful and agreeable shade from the sun, it gives a sombre and dismal appearance to those streets which contain only dwelling-houses. In these streets very few passengers are seen, but in the bazaars and great thoroughfares there is a continual stream of Turks, Copts, Jews, Dervishes, and Bedaweens from the Desert, in their picturesque and graceful costumes.

A stranger who merely passed through the streets would regard Cairo as a very close and crowded city, but that it is not so is evident to a person who overlooks the town from the top of a lofty house, or from the minaret of a mosque, from whence may be observed within the walls many vacant places, some of which, during the season of inundation, are lakes. The gardens, burial-grounds, the courts of houses, and the mosques also occupy a considerable area. The great thoroughfares have generally a row of shops along each side. Above the shops are apartments, which do not communicate with them, and which are seldom occupied by the persons who rent the shops. To the right and left of the great thoroughfares are by-streets and quarters. Most of the by-streets have a large wooden gate at each end, closed at night, and kept by a porter within, who opens to any persons requiring to be admitted. The quarters mostly consist of several narrow lanes, having but one general entrance, with a gate, which is also closed at night, but several have a by-street passing through them.

In a country where neither births nor deaths are registered, it is difficult to ascertain with any precision the amount of population. A few years ago a calculation was made founded on the number of houses in Egypt, and the supposition that the inhabitants of each house in the metropolis amount to eight persons, and in the provinces to four. Mr. Lane thinks this computation approximates very nearly to the truth; and, according to it, Cairo contained previous to the plague of 1835 about 240,000 inhabitants. That calamity removed not less than one-third of the amount; but the deficiency was rapidly supplied from the villages. Of the inhabitants of the metropolis, about 190,000 are Egyptian Mooslims; about 10,000 are Copts, or Christian Egyptians;

* *Illustrations of Cairo*, by ROBERT HAY, Esq., of Linplum. Drawn on stone by J. C. BOURNE, under the superintendence of OWEN B. CARTER, Architect. This work is appropriately dedicated to Edward William Lane, Esq., "as a tribute of respect for the zeal and fidelity he has evinced in his literary pursuits connected with that country."

between 3000 and 4000 are Jews; and the remainder are strangers from various parts of the world.

We will speak more particularly of the Mooslims in a future article. The Copts are most probably the descendants of the ancient Egyptians, and differ from the Mooslims in religion; a difference sufficient in a land of religious intolerance to sever every other tie between them. It is difficult for a stranger to perceive any difference between the Coptish countenance and that of the Mooslim, beyond a certain downcast and sullen expression of countenance which generally marks the former. The Copt is distinguished by a black or dark blue turban, or one of a grave drab colour; and the Mooslims themselves often fail to recognize a Copt when they see him in a white turban. The Coptish patriarch, although styled patriarch of Alexandria, has his residence in Cairo, and is said to be very wealthy. He is chosen by lot from among the monks of the convent of St. Anthony. With the exception of a few who adhere to the Greek Church, they are of the sect called Jacobites or Euty-chians, from Jacobus Baradæus, the propagator of the Euty-chian doctrines.

One of the most remarkable traits in the character of the Copts is their bigotry. They bear a bitter hatred to all other Christians; even exceeding that with which the Mooslims regard the unbelievers in el-Islam. Yet they are considered, by the Mooslims, as much more inclined than any other Christian sect to the Mohammedan faith; and this opinion has not been formed without reason; for vast numbers of them have, from time to time, and not always in consequence of persecution, become proselytes to this religion. They are, generally speaking, of a sullen temper, extremely avaricious, and abominable dissemblers; cringing or domineering according to circumstances.

The Copts are not now despised and degraded by the government as they were a few years ago. Some of them have even been raised to the rank of beys. Before the accession of Mohhammad Alee, neither the Copts nor other Eastern Christians, nor Jews, were generally allowed to ride horses in Egypt; but this restriction has, of late years, been withdrawn. A short time since, the Mooslims of Damascus, who are notorious for their bigotry and intolerance, complained to the conqueror, Ibraheem Basha, of the Christians in their city being allowed to ride horses; urging, that the Mooslims no longer had the privilege of distinguishing themselves from the infidels. The Basha replied, "Let the Mooslims still be exalted above the Christians, if they wish it: let them ride dromedaries in the streets: depend upon it the Christians will not follow their example." The Copts enjoy an immunity for which they are much envied by most of the Mooslims: they are not liable to be taken for military service; as no Mohammedan prince would honour a Christian by employing him to fight against a Mooslim enemy.

The Coptic is now a dead language, and is only preserved in the religious books; the Arabic being spoken by the Copts as by the Mooslims, and taught in their schools.

The Jews inhabit the worst quarter of Cairo, a labyrinth of dark narrow lanes, in which it is hardly possible for two persons to pass. In their dress and persons they are generally slovenly and dirty. Many of them have sore eyes and a bloated complexion, occasioned, it is said, by the grossness of their food, in which they use great quantities of oil of sesame. They lead a very quiet life: indeed, they find few but persons of their own sect who will associate with them; for they are held in the utmost contempt and abhorrence by the Mooslims in general, and are said to bear a more inveterate hatred than any other people to the Mooslims and the Mohammedan religion. The more wealthy Jews dress handsomely at home; but put on plain or even shabby clothes before they go out: and, although their houses have a mean and dirty appearance from the outside, many of them contain handsome and well furnished rooms. The condition of the lower orders is very wretched; many of them having no other means of support than the alms of their superiors of the same sect.

The protection afforded by Mohhammad Alee to the Copts and Jews, is one great cause of the unfavourable feeling with which the rigid Mooslims regard the present government. The Christian reader will be delighted to hear that a Protestant mission is established in Cairo, and that the service of the Church of England is performed publicly every Sunday. The boys from the missionary school attend the public service in the chapel; and, it is said, that several of them are children of Mooslim parents, who are induced to send them to the school that they may acquire the English language, which is becoming an important accomplishment. "Indeed, there can be little doubt," says Mr. Kinnear, "that the toleration of the pacha's government has had a considerable effect in relaxing the bigotry of the mass of the population, and is undermining the foundations of Mohammedanism."

In our frontispiece is represented one of the sebeels, or public reservoirs for the gratuitous supply of water, which the burning climate of Egypt has rendered necessary, and the charity and munificence of the wealthy have supplied. There are about three hundred in the city, and these are annually filled at the time of the inundation.

The Emeer 'Abd er-Rahmán Kyáhhy, a person of great wealth and power, who died in 1199, A.H.* (1766, A.D.), erected this and several other sebeels and charitable buildings. It exhibits a fantastic combination of Turkish and Arabian tastes, but is more unassuming and chaste than many of the sebeels built within the last seventy years; and the window through which the thirsty passenger receives his draught, is ornamented with a handsome bronze grating. Upon the upper part of the building is an open kuttab or school, which generally accompanies the sebeels, and it is situated at the point where two streets branch off.

In the foreground, seated in the public street, before the shop of an 'Attar or druggist, upon the floor of which is seen a nargeeleh for smoking, is represented a servant in the act of pounding some substance in a wooden mortar. A female of the lower order is advancing, veiled by the dark boorko; and another, a mendicant, is asking alms with her face uncovered,—a common circumstance amongst that class.

Beyn el-Kasreyn, that is, the Street between the two Palaces, was, a few years ago, an interesting spot for the antiquarian, from the fact of some remains existing of those buildings.

* The Mohammedans reckon from the "Hegira" or Flight of their Prophet.

MAN, indeed, may be called a bee, in a figurative style. In search of sweets, he roams in various regions, and ransacks every inviting flower. Whatever displays a beautiful appearance, solicits his notice, and conciliates his favour, if not his affection. He is often deceived by the vivid colour and attractive form, which, instead of supplying honey, produce the rankest poison; but he perseveres in his researches, and if he is often disappointed, he is also often successful. The misfortune is, that when he has found honey, he enters upon the feast with an appetite so voracious, that he usually destroys his own delight by excess and satiety.—КНОХ.

AMONG all the graces that adorn a Christian soul, like so many jewels of various colours and lustres, against the day of her espousals to the Lamb of God, there is not one more brilliant than patience.—BISHOP HORNE.

In the least,
As well as in the greatest of his works,
Is ever manifest a present God:
As well in swarms of glittering insects, seen
Quick to and fro, within a foot of air,
Dancing a merry hour, then seen no more,
As in the systems of resplendent worlds,
Through time revolving in unbounded space.

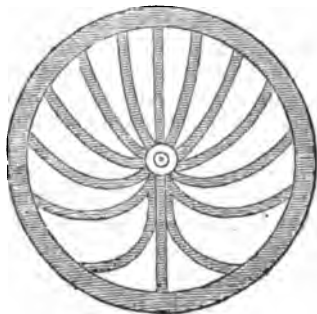
CARLOS WILCOX.
584—2

OPTICAL ILLUSIONS. IV.

WE resume our notice of some curious optical phenomena, in which objects appear to the eye under circumstances singularly deceptive. We gave several instances of this kind in the former papers, and shall now add to the number.

Dr. Roget, in a paper communicated to the Royal Society, a few years ago, described a curious optical deception which takes place when a carriage-wheel, rolling along the ground, is viewed through the intervals of a series of vertical bars, such as those of a palisade, or of a Venetian window-blind. Under such circumstances, the spokes of the wheel, instead of appearing straight, as they would naturally do if no bars intervened, seem to have a considerable degree of curvature. The distinctness of this appearance is influenced by several circumstances; but when everything concurs to favour it, Dr. Roget states the illusion as being irresistible, and, from the difficulty of detecting its real cause, exceedingly striking.

The degree of curvature in each spoke varies, according to the situation it occupies for the moment with respect to a perpendicular line. The two spokes which arrive at a vertical position, above and below the axle, are seen of their natural shape, that is, without any curvature. Those on each side of the upper one appear slightly curved; those more remote, still more so; and the curvature of the spokes increases as the eye follows them downwards on each side, till we arrive at the lowest spoke, which, like the first, again appears straight. The most remarkable circumstance relating to this visual deception is, that the convexity of these curved images of the spokes is always turned downwards, on both sides of the wheel; and that this direction of their curvature is precisely the same whether the wheel be moving to the right or to the left of the spectator. The annexed cut will illustrate the appearance here alluded to.



Dr. Roget then instituted a series of experiments, for the purpose of arriving at results which might furnish a probable cause for the phenomenon; and he places his results under six different heads.

1. A certain degree of the velocity in the wheel is necessary to produce the deception above described. If this velocity be gradually communicated, the appearance of curvature is first perceptible in the spokes which have a horizontal position; and as soon as this is observed, a small increase given to the velocity of the wheel, produces suddenly the appearance of curvature in all the lateral spokes. The degree of curvature remains precisely as at first, whatever greater velocity be given to the wheel, provided it be not so great as to prevent the eye from following the spokes distinctly as they revolve; for it is evident that the rapidity of revolution may be such as to render the spokes invisible. It is also to be noticed that, however rapidly the wheel revolves, each individual spoke appears, during the moment it is viewed, to be at rest.

2. The number of spokes in the wheel makes no difference in the degree of curvature they exhibit.

3. The appearance of curvature is more perfectly seen when the intervals between the bars, through which the

wheel is viewed, are narrow; provided they are sufficiently wide to allow of the distinct view of all the parts of the wheel in succession, as it passes along. For the same reason the phenomenon is seen to the greatest advantage when the bars are of a dark colour, or shaded, and when a strong light is thrown upon the wheel. The deception is, in like manner, aided by every circumstance which tends to abstract the attention from the bars, and to fix it upon the wheel.

4. If the numbers of bars be increased in the same given space, no other difference will result than a greater multiplication of the curved images of the spokes; but if a certain relation be preserved between the angles subtended at the eye by the whole intervals of the bars, and of the extremities of the spokes, this multiplication of images may be corrected. The distance of the wheel from the bars is of no consequence, unless the latter are very near the eye, as in that case the apertures between them may allow too large a portion of the wheel to be seen at once.

5. If the bars, instead of being vertical, are inclined to the horizon, the same general appearances result; but with this difference, that the spokes occupying positions parallel to the bars, are those which have no apparent curvature; while the curvatures of the other spokes bear the same relation to these straight spokes, and to each other, that they did in the former case. When the inclination of the bars is considerable, the images become more crowded, and the distinctness of the appearance is thereby diminished. The deception totally ceases when the wheel is viewed through bars that are parallel to the line of its motion.

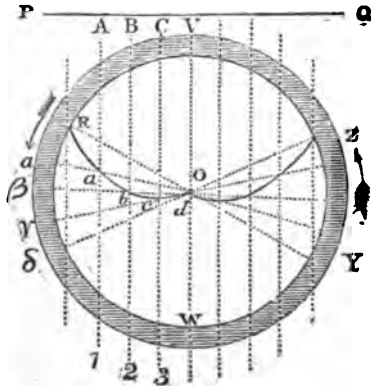
6. It is essential to the production of this effect that a combination should take place of a progressive with a rotatory motion. Thus, it will not take place if, when the bars are stationary, the wheel simply revolves on its axis, without at the same time advancing; nor when it simply moves horizontally, without revolving. On the other hand, if a progressive motion be given to the bars, while the wheel revolves round a fixed axis, the spokes immediately assume a curved appearance. The same effect will also result if the revolving wheel be viewed through fixed bars by a spectator, who is himself moving either to the right or left; because such a movement on the part of the spectator produces in his field of vision an alteration in the relative situation of the bars and wheel.

Having, in the true spirit of an experimentalist, thus investigated the consequences that would follow certain changes in the arrangement of the moving object, with a view to determine the relative importance of each, Dr. Roget proceeds to explain the principle on which the phenomenon rests. In his mode of so doing, we see the advantage of thus searching the experiment through various forms and stages; for a writer, in a scientific journal three or four years before, while describing a similar phenomenon, stated that the curvature of the spokes is produced just the same, whether a wheel be running along a plane as it revolves, as in the case of a carriage driven through the street, and viewed through the ordinary iron railing, or whether, as in a fly-wheel seen through a similar railing, it merely revolves in its own axis. Dr. Roget, however, shows both from theory and experiment, that there must be a combination of a progressive with a rotatory motion. It matters not for the production of the phenomenon, whether the wheel or the system of bars progress, provided one or other does so.

Dr. Roget clearly shows, that the true principle on which this apparent curvature of the spokes depends, is the same as that to which is referable the illusion that occurs when a bright object is wheeled rapidly round in a circle, giving rise to the appearance of a line of light throughout the whole circumference; namely, that an impression made by a pencil of rays on the retina, if sufficiently

vivid, will remain for a certain time after the cause has ceased. To illustrate the production of the curves by a diagram would involve considerable intricacy of detail; but Dr. Roget justly observes, that the principle may be well shown, and with comparative simplicity, by supposing that the wheel has only one spoke or radius instead of several, that it revolves in a stationary axis without progressing, and that one single aperture, instead of a system of bars, progresses from one side to the other.

In the annexed cut, the wheel, provided with one spoke



or radius OR , in revolving is the direction of the arrows, and is supposed to be seen through a single narrow aperture or crevice, moving horizontally in a given direction PQ . To simplify the case further, we will suppose that the progressive motion of the aperture is just equal to the rotatory motion of the circumference of the wheel. Such being the circumstances of the experiment, it will not be difficult to understand, that if, at the time of the transit of the aperture, the radius should happen to occupy either of the vertical positions VO or OW , the whole of it would be seen at once through the aperture, in its natural position. But if it should happen to be in an oblique position RO , terminating at any point of the circumference, at the moment the aperture has, in its progress horizontally, also arrived at the same point R , the extremity of the radius will now first come into view, while all the remaining part of it is hidden. By continuing to trace the parts of the radius that are successively seen by the combined motions of the aperture and of the radius, we shall find that they occupy a curve $abcd$, generated by the continued intersection of these two lines. Thus, when the aperture has moved to A , the radius will be in the position OA ; when the former is at B , the latter will be OB , and so on.

If, pursuing the same mode of inquiry, we suppose, that when the aperture is just passing the centre, the radius is found in a certain position on the other side OR , and rising towards the summit, then, by tracing as before the intersections of these lines in their progress, we shall obtain a curve precisely similar to the former. Its position will be reversed; but its convexity will still be downwards. If the impressions made by these limited portions of the spoke follow one another with sufficient rapidity, they will, as in the case of the luminous circle already alluded to, leave in the eye the trace of a continuous curve line; and the spoke will appear to be curved, instead of straight.

By applying a similar train of reasoning to the phenomenon which gave rise to these investigations, Dr. Roget satisfactorily shows that the cause may be arrived at. Since the curved appearance of the lines results from the combination of a rotatory with a progressive motion of the spokes, in relation to the apertures through which they are viewed, it seems pretty evident that the same phenomenon must be produced if the bars be at rest, and both kinds of motion be united in the wheel itself; for, whether the bars move horizontally with respect to

the wheel, or the wheel with respect to the bars, the relative motion between them, and its effects to the eye placed behind the aperture, must be the same. The attention of the spectator should in both cases be wholly directed to the wheel, so that the motions in question should be referred altogether to it.

Dr. Roget investigates the mathematical nature of the curves, into which the spokes are apparently thrown; but such an investigation is unsuited for our pages.

LABYRINTHS.

THIS curious class of buildings seems to have been used in ancient times for the purposes of imprisonment and devotion. A labyrinth is an architectural, or other kind of construction, whose numerous passages and perplexing windings render the escape from it difficult and almost impossible. It was composed of, or filled with chambers and galleries, one running into the other; so that, without a clue or guide, a stranger could not pass through it. These edifices were not built for the purpose of making people lose their way: this was merely an accidental peculiarity, on account of which every confused mass of things, difficult to be disentangled, has been called a *labyrinth* or *maze*.

The construction of labyrinths in modern times has been chiefly for the purposes of amusement. With this view they are often formed with quickset hedges, as in the Sidney Gardens at Bath. The ancients had four labyrinths which were very celebrated:—one in Egypt, another in Crete, a third in Lemnos, and a fourth in Italy: these, therefore, we shall do well to notice in order.

The Egyptian labyrinth, the most celebrated of all, was situated in Central Egypt, above Lake Mœris, not far from Crocodilopolis, in the country now called *Fayoom*. It was built about 650 years B.C. by twelve kings, who reigned at one time in Egypt; and it was probably intended for the place of their burial, and to commemorate the actions of their reign. The beauty and the art of the building were, according to Herodotus who saw it, almost beyond belief,—superior to the pyramids. The edifice contained twelve courts enclosed with walls, with as many doors opposite; six opening to the north, and six to the south, contiguous to one another; the same exterior wall extending round them. There were 3000 chambers; half in the upper part of the building above ground, and the other half below ground. The chambers above were seen by Herodotus, and astonished him beyond conception; but he was not permitted to see those below, where were buried the holy crocodiles, and the monarchs whose munificence had raised the edifice. The roofs and walls were encrusted with marble, and adorned with sculptured figures. The courts or halls were surrounded with stately and polished pillars of white stone; and according to some authors, the opening of the doors was artfully accompanied with a terrible noise, like peals of thunder.

The arrangement of the chambers of the Egyptian labyrinth seems to have been symbolic of the zodiac and the solar system. They excelled, in splendour and art, all human works. At present, only 150 rooms are reported to be accessible: the others are dark and choked with rubbish. The ancient labyrinth is supposed to be identical with the ruins of Casr Caroun.

In the midst of these ruins a large edifice rises up, of which there are several halls remaining, filled with trunks of columns. A portico, half demolished, encompasses it. Staircases may be distinguished, by which they mounted to different apartments: and others, by which they descended into subterraneous passages. But what particularly attracts attention, is the view of several low, narrow, and very long cells, which seem to have had no other destination, than to contain the bodies of the sacred crocodiles, brought hither from Crocodil-

polis, or the City of Crocodiles, a town of Egypt near the Nile, above Memphis. The crocodiles were held there in the greatest veneration; and they were so tame that they came to feed from the hands of their feeders. This city was afterwards called Arsinoë. The crocodiles were embalmed before being consigned to the subterraneous cells of the labyrinth.

These ruins, placed on the western side of the Nile, at a league's distance from Birket Caroun, formerly Lake Mœris, can only correspond with the labyrinth; for ancient authors assigned it this position, and point out no town on that side. Strabo, Ptolemy, and Herodotus, all agree in placing the labyrinth beyond the city of Arsinoë, on the western side, and on the banks of the Lake Mœris. This is exactly the situation where we meet with the ruins described by Savary. Modern travellers are all of them still astonished at these noble and magnificent ruins.

The labyrinth of Crete was the most celebrated and classic of these mazes. It belonged to the ancient town of Gnosus, which was situated on the north of the island of Crete, now called *Candia*, and west of the present city of Spinalonga. This building was constructed by Dædalus, an Athenian, for Minos, who was King of Crete, about fourteen centuries before the Christian era. It was built upon exactly the same plan as the Egyptian labyrinth; but it was by no means so large. We are told that, by the unanimous testimony of the Cretans, this labyrinth, with its many and varied spiral-formed windings, was designed as a prison, for the secure and close confinement of malefactors; and likewise, that Dædalus, its architect, having incurred the displeasure of Minos, was almost its first inmate.

Now there still exists a subterraneous maze in the island of Candia, the ancient Crete, near the ruins of Gortyna, and somewhat to the south of Gnosus, whereabouts is now the town of Spinalonga. At about an hour's march from the plain of Gortyna is the mouth of this labyrinth or quarry, which is about seven or eight paces broad at its entrance, but so low that a man cannot pass it without stooping: on advancing a little way the passage widens, though even here it is often obstructed with large stones lying here and there, and also by the surface being extremely rough and uneven. The roof is flat, for it is cut in the rock above, and formed of beds of stone, lying horizontally one upon another; proceeding onwards through a sloping cavern, a great number of turnings and windings is met with, so irregular and intricate, that should a traveller, without a ball of thread or some other contrivance, strike into one of them out of the main path or alley, he would be in great danger of being bewildered and lost;—for few persons have been bold enough to explore all its mazes, so that visitors in general keep along the principal path, and seldom deviate either to the right or to the left; and, even in this case, to guard against all possible accidents, they take such precautions as scattering straw on the ground, or sticking up pieces of paper at every turning; for the eternal gloom and obscurity can scarcely be penetrated by the torches, with which every traveller is furnished, and whose faint light only seems to add to the awful gloom and perplexity.

On the left there are several vaults without any outlet, and the proper and direct road lies on the right of the entrance, where, after ascending by a narrow path, the traveller is compelled to creep upon his hands and knees for about a hundred paces, on account of the lowness of the roof. Having reached the end of this dwarfish defile, the ceiling suddenly rises to a considerable elevation, and the visitor finds himself upon his feet again. The vaulted galleries through which he now proceeds are seldom less than seven feet in height, and from six to ten in width, having a countless variety of avenues, opening on each side, and crossing each other in different directions. These roads are all out with a

chisel in the rock, the layers of which are disposed in a horizontal plane, and are of a grayish colour. In some places enormous masses of stone, half torn from the roof, seem ready to fall upon the head of the adventurous passenger, while he, in danger of being crushed, must stoop low, in order to pass beneath them. Earthquakes, from which this island has often suffered, have doubtless occasioned these fractures in the rock.

The traveller has often, after advancing a considerable distance in one division, to retrace his steps, on account of no opening being in that direction. Sometimes, after long windings, he is surprised to find himself at the very place from which he had last set out. To enumerate or describe all the complication or intricacy of the circuitous avenues cut in this stupendous excavation would be almost beyond the power of language. Seeing them is the only method of obtaining an accurate knowledge, and of thoroughly appreciating these gigantic wonders. Some of these galleries form curves, leading imperceptibly to a wide space, the roof of which is supported by large pillars, and here three or four roads meet, running in opposite directions, while others extend in a spiral form for a considerable way, and in several ramifications are carried to a great length, and being then terminated by the rock, put a stop to the traveller's progress.

The distance from the mouth to the end of the cavern is more than a mile: here the walk divides itself into two or three branches, and terminates in two large halls, from twenty to thirty feet square. In passing along one of this infinite number of winding paths, a very fine grotto is discovered, the roof of which is elevated in the form of a dome, all of which appears formed by the hand of nature. It however possesses no stalactites, nor are any such crystal curiosities met with in any part of this underground wilderness, for the cavern is completely dry, and no water is seen trickling through the rock, as is usual in such places; but, as there is no vent or admission for fresh air, the consequence is that a most disagreeable smell or effluvium is constantly floating in the atmosphere of these vaulted tomb-like paths, and the thousands of bats,—the only occupants of these dark recesses,—do not conduce a little to the foul and disgusting scent with which the noses of travellers are assailed in their progress. There is a most peculiar property connected with the stone of this quarry, for it is a surprising, but yet authenticated fact, that any letters or figures inscribed or engraved on the plain surface of the rock will, in the course of time, swell above the face of the stone, and be no longer hollow, but projecting or embossed characters, and the matter produced by this filling up is always found to be whiter than the rest of the rock.

In wandering through such an horrific and sombre place as this, the imagination conjures up a host of frightful or fantastic images;—it fancies steep precipices and yawning chasms about to ensnare the feet of the curious observer,—hideous monsters ready to spring upon him at every turn,—in a word, a thousand chimeras, which have no existence except in romances and fables; and when a traveller thinks of himself as being there alone, without either thread or torch, he feels a thrilling horror come over him, a torpor seizes his mind, and his faculties seem to forsake him: his very soul is filled with terror. Every thing around convinces him, that, if placed in such an awful situation, all hope would be extinguished in his bosom, and nothing would be left but to meet death with fortitude and resignation.

Some writers imagine that the maze at Gortyna was nothing but a quarry, out of which were dug the materials for building the ancient towns of Gnosus and Gortyna; but others decidedly oppose this opinion, stating that the stone is too soft for the purposes of architecture; that the way from the cavern is almost impassable, especially for vehicles heavily laden; and that, had the way

been good, the entrance to the cavern would have been larger; and that, as it is, all stones brought from the interior must have been first broken into small pieces, which would have greatly and unnecessarily increased both the labour and the expense. We come, therefore, to the most probable conjecture,—which is, that it was, at first, an enormous cave; that nature had drawn the plan and formed the outlines; that Dædalus enlarged several of the passages, and cut out many new ones; and that various other persons have had the curiosity to extend it, by widening the avenues and taking down large strata of stone to heighten the roof.

Lemnos, now called *Stalimene*, is situated in the northern part of the Archipelago, formerly called the *Ægean Sea*. The labyrinth constructed on this island is said to have surpassed the others in splendour and magnificence. It was supported by forty columns of uncommon height and thickness, and equally admirable for their beauty and grandeur.

The labyrinth at Clusium in Tuscany was erected by Porsenna, the king of that place, about B.C. 530. It was probably intended to be his own sepulchre. It was a square building of stone, fifty feet in height, and thirty on each side. At each corner stood a pyramid, and also one in the centre, each one hundred and fifty feet high, and at the base seventy-five feet wide. We have no further particulars to offer our readers respecting the Lemnian and Clusian labyrinths.

BLAME not the fates, nor call their lot unkind,
Whose wants are many, and whose joys confined;
For Heaven's best gifts are equal showered around,
As vernal dews that bathe the thirsty ground.
On the unjust and just the rain doth fall,
The sun's bright glories shine alike on all;
The ambient air alike its current blows
On rich and poor, on brothers and on foes;
And love—the last best gift of bounteous Heaven—
Alike to all the tribes of Earth is given.

The late LADY NORTHAMPTON.

GOOD manners consist in a constant maintenance of self-respect, accompanied by attention and deference to others; in correct language, gentle tones of voice, ease, and quietness in movements and action. They repress no gaiety or animation which keeps free of offence; they divest seriousness of an air of severity or pride. In conversation, good manners restrain the vehemence of personal or party feelings, and promote that versatility which enables people to converse readily with strangers, and take a passing interest in any subject that may be addressed to them.—*Woman's Rights and Duties*.

HE who best understands himself is least likely to be deceived by others: you judge of others by yourselves, and therefore measure them by an erroneous standard, whenever your autometry is false.—SOUTHEY.

By reading we enjoy the dead, by conversation the living, and by contemplation ourselves.

SOLITUDE sometimes is best society.

FULLER says, that if God has no need of human learning, still less has He of human ignorance.

THE firm endurance of suffering by the martyrs of conscience, if it be rightly contemplated, is the most consolatory spectacle in the clouded life of man; far more ennobling and sublime than the outward victories of virtue, which must be partly won by weapons not her own, and are often the lot of her foulest foes. Magnanimity in enduring pain for the sake of conscience, is not indeed an unerring mark of rectitude, but it is of all destinies that which most exalts the sect or party whom it visits, and bestows on their story an undying command over the hearts of their fellow-men.—SIR JAMES MACKINTOSH.

BEET-ROOT SUGAR

III. THE INTRODUCTION OF THE MANUFACTURE INTO FRANCE.

IN the second paper on this subject we gave an outline of the methods in which Achard and Gottling produced sugar from beet-root, towards the latter end of the last century. We now proceed to consider the course taken by the French government in relation to this matter.

We alluded in the first article to the desire of Bonaparte that France should be quite independent of England in obtaining a supply of the necessaries of life. But there was another motive which turned the direction of the French people to this subject, viz., the enormously high price which cane-sugar had attained, and which was at one time six francs the kilogramme (about two shillings and three pence per pound). Attention was, in the first place, directed to the cultivation of the sugar-cane itself in Provence, but this utterly failed. Then fruits and stems of various kinds were tried, to ascertain whether sugar could be obtained therefrom, but these attempts likewise failed. M. Deyeux was then ordered to prepare a report to the Institute of the experiments made by the Prussian chemist, Achard, detailed in our last paper; and the report given in by Deyeux was very favourable to the cultivation of the beet for the sake of producing sugar. The experiments of Achard, however, being received with some degree of distrust, he immediately offered to repeat them before persons worthy of confidence, and to publish the results in a memoir. The opinion of scientific men became then more favourable to the project, and he established one or two manufactories for beet sugar. These attempts, probably from the inefficient scale in which new projects are almost necessarily conducted, failed in producing any striking results. The plan fell into disrepute for a time, and a new project was entered on, viz., that of producing sugar from raisins. The government sought to encourage this experiment, by offering rewards to those who should be most successful in them. By a decree of the 18th of June, 1810, a sum of one hundred thousand francs, and the cross of the Legion of Honour, were given to M. Proust, and another sum of forty thousand francs was awarded to M. Fouquet, for their exertions in this matter. But the success of these attempts was not such as to lead to permanent results, and they were abandoned.

The motives which had led to the institution of these experiments still continuing, Bonaparte resolved to resume, on a larger scale, the experiment with the beet-root. On the 15th of January, 1812, a decree appeared establishing five chemical schools, for the fabrication of sugar from beet-root; situated respectively at Paris, Wachenhem, Douai, Strasburg, and Castelnauary. A hundred pupils were attached to these schools, each of whom, after three months' study, and a strict examination, was to receive a thousand francs. The Minister of the Interior was empowered to plant one hundred thousand *arpents* (nearly equivalent to English acres) of land in France with beet-root; and four years' exemption from taxes were promised to cultivators. Five large manufactories were to be established, for the preparation of sugar from the root; and their mode of arrangement was such that the production of about five million pounds of sugar per annum was calculated on. What the success of these measures might have been, we do not know, for the disastrous Russian campaign, which soon followed, had the effect of opening the ports of France to sugar produced by foreign countries. At that early stage, the beet-sugar production could not stand without government protection; and this protection being withdrawn, the whole machinery fell to the ground, and for ten years very little was done in the matter.

At length, in the year 1823, several manufactories

were established, but for the most part under unfavourable circumstances; for the speculators seldom united the knowledge and experience of the manufacturer with that of the agriculturist. The want of this union of talent operated so disastrously, that one half of the manufactories were abandoned by the year 1829. This latter year, however, formed a point of time from which this great experiment—for such it undoubtedly is—assumed a more favourable appearance. The slow mode of crystallization until then adopted, was abandoned for one more expeditious; and many improvements were from time to time brought to bear, either upon the cultivation of the root itself, or upon the preparation of sugar from the juice thence extracted. Notwithstanding a tax which was laid upon beet-root sugar, the spread of the manufacture was so rapid, that by the year 1838 there were five hundred and fifty establishments in France, which produced sixty million kilogrammes (about a hundred and thirty million pounds, of beet-root sugar.

In considering the relative advantages likely to result from the use of beet and from cane-sugar, Chaptal, after an experience of twelve years, came to these two conclusions:—that the juice extracted from the beet does not differ from that yielded by the sugar-cane, either in colour, taste, specific gravity, or crystallization; and that the cultivation of beet for the sake of obtaining sugar, may advantageously proceed concurrently with that of the sugar-cane, when the price of cane-sugar is as high as one franc twenty centimes the demi-kilogramme, that is, that when the price of cane-sugar obtained from the French colonies is as high as thirteen-pence per pound, the beet-sugar may be prepared with a profit. These facts being stated and admitted, Chaptal proceeds to consider how far the culture of the beet may be favourable to France generally. He states that the culture of the beet does not prevent the growth of a single ear of corn, because the beet forms an intermediate crop, immediately after the gathering of which, corn may be sown. Moreover, the crop of corn grown in a soil previously planted with beet is said by him to be better than in any other soil; because the soil has been loosened by the beet-roots, and cleared by the weeding which the beet crop has undergone. A farther advantage is, that the preparation of the beet takes place principally in winter, and furnishes work to horses and farm-servants, who are often unemployed at that season. The food for cattle is also provided by the same means as the beet is produced; for the part of the plant which grows above ground, and which is not used in the sugar-preparation, constitutes one of the most valuable kinds of fodder. There is one remark by Chaptal which is of much importance in relation to the manner in which the manufacture should be carried on. He says:—"To insure success for beet-root sugar establishments, it is necessary that they be united to rural cultivation. These kind of manufactures are misplaced in towns. The roots are more expensive when purchased from others, than when the manufacturer grows them himself; the remaining parts of the plant find scarcely any market in a town; hand-labour and fuel are dearer; and farm-servants are less easily procured." Acting on these principles, Chaptal himself, as we shall show in our concluding article, combined in his own person the agriculturist and the manufacturer.

From numerous experiments made upon the beet root of Bondues, a village situated near Lille, Pelouze found that a soil in which tobacco had been grown the preceding year yielded roots of a considerable size, and of a saccharine richness, equal to that of roots of a smaller size, and superior to similar roots planted in a soil not previously occupied with a tobacco crop. In two neighbouring fields, one of which had had a tobacco crop the preceding year, and the other had not, the produce of sugar from the former was fifty per cent. more than from the latter.

It thus appears, that the French chemists and agriculturists have succeeded in bringing the cultivation of the beet to a point of considerable importance. Indeed, at the present time, the quantity of beet-root sugar made in France very nearly equals that of the cane-sugar imported from her colonies. The relation which now exists, or ought to exist, between the two kinds of sugar, with respect to taxation, encouragement, &c., although occupying the attention of persons in that country, would have no interest for the English reader, since beet-root sugar is not cultivated in the British dominions.

We have one more paper to present on this subject, in order to work out the plan proposed. We gave, in the second article, a detail of the processes adopted forty or fifty years ago, in Germany; but we wish to give an idea of the methods actually adopted in France. Chaptal was a chemist, an agriculturist, and a manufacturer, and has given a full account of the modes which he adopted for cultivating the plants, gathering the roots, expressing the saccharine juice therefrom, and obtained crystalline sugar from the juice. A brief account of his process will occupy our concluding paper.

To preserve health is a moral and religious duty: for health is the basis of all social virtues; we can be useful no longer than while we are well.—DR. JOHNSON.

MEDICINE is God's second cause of health.

In exalting the faculties of the soul, we annihilate, in a great degree, the delusion of the senses.—AIME MARTIN.

KING Louis the Twelfth of France was naturally inclined to economy: this was once made a topic of ridicule in his presence, to which he replied, "I had rather see my courtiers laugh at my avarice, than my people weep at my extravagance."

EVERYTHING is either lost or won in the heart; it is there that all battles take place: all moral contests are carried on independently of external objects, and previous to the visible scuffles of divided interests.

"O my son," says an Arabic proverb, "take care that your mouth breaks not your neck."

DEATH is at all times solemn, but never so much so as at sea. A man dies on shore: his body remains with his friends, and "the mourners go about the streets;" but when a man falls overboard at sea and is lost, there is suddenness in the event, and a difficulty in realizing it, which gives to it an air of awful mystery. A man dies on shore, you follow his body to the grave; a stone marks the spot. You are often prepared for the event. There is always something which helps you to realize it when it happens, and to recall it when it has passed. A man is shot down by your side in battle, and the mangled body remains an object, and a *real evidence*; but at sea, the man is near you, at your side you hear his voice, and in an instant he is gone, and nothing but a *vacancy* shows his loss. Then, too, at sea—to use a homely but expressive phrase—you *miss* a man so much. A dozen men are shut up together in a bark, upon the wide, wide sea, and for months and months see no forms and hear no voices but their own, and one is taken suddenly from among them, and they miss him at every turn. It is like losing a limb. There are no new faces or new scenes to fill up the gap. There is always an empty berth in the fore-castle, and one man wanting when the small night watch is mustered. There is one less to take the wheel, and one less to lay out with you upon the yard. You miss his form, and the sound of his voice, for habit has made them almost necessary to you, and each of your senses feels the loss.—*Two Years before the Mast.*

LONDON:

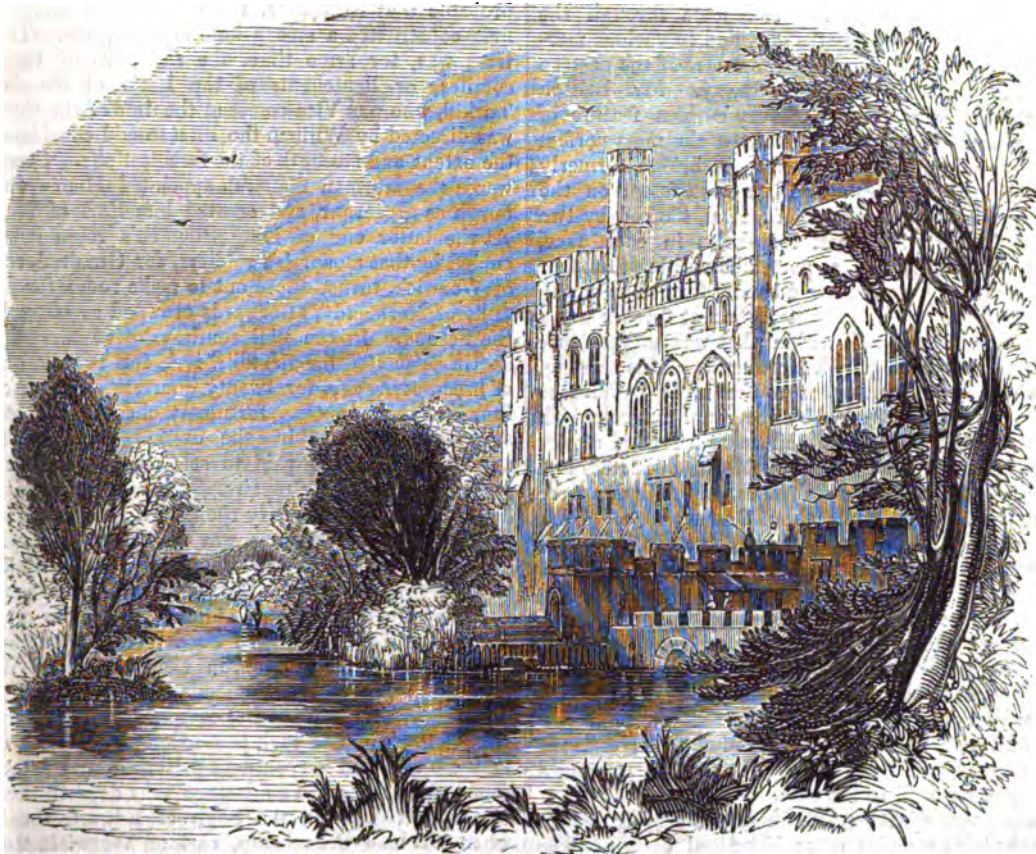
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WARWICK CASTLE.



Now Warwick claims the song; supremely fair
In this fair realm; conspicuous raised to view,
On the firm rock, a beauteous eminence
For health and pleasure formed. Full to the south
A stately range of high embattled walls
And lofty towers, and precipices vast,
Its grandeur, worth, and ancient pomp confess.

AMONG the number of castellated mansions (remarks Mr. Britton), which formerly abounded in England, very few have continued to be inhabited, and adapted to the domestic arrangements of modern times. Those of Windsor, Raby, Lumley, and Warwick, are therefore remarkable: for whilst they present the external features of feudal ages, and impress the spectator with sentiments of chivalry and romance, their apartments are at once spacious and elegant; their inmates are accomplished and polite; and the annexed gardens and pleasure-grounds are replete with every charm to fascinate the eye and please the senses. Formerly these places were intended to protect a rude and austere race of mail-clad knights and their vassal dependants; now they are occupied by men of enlarged and enlightened minds, and by women of suavity, benevolence, and beauty. Instead of the art war, and human butchery, as formerly studied within their walls, we now find the fine arts and literature cultivated and understood. The contrast is powerful and striking: for now, instead of viewing the frowning battlements and dismal cells with dread and terror, we

contemplate them as objects of grandeur and picturesque beauty.

The present Castle of Warwick affords specimens of the workmanship of different and distant ages. The oldest parts present some bold and almost impregnable specimens of Norman architecture, whilst a few parts display the tasteless additions of modern times. The foundation is laid on a vast bed of rock, which rises precipitously from the northern bank of the river Avon. Impending over this classical stream is a long line of buildings, consisting of towers, state apartments, and subterranean offices. At the south-eastern extremity is that majestic edifice called Cæsar's tower, and, at the opposite end, is a bold projecting turret. This front extends above 400 feet, and presents, in its elevation, a grand, picturesque, and stupendous mass. From the level of the water to the basement floor, the rock has been cut away in an almost perpendicular face, and is nearly of equal height with the whole superincumbent building. This mass of rock is diversified by hanging shrubs, fissures, and varied stains and mosses. Projecting from it, near the eastern end, is a flour mill, from which a ledge of rocks extends across the river, and occasions a constant water-fall, of nearly the whole stream. The southern front, with the return of the western side, consists of a gallery, a tower gateway to the inner court, and a flanking wall connecting this gateway with the keep-tower, which occupies the summit of a high conical

mount. The embattled and terraced wall again returns from this keep round the northern side of the inner court; and about midway between the eastern and western ends, it forms a semicircular sweep, and is flanked and guarded by two bastion towers. The walls and small apertures of these exhibit great strength. From these the wall continues to the north-east angle, where is a lofty polygonal building called *Guy's Tower*, and here the wall returns at right angles to the grand entrance tower gateway. Hence it passes to the great tower at the south-eastern angle. The whole of the walls are surmounted by embrasures, loop-holes for arrows, a parapet, and a terrace walk. The latter was conducted through the towers up and down flights of steps, and to various merlons and machicolations. Near the centre of the eastern wall is the principal entrance-gateway. Mr. Britton says that this is a grand and very curious feature of castellated architecture, and is perhaps the most perfect specimen remaining in the country. A bridge, formerly a draw-bridge, is thrown across a wide fosse; on the inner bank of which is the chief portal, flanked by two octagonal towers with small loop-holes in each face, holes over the arch, and a portcullis within. Further under the archway was a second barrier formed by strong folding doors or gates. About forty feet further was a second portcullis, and still within that was another pair of doors or gates, filling up a large arch. This passage, nearly ninety feet long, opens to the inner ballium or court by a lofty arch, flanked by octagonal towers, which rise to a considerable height, and contain several stories or floors, formerly used for the residence of porters and domestics. Other rooms, staircases, and galleries were distributed in various parts about this entrance. Near the doors and portcullises were apertures in the vaulted roof for annoying assailants, and under the arched way were several niches for wardens, and door-ways to stairs, to rooms, and to the walls. After passing through this long, gloomy, and strongly-guarded archway, we come to the inner ballium, surrounded by the principal dwelling apartments to the south; the lofty keep-tower and mount, with a tower gateway to the west; a high embattled wall with bastion towers to the north; and the Gateway tower, with *Guy's tower*, *Cæsar's tower*, and a lofty connecting wall to the east.

The two towers just named are very imposing objects and interesting examples of architectural design. The date of the elevation of *Cæsar's tower* is unknown: the mode of construction is somewhat rude, and possesses many singularities. "Jutting from one side of this tower is an embattled turret of stone, where imagination may place the herald at arms, demanding, in a long past century, the name and purpose of those so hardy as to advance unbidden." The other tower is named after the champion of the castle, the redoubted *Guy**. This part of the structure is upwards of 100 ft. in height, and was built by Thomas Beauchamp, earl of Warwick, in 1394, at the cost of 395*l.* 5*s.* 2*d.*

The entrance is flanked by embattled walls, richly clothed with ivy; and the deep moat, now dry, is lined with various shrubs, and ornamented with trees of a vigorous and noble growth. The disused moat is crossed by a stone bridge, and the entrance is by double machicolated towers, through a series of passages once fraught with multiplied dangers for the intruder. In the great court, to which the visitor passes, the display is truly magnificent. The area is a soft green sward; but, spread around, are viewed the remains of fortifications raised in turbulent ages. The relics are perfect in outline, and no battlement exhibits the havoc of time; while the hand of taste has spread a softness over the whole productive of most grateful relief. We see with pleasure the ivy bestow pictorial mellowness on parapets and turrets, which must have been only rugged and formid-

* In one of the rooms attached to *Cæsar's Tower* are still preserved the sword, shield, helmet, &c. ascribed to the legendary hero *Guy*.

able when manned with warriors in steel, and fresh in early masonry; but now the broad Gothic windows supplant the cheerless single light and fatal loop-hole.

The interior of this august fabric, (which is furnished in a chaste but magnificent style,) we need not describe. A few historical facts relating to the castle may, however, be found interesting.

There is no record concerning the precise era at which a fortified building was founded on this spot. The castle has been described by some writers as of British, and by others as of Roman, origin. The foundation seems to have taken place before the Norman Conquest; and it is probable that *Ethelfleda*, the daughter of King *Alfred*, first constructed a strong-hold in this place. The fortress was, for some time, the residence of the *Vice-comites*, or lieutenants of the Earls of *Mercia*; and *Turkill*, who was *Vice-comes* at the time of the Conquest, was directed by *William the First* to add considerably to the extent and strength of the fortifications. Soon afterwards the Norman monarch appointed *Henry de Newburgh* as Governor, and created him Earl of *Warwick*. At the latter end of King *Stephen's* reign it was occupied by that monarch's soldiers, for *Gundred*, countess of *Warwick*, turned these out to make room for *Henry*, duke of *Normandy*, afterwards crowned as King *Henry the Second*. In the nineteenth year of this reign the sheriff accounted for *vii. xiii. ivd.* for twenty quarters of bread-corn; *xxs.* for twenty quarters of malt; *cs.* for four beefs salted; *xxxs.* for ninety cheeses; and *xxs.* for salt, then laid up in the castle. The next year *xxx*l.* xs. viiid.* were paid to soldiers in garrison here; and *vii. xiii. xid.* for repairs.

In the reign of *Henry the Third* the extraordinary strength of this building was alleged as a reason for prohibiting the widowed Countess of *Warwick* from marrying any person without the king's consent. In the furious contests which afflicted the latter years of *Henry the Third*, *Warwick Castle*, almost impregnable to open assault, was taken, in consequence of *William Mauduit*, the then earl, neglecting to keep due guard. The rebels were stationed at *Kenilworth* in great power. They surprised, and took possession of, *Warwick Castle*, took the earl and his countess prisoners, and demolished some of the walls. The damage thus done to the castle was not repaired till the reign of *Edward the Third*, when *Thomas Beauchamp*, earl of *Warwick*, "erected anew the outer wall of the castle, with divers towers." The castle was afterwards successively occupied and governed by *John de Clinton*, *Thomas Holland*, earl of *Kent*, *George Plantagenet*, duke of *Clarence*, and Earl of *Warwick*, who made some alterations in the buildings, and proposed to make more, but was attainted of high treason by his brother, King *Edward the Fourth*, who ordered him to be drowned in a butt of *Malmsey wine*.

The castle is described as being in a very ruinous condition in the second year of King *James the First*, when it was granted to *Sir Fulke Greville*, who expended "upwards of 20,000*l.* in repairing and adorning the same for a family-seat." "He made it," says *Dugdale*, "not only a place of great strength but extraordinary delight, and the most princely seat within the midland parts of England." He was created *Baron Brooke*, and, according to his monumental inscription, was "servant to *Queen Elizabeth*, counsellor to King *James*, and friend to *Sir Philip Sidney*." He was murdered by his own servant at *Brooke House*, in *Holborn*, and was succeeded by *Robert Lord Brooke*, who took part with the parliament against *Charles the First*. *Warwick Castle* now became a garrison. It was besieged in August, 1642, by the Earl of *Northampton*, and defended by *Sir Edward Peito*, with a very small force. Soon after was fought the celebrated battle of *Edge-hill*. *Lord Brooke* was killed by a musket-shot at *Lichfield*, and his son *Robert*, in more peaceable times, "fitted up the state apartment at a considerable expense," and made

many other improvements. The subsequent noble possessors of the castle have from time to time so arranged and decorated the halls, that, while a proper allusion is made to the antique castellated outlines of the edifice, the purely domestic comforts of the homes of England are not forgotten.

BEEF-ROOT SUGAR.

IV. THE PRESENT MODE OF PREPARATION IN FRANCE.

CHAPTAL sows the beet seeds in the month of April or the beginning of May, and thus avoids on the one hand many inconveniences of cold and rain likely to result at an earlier period, and inconveniences of an opposite kind if left to the month of June. He recommends that every cultivator should prepare the seeds for himself, by using such as he had collected, in the previous September, from the beet plants, each of which will yield five or six ounces of seed. All arable lands are fitted for the growth of the beet; and Chaptal ploughs three times for the preparation of the beet-sowing, viz., twice during the winter, and once in the spring.

There are different modes of sowing the seeds. The first is, indiscriminately over the ground; a mode which takes much less time, at a season when all hands are busy; but in subsequently transplanting the young plants, they are very likely to be injured. Other methods are adopted by different persons; but the one which Chaptal prefers is, sowing in rows. When the ground is prepared, a range of depressions, about an inch in depth, are made by means of a rake whose teeth are eighteen inches apart; and women, who follow the rake, deposit seeds in the depressions, at a distance of about sixteen inches apart: each woman thus sows six or eight thousand seeds per day, and covers them over with earth by the hand.

As the beet is likely to be injured by the vicinage of other plants, and also by the earth being hard or not well drawn up around it, the young plants require careful attention. Weeding is necessary twice during the growth, not only for the removal of noxious plants, but also for the purpose of opening the ground to the reception of air and moisture. By the month of October the roots have acquired that perfection which fits them for further operations, and the plants are taken up before the frost arrives. In the southern and warmer parts of France, the root comes to maturity at an earlier period, and must be gathered early, else the saccharine principle undergoes changes which unfit it for the required purpose.

As each root is taken up, the leaves are cut off and left on the ground, where cattle and sheep feed on them; and it is found that the leaves which die and serve as manure to the soil bring it into a state peculiarly fitted for a corn crop. As the roots, when collected, are extremely sensitive to heat and cold, great care is required in their treatment. They are left on the field for a short time, to evaporate some of their moisture, and are then taken to a barn where they are laid in heaps, with layers of straw beneath, around, and above the heap. Some cultivators dig a trench in the open field, line it with straw, and fill it up with the beet-roots, which are then covered with thatch or straw. Shielded in this way from the weather, the roots remain until about to be used.

The first operation on the roots is to cleanse them from dirt and mould, and to cut off the rootlets and other useless parts. They are then ground to pulp by a machine, moved either by horses or by a water-mill. The machine consists of two cylinders, each about twenty-four inches in diameter, the surfaces of which are covered with teeth. The cylinders being made to rotate very rapidly, the roots are brought in contact with them, and speedily reduced to fine shreds or pulp. (The reader will recollect that, in Gottling's method, the roots were

sliced and hung upon strings to dry). The pulp falls into a vessel lined with lead. This method of rasping is found much more effectual than expression, for the latter method yields but forty or fifty per cent. of juice whereas the former often yields as much as eighty.

As the pulp is ground, it is put into strong canvas bags, and placed under a powerful press to squeeze out the juice. The residue is stirred, and subjected to a second, or even third, pressure, till all the juice is extracted. The liquor, as it is pressed out, runs into a copper, until it is two-thirds full. A fire is now lighted, and the contents of the copper are raised to a temperature of about 180° Fahr. In the mean time, a mixture of lime and water has been prepared, by gradually pouring as much water upon ten pounds of quick-lime as will give a cream-like consistency to the mixture. This is poured into the copper when its contents are at 180°, and is well mixed with the juice by stirring. The heat is then increased till the mixture boils, when a thick and glutinous scum rises to the surface. As soon as clear bubbles arise through this scum, the fire is suddenly extinguished by water being poured on it, or by a proper damper. The scum hardens as it cools; and the sediment being deposited, the liquor becomes clear, and of a light straw colour. The scum is then carefully removed with a perforated skimmer, and is put into a vessel till such time as the liquor remaining in it can be pressed out. A cock is now opened about five inches above the bottom of the boiler, and all the clear liquor is drawn off. Another cock, lower down, lets out the remainder until it begins to appear cloudy; that which still remains is afterwards boiled again with that extracted by pressure from the scum. The clear liquor is now subjected to evaporation in another boiler which is wide and shallow. The bottom is but slightly covered with the juice at first, and it boils rapidly. As the water evaporates, fresh juice is admitted. When a certain degree of inspissation, or thickening, has taken place, animal charcoal is gradually added; in such proportion, that one hundred weight of charcoal is required for the juice of two tons and a half of beet, which is now reduced to about four hundred gallons. The evaporation by boiling continues until a regular syrup is obtained. This is now strained through a linen bag, and the liquor is kept flowing by means of steam or hot air, and assisted by pressure. In two or three hours all the clear syrup will have run through.

The syrup then goes through a farther succession of processes to convert it into sugar. It is again boiled and skimmed, until it has attained a certain degree of concentration, which is known thus;—the skimmer is dipped into the syrup and drawn out; some of the thick syrup which adheres to it is taken between the thumb and finger, and held there till the heat is reduced to that of the skin; the finger and thumb are then separated, and if the syrup be of a proper strength, a thread will be drawn out, which has the transparency of barley-sugar. When the syrup has this proper degree of consistency, called "proof," the fire is put out, and the syrup is carried to the cooler, which is a vessel capable of containing all the syrup produced by four operations or boilings. Here the sugar is to crystallize. As soon as this process commences, the whole is well mixed and stirred; and, before it becomes too stiff, earthen moulds, of the well-known sugar-loaf shape, are filled with the crystallizing mass. When these moulds are full, they are carried to the coolest place on the premises. As the crystallization goes on, the crust formed on the top is repeatedly broken, and the whole is stirred till the crystals are collected in the centre; the crystallization is then allowed to go on without further disturbance. In three days the process is so far advanced, that the pegs which are put into the holes at the points of the moulds may be taken out, and the molasses or uncrystallizable syrup allowed to run out. White syrup is then poured on the top of the

moulds, which filters through the mass, and carries part of the colouring matter with it.

Sometimes this latter process is effected by what is termed *claying*. A stratum of fine moist pipe-clay is laid on the sugar in the mould; and clear water being poured on the clay, filters through it, and carries off the colouring matter remaining in the sugar. But if great care be not taken, one-fifth or sixth of the sugar becomes dissolved, and is carried off in the form of syrup. Chaptal at one time employed, instead of either of these two methods, another in which alcohol was poured on the sugar, in such manner as to carry off the colouring matter. But he abandoned the plan after two months' trial; finding that he lost a considerable quantity of alcohol, and that the sugar retained a little odour of the alcohol.

By whatever mode the sugar is bleached in the moulds the loaf is removed from the mould as soon as hardened, and placed in a stove, where it remains till dry.

The molasses, or uncrystallizable syrup, which remains from this process, is very nearly identical with that produced from cane-sugar, and from which *rum* is distilled. We shall not, therefore, detail the plan which Chaptal adopted for distilling spirit from the molasses, as that is an operation which does not belong to a sugar refinery.

The greater part of the operations described above are nearly the same as those by which sugar is prepared from the juice of the sugar-cane, except that much greater skill and nicety are required, on account of the smaller comparative quantity of sugar contained in the beet. But when the sugar is once prepared, it is impossible to distinguish it from cane-sugar. Five tons of clean roots produce about four and a half hundred-weight of coarse sugar, which give about a hundred and sixty pounds of double-refined sugar, and sixty pounds of inferior lump-sugar. The rest is molasses, from which spirit may be obtained. The dry residue of the roots, after expressing the juice, consists chiefly of fibre and mucilage, and amounts to about one-fourth of the weight of the clean roots used. It contains all the nutritive part of the root, with the exception of four and a half per cent. of sugar, which has been extracted from the juice, the rest being water.

The political and commercial considerations involved in the question, how far the cultivation of the beet-root will permanently benefit France is one into which we need not farther enter, as it has no particular relation to our own country.

ON CHESS. No. XV.

THE AUTOMATON CHESS-PLAYER. 3.

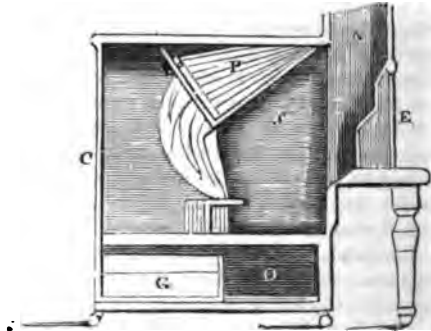
At the time when the automaton made its first appearance in England, chess was extensively patronised and played by the upper classes of society. The great Philidor spent a large portion of his time in London, formed a large chess-school around him, and excited public attention by those wonderful exhibitions for which he was so celebrated; viz., playing at the same time three different games against three good players, without seeing any one of the chess-boards. These circumstances contributed to make the chess-automaton a subject of the greatest curiosity, and although the sum of five shillings was charged for admission to see the automaton, yet hundreds and thousands of persons crowded to the exhibition.

Mr. Twiss, in his amusing work on Chess, informs us that he was present on some of these occasions, and conversed with M. de Kempelen, who once remarked:—

That the most surprising circumstance attending his automaton was, that it had been exhibited at Presburg, Vienna, Paris, and London, to thousands, many of whom were mathematicians and chess-players, and yet the secret by which he governed the motion of its arm, was never discovered. He prided himself solely on the construction of

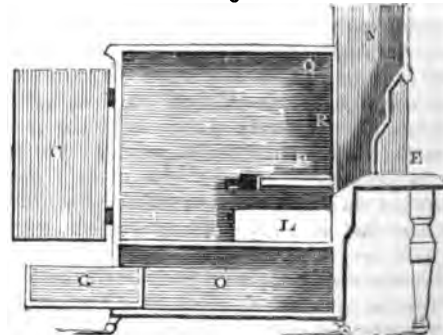
the mechanical powers by which the arm could perform ten or twelve moves: it then required to be wound up like a watch; after which it was capable of continuing the same number of motions. The automaton could not play unless M. de Kempelen or his substitute was near it, to direct its moves. A small square box during the game, was frequently consulted by the exhibitor; and herein, (says Mr. Twiss,) consisted the secret, which he told me he could in a moment communicate. He who could beat M. de Kempelen was of course certain of conquering the automaton.

Fig. 5.



A vertical section of the Chest, with the false back raised. Side view.

Fig. 6.



The same, with the false back closed. Side view.

This last assertion, however, is by no means true, as we shall see hereafter.

The *Monthly Review*, for April 1784, has the following remarks;—

Many are simple enough to affirm that the wooden man played *really, and by himself*, (like certain politicians at a deeper game) without any communication with his *constituent*. It appears, indeed, as yet unaccountable to the spectators, how the artist imparts his influence to the automaton at the time of his playing, and all the hypotheses which have been invented by ingenious and learned men to unfold this mystery are but vague and inadequate; but were they even otherwise, they rather increase than diminish the admiration that is due to the surprising talents and dexterity of M. de Kempelen.

A pamphlet was at the same time published in London, entitled, *The Automaton Chess-player Exposed and Detected*; in which the author says:—

I see a foreigner come among us, and demand five shillings a-piece admittance, to see what he calls an automaton chess-player. An automaton is a self-moving engine, with the principle of motion within itself; but this chess-player is no such thing. And therefore to call it an automaton, is an imposition, and merits a public detection; especially, as the high price of five shillings for each person's admission, induces the visitor to believe that its movements are *really* performed by mechanic powers: when, in fact, the whole delusion is supported by invisible confederates.

The opinion became very common that the automaton was moved by a concealed player, but where and how he was concealed after the apparently complete exposure of the interior of the machine, was as great a mystery as ever. One pamphleteer declares that he saw the ermine trimmings of the Turk's outer garment move once or

twice, when the figure should have been quite motionless; and he is convinced that there is a concealed confederate: "for," says he, "they only exhibit the automaton from 1 till 2 o'clock, because the invisible player could not bear a longer confinement; for if he could, it cannot be supposed that they would refuse to receive crowns for admittance from 12 o'clock to 4, instead of from only 1 to 2."

The automaton in the course of its travels visited, by special invitation, the court of Frederick the Great, at Berlin, where it conquered the monarch and his whole court. Eager to possess himself of the secret, Frederick for a large sum of money bought the automaton, and in a secret interview with M. de Kempelen learnt the whole art and mystery of this wonderful machine. Certain it is, that like a child who cries after a new toy and no larger regards it when possession has shorn it of its novelty, Frederick threw aside the automaton, and for many years it lay forgotten and neglected among the worn-out furniture of the Royal Court of Berlin.

M. de Kempelen died at Vienna in 1804. In 1806 when Napoleon occupied Berlin, we find the automaton chess-player under another master, and prepared again to astonish the world. Napoleon played a game with the automaton. After a few moves he purposely made a false move; the automaton inclined its head, replaced the piece, and made a sign to Napoleon to play correctly. He did so, and after a few moves, again played a piece incorrectly. On this occasion the automaton removed the piece from the board and played its own move. Napoleon was highly amused, and after a short time made a false move for the third time, when the automaton swept the pieces from the board and declined to continue the game.

We need not trace the progress of the automaton in a second tour that it made through various cities of Europe, until we again find it in London in 1819. We will merely stop for a moment at the Court of the King of Bavaria, to relate an anecdote of Prince Eugene Beauharnois, the king's son-in-law, told so amusingly by Mr. George Walker—

Eugene was fond of chess, and money was of little object. He could not resist the temptation of acquiring the secret which had set the wits of the world at defiance for so many years; and for the second time was the automaton chess-player sold like a slave for a price. Thirty thousand francs were asked by the proprietor,* and this sum was unhesitatingly paid by Prince Eugene for the machine and its key.

And now the moment has arrived when the treasured mystery of de Kempelen is to be again opened at the golden bidding of royalty. The veil is about to be raised and the curiosity of the king to be gratified. The courtiers are dismissed the room, the door locked by Eugene, and every precaution taken to ensure his acquiring the sole knowledge of the hidden enigma. The prince is alone with the demonstrator; the latter, unhesitatingly and in silence, flings open simultaneously all the doors of the chest; and Prince Eugene saw—what he saw!

Eugene, somewhat like his royal predecessor in the secret, found that when once revealed, the automaton was not worth keeping. He therefore acceded to the proposal of M. Maelzel to return him the machine on condition of paying interest for the purchase money. The automaton again proceeded on its travels—visited Paris, and was received with enthusiasm, and by the year 1819 it was again established in London in Saint James' Street.

Crowds of visitors flocked to the exhibition: the periodical literature of the day gave it almost unqualified praise, and the success was the more complete in consequence of the automaton vanquishing all its opponents with a few trifling exceptions. This encouraged the proprietor to offer odds to all comers, and forthwith the automaton gave the pawn and move to all its antagonists,

* M. Maelzel, the celebrated fabricator of the musical metronome and other works of art.

and scarcely lost one game in a hundred. A volume was published in 1820 entitled, *A Selection of Fifty Games, from those played by the Automaton Chess-player during its exhibition in London in 1820. Taken down by permission of Mr. Maelzel at the time they were played.* In the preface to this work it is stated that:—

Since the commencement of its exhibition in February last, the automaton chess-player has played, (giving the pawn and move) nearly three hundred games, of which it has lost about six.

In our next article we will fully explain the mystery of the Automaton Chess-player.

PROBABLE ORIGIN OF THE DOCTRINE OF THE SUPREMACY OF THE POPE.

For many centuries, Rome has been a city of splendid ruins, with no empire except that vast supremacy which is rested upon the supposed grant of the Almighty.

At the time when the apostles Peter and Paul established the Church in Rome, it was the capital city of the civilized world. On such a capital, perhaps, the sun never shone. It is saying much less than the truth to assert, that what Paris is to France, or London to England, Rome was to the world; because France and England know that there are other powers upon the earth independent of their respective governments; but the subjects of that empire-city saw no power upon the earth independent of Rome. The ambassadors of every potentate came to do homage before the majesty of a single throne. Dissensions amongst nations were brought for settlement before the senate. Rival kings, contending for the same tributary diadem, submitted their claims to that august tribunal. The very name of Roman citizen was a protection and a privilege in every land, and an appeal to Rome was the final recourse of universal justice.

In our age, it is not easy—indeed it is hardly possible—to conceive aught of such a city. Divided as the nations have been ever since her decline and fall, and each government displaying but a fractional part of her whole dominion, it is hard for us to imagine the majesty, the force, the concentration, the harmony, the glory, the beauty, the overpowering splendour of the spectacle which ancient Rome, in the days of Augustus, displayed to the admiration of a subject world. To the moral sense, the picture was as sublime as it was beautiful. The whole earth in peaceful subordination to one man, and he content with the kind and moderate titles of general and father—the temple of Janus shut, and wars and commotions almost done away by the wise administration of supreme justice—the whole of the mighty empire bringing its treasures and its allegiance to the great centre, which was its fountain-head of power, and enjoying in return the rich advantages of protection and government, the valour and the labour of its legions, its science, and its literature, which, like the nerves and life-blood of the natural body, were diffused freely to the remotest extremities—all this displayed a picture of human unity, on which, in its theory, the philanthropist and the philosopher might well gaze with delight; nor can I imagine how, with such a picture before them, the minds of the best of men at that day could help being strongly affected.

About the time when the last touch of perfection had been given to this wonderful empire, Christianity arose, and a Church was established in the imperial city. In wealth, in numbers, in importance, it is obvious that it must soon have surpassed all other. Everything in the chief city of an ordinary kingdom acquires a kind of practical supremacy over the whole of that territory. The professions, the trades, the fashions, the literature, the amusements of the capital, give a sort of law to the rest, by a perfectly familiar principle of deference, which is acknowledged and understood by all men. What must

have been the strength of that principle in regard to imperial Rome?

But, perhaps, it may not be useless—inasmuch as the mind is often aided in its reflections on the force of circumstances by transferring them to some familiar object of our own day,—if I try to illustrate my idea of a secular supremacy by a simple analogy.

Let us suppose, then, that we had sent a number of missionaries to plant the Gospel in China, who had succeeded in establishing Churches in several of the provinces of that extensive country. In the progress of their labours, we are informed that a Church is gathered in the capital itself. The emperor, the powerful mandarins, the officers of government, the men of influence, are now likely to be brought under the blessed yoke of the Gospel. Is it not reasonable that we should attach tenfold more importance to that Church than to the provincial Churches—that for its support we should be most anxious—that into its progress we should most fondly inquire, and that we should expect, nay advise, all the other missionaries through the nation to be most solicitous for its welfare, and most ready to make its advancement the primary object of their prayers and toils?

If, however, such would be our views, at a distance from the field of action, how much more would the same principle of expediency operate on the missionaries themselves! Of what vast importance would they esteem the progress of truth in the capital of the Chinese empire! How surely would they calculate that success *there*, was, in fact, success every where! How thankfully would they count the numbers of converts from the ranks of the influential and the great, not because their souls were of more value, but because the conversion of such as these was the readiest mode of breaking down the kingdom of darkness, and inducing multitudes to examine, with favourable dispositions, the system of truth; and how manifest it is, that, in such a case, the missionaries settled in the provincial Churches would readily grant a primacy of influence and consequence to their brethren in the capital city, which would make them the chief leaders, advisers, and, in fine, directors of the whole! And yet, in all this, we see at a glance that it is simply to be resolved into the importance of the local situation that it has no connection whatever with the spiritual rank or ecclesiastical dignity of the missionaries themselves, but is purely the result of judicious views of practical expediency.

Now, then, if we were called to draw up a code of regulations for a body of missionaries thus circumstanced, should we not, perhaps, think it proper to advise all due regard to these principles? Should we not say, Be careful about union, and in all your proceedings consult together, but especially do nothing without consulting with your brethren of the capital city. In order that the good cause should prosper it is necessary that you should resort to the Church established there as often as you can: by reason of its more powerful principality, being the seat of the government, and the very heart of the empire, the Church located there is the most important of the whole, and the brethren placed over it should have the chief direction in all your councils. Would not such advice as this be deemed prudent and wise by all men? And hence, is it not plain that we could go very far in support of a primacy, without departing in the least from the ground of secular superiority derived simply from the importance of the location?

But in the situation of the Christian Church, as planted in ancient Rome, there was much more than any modern analogy can furnish, to contribute to the same result. During seasons of persecution, when heathen rage was excited against the faithful, *The Christians to the lions!* was the first cry, and the Church in Rome was usually called upon to take the lead in the glory of martyrdom. In times of peace the crowds of philosophers and disputers which thronged the imperial

city, drew out the best talents and strongest energies of the priesthood in the defence of truth. And the influx of strangers, the applications for aid, and the calls on liberality, which were sure to be most abundant where there was most inducement to attract them, would keep the sympathies, the hospitality, and the beneficence of that Church in the fullest action. Add to all this, that if the Christians in the provinces needed any indulgence from the government, their request could be best presented through the brethren at Rome; that the bishop of Rome was on the very spot where he had the best opportunity of appeasing the imperial wrath, or conciliating the imperial favour; that when the clergy or others had occasion to travel, his letters would have the greatest weight by reason of his local superiority; that when any of the prætors or provincial magistrates were likely to prove hostile to the Christian cause, the bishop of Rome was the only one who could hope to have influence sufficient with the officers of the court to have them counteracted or recalled; that writers on the Christian religion would first seek patronage and praise from the same dignitary, and that all who thought themselves aggrieved throughout the rest of the Church would naturally endeavour to strengthen their cause by the sentence of his approbation,—all this, and much more of the same character, suggests itself to a mind of common reflection, in tracing the various causes of the secular primacy obtained by that Church which was established near the throne of the Cæsars, in the empire-city of the world.

The last feature of the case presents the influence which these circumstances must have exerted on the minds of the Roman clergy themselves, when connected with the important fact that the secular empire of Rome was one mighty whole—the earth under one head,—the world under a single prince, and that prince called a father. Dull and stupid must the intellect have been that could fail to discover the application of this idea to the Christian Church,—for was it not in truth one kingdom under a single King?—one family under a Father? And why not give the benefit of this consolidation to the hierarchy on earth? Why not secure to the whole Church that order, and subordination, and peace under a single earthly head, as the Lord's vicegerent, which heathenism had brought, in the affairs of human government, to such a marvellous system? Should the hosts of Satan be better marshalled than the hosts of God? Should one single will be felt and obeyed to the remotest bounds of that mighty empire, and should not one single Church, which is the spouse of Christ, be much rather the ruler and mistress through the whole of Christendom? On such a plan, how much more union might be expected; how much more peace; how much less opportunity for heresy and false doctrine; and how much more glorious would be the victory of the Lord's people, when they should appear to the heathen one mighty host, "bright as the sun, fair as the moon, and terrible as an army with banners."

I can easily conceive that the best men of the primitive ages, being accustomed to have this astonishing empire of the world continually before their eyes, and to hear it as the common and favourite theme of the orators, and courtiers, and civilians, and soldiers, and travellers round them, might readily in this manner, be led to contemplate the desirableness and practicability of a similar system in the Church, and to cherish and encourage every advantage they possessed for its perfect consummation, as providential instruments placed in their hands by Divine wisdom, for this especial purpose. I can easily conceive, that under this influence of their habitual views, they would find, in Scripture, analogies, and even declarations, which—had not the idea of universal empire been first rendered familiar by the political state of the world—would never have occurred to them. That thus disposed, they would derive a supposed

parallel in principle from the high priest of ancient Israel, and instead of applying it to the single district of a bishop, would apply it to the whole of Christendom—that they would lay hold on our Lord's addresses to Peter (the only passages in the New Testament which ingenuity itself could put into the semblance of Divine authority,) and begin to interpret them in favour of their ecclesiastical empire,—that all who were connected with Rome, who had obligations to the Church there, who feared their censure or loved their praise, or who had anything to expect from their influence, would readily adopt the system; and that the converts amongst the great and noble, who had been accustomed to the maxim, that Rome was the mistress of the world, would be prompt and zealous in defence of an idea which harmonized so well with their own political and patriotic feelings—all this I can conceive most readily, as easily accounting for the rise and progress of a secular primacy, without calling it by any harsh or offensive name. I do not, therefore, look upon your doctrine as having its *origin* in tyranny, in fraud, or in a desire to lord it over mankind. Its beginning, I think, I have traced to a much better set of principles. And as I hold myself bound in all cases to look for the most favourable motives and causes of human action, so I attribute to the policy of the primitive Church of Rome nothing more than can be fully explained by the favourable influence of their location, their habits of dwelling on the theory and practice of universal empire, and their desire to secure the unity and peace of the Church; on the supposition that they were holy and well-meaning men.

Of the difference between the local primacy and that now asserted, I shall only for the present observe that the one was secular, the other is spiritual; the one was human, the other is divine; the one interfered with the liberty of no other Church, the other claims authority over the whole. The one grew out of the political pre-eminence of ancient Rome, and should now be yielded, of right, in their respective proportions, to the other cities, which, in the order of Providence, have attained a far larger measure of influence over the affairs of men; but the other insists on the fiat of the Almighty, superior to all earthly mutation, that Rome shall be the mother and the mistress of the Christian world to the end of time.—BISHOP HOPKINS.

ON DREDGING.

AMONG the great effects produced by apparently small causes may be ranked the accumulation of sand and mud in rivers, harbours, canals, and basins, by the settlement of the solid matters brought down by rivers from the land. The sand-banks near the mouths of the Scheldt, the Meuse, the Rhine, the Elbe, the Thames, the Humber, and other considerable rivers, furnish important evidence of the extent to which this subsidence often proceeds, and of the serious consequences which result therefrom to shipping. Geologists have enumerated many remarkable instances of the effects thus produced, in which a place, once regarded as a sea-port, is now to all intents and purposes an inland town, such as Sandwich in Kent, by the subsidence of sand and mud on the banks. It forms no part of our present object to enter into a geological inquiry on this matter, but to detail the means whereby a river, when too much choked with sand and mud, is cleansed.

The Dutch, whose country presents an extraordinary example of the effects of these fluviatile deposits, long ago devised an apparatus called the *spoon-dredging machine*, for removing some of the sediment from the beds of their rivers and harbours. From the Dutch its use passed to the English, and we may now frequently see such an instrument employed on the River Thames, although not so often as before the introduction of steam-dredging machines.

The cut at the end of this article will show pretty clearly the action of the spoon-dredging machine. In the first place, there is a boat, varying in size according to the situation in which it is to be worked, but generally from twenty to sixty tons burden. It is built so as to float with an easy draught of water, and is usually built as an open boat, with a kind of inner floor; but in some cases it is flush-decked, carrying its cargo wholly upon deck. Sometimes the matters excavated from the bottom of the river are employed in banking on the sides of a river, or in ballasting ships, but in other instances emptied out into some deeper part of the same river; and when the latter is the case, the boat is provided with a kind of trap-door at bottom, to let out the mud. In this case a hold of two compartments, one fore and one aft, is formed, represented in the cut by the lines passing obliquely downward, and shaped like a hopper, narrower at the bottom than at the top. Each of these apertures has an opening in the bottom, through which the mud is dropped when the flap-door A is opened.

The spoon or shovel B consists of a strong ring or hoop of malleable iron, the cutting part of which is of steel; it is about six or seven feet in circumference, and properly formed for dredging upon soft mud or gravelly ground. To this ring is strongly attached, by means of thongs, a large bag, made sometimes of bullock's hide, but more generally of tanned leather; and perforated with a number of small holes, for allowing water to drain off. This bag, the capacity of which is about four or five cubic feet, being fixed to the ring, the spoon-bowl thus formed is attached to a pole thirty or forty feet long, or else to a pair of sliding poles, so connected as to admit of being lengthened or shortened according to the depth of the water in which the apparatus is to work. A rope is attached to the bottom of the bag, for directing its position at the commencement of each operation. The apparatus is generally worked with a chain or rope, brought from the spoon to a winch worked with wheel and pinion, through a block suspended from a small crane used for hauling the bag and its contents along with the progress of the boat, and in lifting the spoon over the gunwale to be emptied into the hopper of the boat. The purchase rope is led along the deck to the winch, by a block placed in a proper direction for this purpose. These boats are generally managed by two, three, or four men, who with this simple apparatus can lift from twenty to sixty tons of sediment from the bottom, at a depth of two and a half or three fathoms, when the ground is somewhat loose and favourable for the operation. Their mode of proceeding is as follows:—The barge being moored over the place where it is proposed to dredge, and one end of the working-rope being fastened to the chain of the spoon, and the other end to the barrel of the crane, the man who is stationed at the handle or pole of the spoon, immediately allows the spoon to fall into the water. At the same moment the man at the crane-work throws it out of gear, when a third man seizes the small rope which is fastened to the bottom of the bag, and runs with it along the gunwale, and prevents the spoon from sinking until it gets to the other end of the barge. When this is effected, the man at the pole turns it up, inclining the pole head towards the crane-end of the barge, and takes a turn with a small rope round the pole and rail of the vessel, which keeps the spoon dredging along in its proper position. The man at the crane draws along the spoon until it be nearly under the crane, when the man at the pole inclines it backward, and the contents (now deposited in the bag) are hoisted up and emptied into the barge.

In Holland, this apparatus, and other simple modes of dredging, are much practised upon the extensive flats at the entrance of their great navigable rivers, in connexion with the sluices and natural currents

issuing from their extensive basins and canals, and the excavated matter is generally of a mossy description, which, after being strongly compressed in moulds by that industrious people, is in a state to be speedily used as turf-fuel.

On the Thames (says a recent writer) the spoon-dredging machine is conducted upon a large scale, and in the most systematic manner, under the immediate direction of the Trinity Board. The stuff brought from the bottom consists chiefly of mud and gravel. This is not only a useful operation for deepening and preserving the navigation, but the stuff itself is sold to good advantage, as ballast for shipping. To such an extent is this carried that the colliers, or shipping from London to Newcastle, have raised ballast-hills in the neighbourhood of Shields, which, from their vast extent, have become objects of no small curiosity.

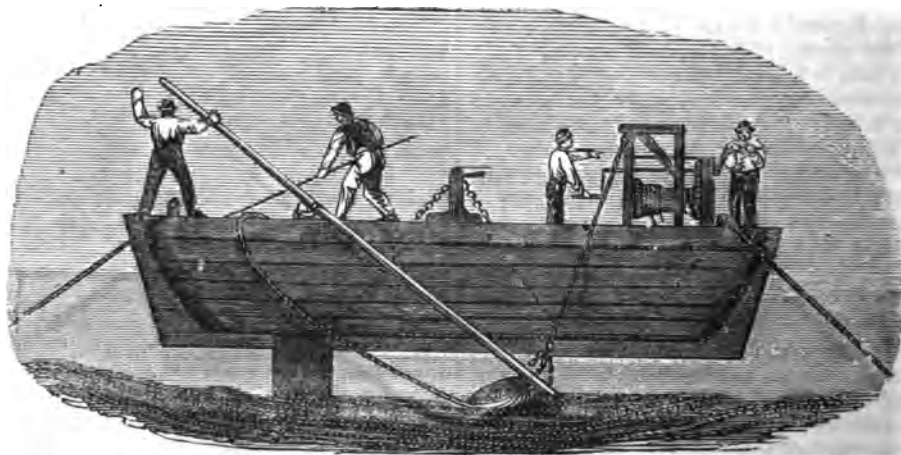
Another kind of dredging-machine, formerly much employed in the river Clyde, and other parts of Britain, consists of a large plate of iron, about four feet long and eighteen inches deep, and sharpened on the under edge. To each end of this plate of iron a plank of hard wood is fixed to tenons cut in the iron, the sharpened edge of iron projecting about four inches below the wooden sides. The whole forms something like a box, without top or bottom, eighteen inches deep at the one end and ten inches at the other. From the two extreme points of the wood a chain is fixed, for attaching the principal working rope or chain. In order to put the machine in motion, it is requisite to have a punt moored on each bank of the river directly opposite, and on each of these punts a capstan, or windlass, the one for drawing across the empty dredge, and the other for bringing it back. In the course of its passage the dredge is generally filled, and by means of the capstan it is drawn so high up that men at low water can remove the stuff with shovels. Where the shiftings are not frequent a capstan or windlass may be placed on the bank of a river, and the operation performed as before. But as this method is very tedious where dredging of great extent is required, it is now little used except in levelling foundations under water, for which it is well adapted, if the material is soft sand or mud.

But by far the most complete and effective dredging-machines are those which consist of an endless chain of buckets, ascending full and descending empty, each bucket collecting its cargo of stuff when at the bottom of the river. Such machines, when first introduced, were worked by men, but when the principles on which such machines act were more fully ascertained, horses were employed, who worked round a covered gin-trap,

or circular path within the boat. Still more recently, when the importance of substituting steam-power for that of horses and men has been so clearly seen, steam-dredging machines have been constructed, and are now used in various parts of Britain.

One of the most complete dredging-machines ever constructed was made for the harbour of Aberdeen a few years ago. The vessel and the steam-engine, as well as the dredging apparatus, were all made expressly for the purpose, and for each other. The vessel is ninety feet long, and twenty-two broad, with a longitudinal opening along the middle of the ship, extending more than half its length, being fifty-four feet long, and intended for the reception of the frame containing the buckets. The vessel draws only four feet of water, but the bucket-frame can be lowered so as to dredge at a depth of fifteen feet. One half of the length of the vessel, as just observed, has a longitudinal slit or opening through which the buckets descend into the water, and the other half contains the steam-engine by which the buckets are worked. The bucket-frame is a kind of ladder, placed in a diagonal direction, through the middle line of the ship, part being above, and part dipping into the water. The frame is fifty-two feet in length, each side being of one entire piece of oak timber. The two ends of this frame serve as supports for a chain to which the buckets are attached. The links of the chain weigh, some forty-four, and others eighty-four pounds each. The buckets are twenty-one inches deep, twenty-six inches wide in one direction, and from fourteen to nineteen in the other. The operation, then, is this. The steam-engine sets some machinery in motion, which moves the chain to which the buckets are attached, and the buckets are thus drawn alternately up and down, having their mouths or open top uppermost when ascending, and lowermost when descending. The length of the chain is so regulated that the buckets may just dip or scrape into the mud at the bottom of the harbour, and the mud, when hauled up, is emptied into barges placed alongside the vessel. The expense of this apparatus in its complete state was nearly five thousand pounds.

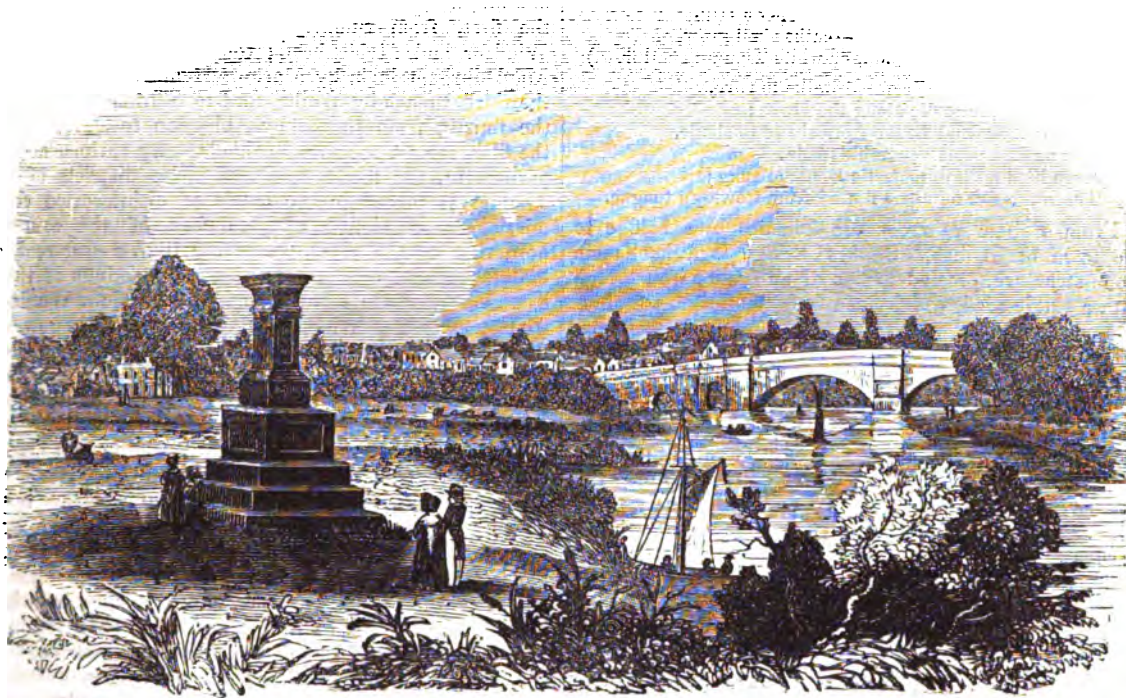
In most bucket-dredging machines there are two series of buckets, one on each side of the vessel, but the mode of operation is nearly the same in both cases, the chain of buckets in each being arranged in an inclined position from head to stern of the vessel, and the buckets alternately ascending and descending, full in the former position and empty in the latter.



THE SPOON DREDGING MACHINE.



THE BANKS OF THE THAMES. VI.



STAINES' STONE.

We now approach that part of the Thames at which it receives the waters of the river Colne, about two miles above the town of Staines. This river rises in Hertfordshire, not far from St. Albans, and after passing by Watford, becomes the boundary between the counties of Middlesex and Buckingham; continuing its course through Uxbridge to the Thames.

The Thames then flows between Egham and Staines, the former being on the Surrey and the latter on the Middlesex side; Egham is a large village, in the north-west corner of the county of Surrey. It consists of one street, nearly a mile in length. The church, apparently of considerable antiquity, has externally but a mean appearance: it is built of stone, with a modern mixture of brick, and is covered with a white stucco. On the north side of the street is a range of alms-houses, founded in 1706, by Mr. Henry Strode, merchant of London, for six men and six women, who must be sixty years of age, and have been parishioners of Egham twenty years without receiving any parochial relief. The centre of this building, which exhibits an appearance of neatness and comfort, is the residence of a schoolmaster, who has a salary for educating twenty poor boys of Egham. This village furnishes a remarkable instance of the effect which changes in the modes of travelling will often effect in the prosperity of particular places. A topographical writer, in describing Egham as it was a few years ago, says:—"This place has many respectable inns, and seems to be in a thriving state, the principal source of its prosperity being derived from its situation as a great thoroughfare from the metropolis to the west and south of the kingdom." This account is no longer true. The communication by railway from

London to the south-western parts of England has removed almost the entire stage coach trade from Egham, and caused the closing of many of the inns.

Northward of Egham, between it and the Thames, is Runnymede, which will ever be celebrated in the history of this country as the spot where the assembled barons, in 1215, compelled King John, who had in vain resorted to the most criminal prevarications, to grant what is emphatically denominated *Magna Charta*, the Great Charter of the liberties of England. Here his assent was extorted; but the treaty is said to have been actually signed on an island in the Thames still called Charter Island, and included in the parish called Wragsbury, in Buckinghamshire. It was suggested some years ago, that a pillar should be erected on this spot, to commemorate an event which has had so marked an effect in the English character and constitution; but we believe that nothing of the kind has been put in execution.

Westward of Egham is an elevation called Cooper's Hill, which has acquired a certain degree of celebrity from a poem of the same name by Sir John Denham. This poem was written about two centuries ago, and appears to be a description of objects seen from the hill, rather than of the hill itself. Cooper's Hill, the professed subject of the poem, is not mentioned by name; neither is any account given of its situation, produce, or history; but, as has been ingeniously observed, it serves, like the stand of a telescope, merely as a convenience for viewing other objects. Dr. Johnson, speaking of this poem, said:—

Cooper's Hill is the work that confers upon Denham rank and dignity of an original author. He seems to l

been, at least among us, the author of a species of composition that may be termed local poetry, of which the fundamental subject is some particular landscape, to be poetically described, with the addition of such embellishments as may be supplied by historical retrospection, or incidental meditation. To trace a new species of poetry, has in itself a very high claim to praise; and its praise is yet more, when it is apparently copied by Garth and Pope.

The associations connected with this spot are rendered perennial by the lines of Pope:—

Bear me, oh! bear me to sequestered scenes,
To bow'ry mazes and surrounding greens;
To Thames's bank, which fragrant breezes fill,
Or where the Muses sport on Cooper's Hill.
(On Cooper's Hill eternal wreaths shall grow,
While lasts the mountain, or while Thames shall flow.)

I seem through consecrated walks to rove,
I hear soft music die along the grove:
Led by the sound I rove from shade to shade,
By god-like poets venerable made.
Here his first lays majestic Denham sung;
There the last numbers flowed from Cowley's tongue.

From Egham we cross the Thames by a bridge to the town of Staines. Staines Bridge is a handsome stone structure, erected in lieu of an earlier iron bridge with a single arch, which was not deemed safe. Staines is a market town, with about two thousand inhabitants. It has been much improved of late years, and consists principally of one wide street, containing some good houses, and terminating at the foot of the bridge. The church, dedicated to St. Mary, and originally erected in 1631 by Inigo Jones, has been recently rebuilt; it is a neat structure, with a square embattled tower; the interior, which is well arranged and handsomely fitted up, contains about three hundred and fifty free sittings.

Staines, or Stanes, as it was formerly called, is supposed to have derived its name from the Saxon word *stana* or stone, because, within its parochial limits, the stone has immemorially stood, which marks the extent of the city of London's western jurisdiction on the Thames. It stands on the banks of the river, at Colne-ditch, at a small distance from the church. On the upper part of the stone, which is much decayed, is inscribed, "God preserve the city of London, A.D. 1280." This stone was, during the mayoralty of Sir Watkin Lewes, in the year 1781, placed on a new pedestal, whose inscription informs the reader that it was erected exactly over the spot where the old one formerly stood.

This stone marks a boundary, beyond which the conservancy of the Thames passes into other hands; and we take the present opportunity to offer a few explanatory remarks on this subject. There is a homely proverb, that "every body's business is nobody's business;" the truth of which would be soon shown if such a river as the Thames were left without definite arrangements being made for its conservancy. Before the year 1771, the navigation of the river was very imperfect. It was carried on in large barges of two hundred tons burden, drawing four feet water, passing downward by the force of the stream, and upwards by the tractive force of men or horses, walking on the banks. In some cases the barge was pulled along by twelve or fourteen horses, or by a gang of men varying from fifty to eighty. But in the year which we have mentioned, an act of parliament was passed for improving the navigation from the metropolis to Cricklade; and soon afterwards another act vested the jurisdiction of that part of the river between London and Staines in the corporation of the city of London, which has in consequence made considerable improvements, by the construction of towing-paths, locks, and other works. The jurisdiction of the corporation extends from Staines to the Crow-stone, near Southend, including part of the rivers Medway and Lea. It is the office of the lord mayor's deputy, the water-bailiff, to search for, and punish, all persons

who infringe the laws made for the preservation of the river, and its fish; and in order to maintain the rights and privileges of the river, the lord mayor holds a court of conservancy eight times in the year, in the four counties of Middlesex, Surrey, Kent, and Essex.

With regard to the portion of the Thames above Staines, we shall avail ourselves of a pamphlet published a few years ago by Mr. Allunt of Henley. Whether any changes have occurred since then, we do not know; but we shall give the substance of the statement made by him. The upper portion of the Thames, extending from Staines to Lechlade in Gloucestershire, a distance of one hundred and nine miles, is divided into five districts; the first, from Staines Stone, to Boulter's lock, by Windsor and Maidenhead; the second, from thence to Mapledurham lock, by Marlow, Henley, and Reading; the third, thence by Wallingford to Shillingford bridge; the fourth, from thence by Abingdon to Oxford; and the fifth, from Oxford to Lechlade. By various acts of parliament, the management of these districts of the Thames is placed in the hands of disinterested commissioners, consisting of gentlemen of the counties bordering on the river, possessing 100*l.* a year real, or 3000*l.* personal estate. Six general meetings of these commissioners are annually held, at London, Windsor, Marlow, Reading, Wallingford, and Oxford. Empowered to raise by loans the sum of seventy-five thousand pounds, at an interest of five per cent., they have expended that and the annual surplus of the tolls, in making several pound-locks, mostly a hundred and twenty feet in length, by eighteen in width; and also in short side-cuts, situated in places where the river was formerly penned up for the purpose of working mills, or for fishing. Considerable sums have also been expended in making a convenient horse-towing path along the whole navigation, in ballasting the channel where necessary, and in other improvements, by which vessels are enabled to navigate without obstruction at the depth of three feet ten inches in all seasons. By these improvements and the judicious regulations adopted by the commissioners, the navigation was rendered to a certain degree safe and expeditious. The supply of water is generally abundant, from the many tributary streams flowing into the Thames. Barges usually go down the river at the rate of from twenty-five to thirty-five miles a day; and up from twenty to thirty miles. The tolls are three-pence per ton at each pound lock, or six shillings and nine-pence per ton for two hundred and eighteen miles; besides a toll of about two shillings per ton throughout to the weir-owners. The trade in the Thames has been sufficient to yield a sum large enough to keep the works in repair, and to permit a considerable amount to be expended in new works. This account was given before the age of railroads commenced; it is probable that many modifications have been produced in the amount of traffic along the upper course of the Thames.

We now leave Staines, and proceed in our tour down the river. Not far from this town, St. Ann's hill appears in a very conspicuous and elevated situation, offering a picturesque object at various bends of the river. Laleham soon appears in sight; a spot famed for the entertainment it affords to the lovers of angling. The river at Laleham narrows considerably, and about the shallows the water is beautifully transparent. Here the tranquillity of the scenery, the various objects perpetually gliding on the stream, and groups of cattle from the adjacent meadows drinking at the river, all contribute to form a picturesque assemblage.

From Laleham, the river proceeds in a course nearly due south, for a distance of about three miles, to Chertsey, a pretty market-town on the Surrey side of the river. Chertsey formerly derived consequence from its abbey, which ranked among the more considerable monastic institutions of the country; and possessed

annual revenues valued at the time of the dissolution at about seven hundred pounds. Some of the outer walls are the only remains of this once celebrated edifice. On the site of the abbey, (which once contained the body of Henry the Sixth,) Sir Henry Carew, master of the buck-hounds to Charles the Second, built a handsome mansion, called the Abbey-house. Across the Thames at Chertsey is a bridge of seven arches, built of Purbeck stone, at an expense of about thirteen thousand pounds.

The poet Cowley resided in Chertsey some time, and died in what was called the Porch-house. He retired to this quiet spot from disgust, wearied out with the vexatious attendance upon a court, and the fatigues of business. In this retreat he vainly flattered himself with meeting uninterrupted harmony; but the following letter, written by him to Dr. Spratt soon after his arrival at his new abode, speaks of a mind by no means satisfied and at ease.

Chertsey, May 21, 1665.

The first night that I came hither I caught so great a cold, with a defluxion of rheum, as made me keep my chamber ten days. And, two days after, had such a bruise on my ribs with a fall, that I am yet unable to move or turn myself in my bed. This is my personal fortune here to begin with. And, besides, I can get no money from my tenants, and have my meadows eaten up every night by cattle put in by my neighbours. What this signifies, or may come to in time, God knows; if it be ominous, it can end in nothing less than hanging. Another misfortune has been, and stranger than all the rest, that you have broke your word with me, and failed to come.

But we must now leave Cowley and his troubles; and will, in the next paper, proceed on our tour from the town of Chertsey eastward.

GARDEN HERBS.

BASIL.

ACCORDING to fabulous history this plant originated from the death of Ocinus, who first ordained the combats in honour of Pallas, and being killed by Cyclodeas, a famous gladiator, was immediately metamorphosed into the plant which bears his name.

The Greeks called this plant *oxymon* on account of quickness with which the seed germinates. In modern botany the term *Ocimum* is applied to a genus of labiate plants remarkable for the fragrance of their leaves which are used as an ingredient in savoury dishes, for which reason some of the species have been, from time immemorial, very generally cultivated. They are known in our gardens as *basils*, the name *basilium*, (from the Greek word for a king,) having been applied to common basil by the monkish writers on plants in allusion to its regal qualities.

Basil is a native of the south of Europe, as well as the East Indies and some parts of Africa: it also grows wild in Persia. There are many varieties, of which Gerard enumerates several. He says:—

Great garden basil is of two sorts, differing from one another in bigness. The first hath broad, thick and fat leaves, of a pleasant sweet smell, and of which some are here and there of a blackish red colour, somewhat snipped about the edges, not unlike the leaves of French mercury. The stalk groweth to the height of half a cubit, dividing itself into divers branches, whereupon do stand small and base flowers, sometimes whitish, and often tending to dark purple. The root is thready, and drieth at the approach of winter.

Citron basil is very like unto the former, but is altogether lesser. The whole plant is of a most odoriferous smell, not unlike the smell of a lemon or citren, whereof it took his surname.

Bush basil is a low and base plant, having a thready root from which rise up many small and tender stalks, branched into divers arms or boughs, whereupon are placed many little leaves, lesser than those of pennyroyal. The whole plant is of a most pleasing sweet smell.

Indian basil sends up a stalk a foot or more high, four-

square, and of a purple colour, set at each joint with two leaves, and out of their bosoms come little branches: the largest leaves are some two inches broad, and some three long, growing upon long stalks, and deeply cut in about the edges, being also thick, fat and juicy, and either of a dark purple colour, or else spotted with more or less such coloured spots. The tops of the branches end in spokie turts of white flowers, with purple veins running amongst them. The seed is round, black and large. The plant perishes every year as soon as it hath perfected the seed.

This harmless and fragrant herb was the object of many superstitious prejudices among the ancients, and of much fierce debate among the old herbalists. The ancients were of opinion that if basil were pounded and put under a stone, it would breed serpents. Instead of putting this marvellous quality to the test, they continued to decry the use of the herb; and when it was transplanted into this country, our herbalists finding the climate too cold for serpents, transformed them into worms and maggots, which, as it is gravely stated, this herb will engender if it be only chewed and put into the sun.

Chrysippus, two hundred years B.C., condemned basil as being hurtful to the stomach, an enemy to the sight, and a robber of the wits. Diodorus stated, that by eating this herb, cutaneous insects are produced. Hollerus relates, that an Italian by frequently smelling this herb, bred a scorpion in his brain. According to Galen, "basil is hot in the second degree; but it hath adjoined with it a superfluous moisture, by reason whereof it should not be taken inwardly, but being applied outwardly, it is good to digest or distribute, and to concoct." Galen says further, that basil was eaten by many persons in his time, being corrected with oil and vinegar.

Gerard recommends the juice of basil to be drunk in wine of Chios, or strong sack, as a remedy for the headache. "Mixed with fine meal of parched barley, oil of roses, and vinegar, it is good against inflammations and the sting of venomous beasts. They of Africa do affirm that they who are stung of the scorpion, and have eaten of it, shall feel no pain at all."

Basil leaves a pleasant smell when rubbed with the hand; and it was formerly said that the hand of a fair lady made it thrive. Farmers in the times of Queen Mary and Queen Elizabeth planted it in pots to offer to their landladies or others who visited the farm. Tusser says:—

Fine Basil desireth it may be hir lot
To grow as a gilliflower, trim in a pot:
That ladies and gentiles, for whom you do serve,
May help her as needeth, poore life to preserve.

In our gardens basil is treated as a tender annual. It is raised in the spring in a hot-bed, and turned into a warm border when the summer is so far advanced that frosty nights are no longer to be feared. A slight frost would be instantly fatal to this plant.

The history of basil may be thus briefly summed up. *First*,—The ancients regarded it as a most virulent and dangerous plant. *Secondly*,—The old herbalists were divided in opinion. Culpeper says,—"Away to Dr. Reason went I, who told me that basil was an herb of Mars, and under the Scorpion, and perhaps, therefore, called basilicon, and it is no marvel if it carry a kind of virulent quality with it." Gerard agrees with Simeon Zethy that, "the smell of this plant is good for the heart and for the head: that the seed cureth the infirmities of the heart, taketh away sorrowfulness which cometh of melancholy, and maketh a man merry and glad." *Thirdly*,—Modern botanists regard basil as a simple garden herb, useful to impart flavour to soups and sauces.

BORAGE.

The common borage is often taken as the type of Boraginæ, the Borage family, a natural order of Dicotyledo-

nous plants, containing about thirty genera, and nearly three hundred species. This herb represents not only the peculiarities of structure, but sensible properties of this order: all the known species have an insipid juice, and their surface is covered with stiff, white hairs, which impart a peculiar roughness or asperity to the skin, on which account these plants were formerly called *asperifolia*, or rough-leaved.

Borage is said to be derived from the Latin words, *cor* and *ago*, because the old herbalists used it "to comfort the heart and spirits of those that are in a consumption or troubled with often swoonings, or passions of the heart." The ancient Romans called it *Buglossus*, from the Greek *Βουγλωσσοσ*, because the leaf is like the tongue of an ox. The French call it *langue de bœuf*, and the name Bugloss is not uncommon in England. *Euphrozyon* is also an ancient name for it, because when put into a cup of wine it was said to make those who drank of it merry,—an effect which we should be disposed to attribute rather to the wine than the borage.

Borage is said to have been introduced into England from Aleppo, but it grows so freely in this country that many writers suppose it to be indigenous. The herb is succulent and mucilaginous, and when bruised yields a very faint odour. Exhilarating qualities were formerly attributed to it, and it was reckoned one of the four cordial flowers, the other three being alkanet, roses, and violets. It has been recommended as a medicine of great efficacy in pleurisy and inflammatory fever, and as such is sometimes used in France in the form of a syrup prepared from the leaves. The juice of borage yields nitre, and on this account perhaps its medicinal virtues are considered salutary. Water distilled from both the leaves and flowers of the plant was formerly a favourite medicine, but is very little regarded in modern practice. Gerard says that many things can be made from borage, "and be used everywhere for the comfort of the heart, for the driving away of sorrowe and increasing the joie of the mind. Sिरupe made of the flowers comforteth the heart, purgeth melancholie, quieteth the phrenticke or lunaticke person. The leaves eaten raw do engender goode blood, and when boiled in honey and water they cure hoarseness."

Lord Bacon observes that—

The leaf of the borage hath an excellent spirit to repress the fuliginous vapour of dusky melancholy, and so to cure madness: but nevertheless, if the leaf be infused long it yieldeth forth but a raw substance, of no virtue; but if the borage stay a small time, and be often changed with fresh, it will make a sovereign drink for melancholy passions.

There is an old Latin verse on this plant—

Ego borago gaudia semper ago—

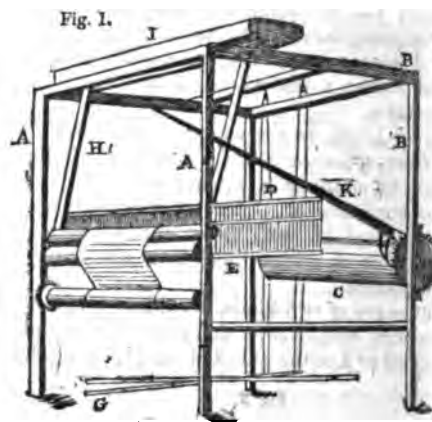
which has been thus paraphrased:—

I, Borage, bring courage.

This herb is now almost entirely neglected in England, although it is sometimes used with wine, water, lemon, and sugar as an ingredient in the favourite old English drink called "cool tankard." The plant has an odour like cucumber, and, in consequence of the nitre contained in it, communicates a peculiar coolness and flavour to any beverage in which it is steeped.

He who from out the dull dark earth
Can bid the red rose take its birth,
And from the blind unopened mine
Call forth the gem to live and shine,
He, by some powerful, heavenly law,
Will from our dark condition draw
Enjoyment endless, lovely light,
And give us courage for the fight,
Give strength through every ill to spring,
And hope, which conquers everything.—f

WIRE-GAUZE.



In our recent papers on Wire-drawing we briefly explained the mode in which a bar of iron or other metal is gradually reduced in diameter, till the form of wire is produced. We now proceed to show how wire, thus produced, may be made into a net, a cloth, a gauze, or extended material consisting of meshes.

This kind of manufacture assumes one of two forms, according to circumstances. If a fence, grating, or net be required, in which the meshes are as much as an inch in diameter, or are otherwise than rectangular in shape, the wire is twisted or plaited into the required form by hand; but if the meshes are smaller in size, the process is effected by means of a loom, in many respects resembling the cloth-weaver's hand-loom.

In the annexed cut (fig. 1.) *ABBA* represents the frame of the loom, by which all the parts are held together, and which is generally about five feet high, four feet deep, and three wide, but occasionally much larger. *C* is a beam or wooden roller, on the surface of which has been turned a number of deep grooves, into which the wires to form the "warp" are wound, each groove receiving a greater or less number of wires, according to the required fineness of the wire-cloth or gauze. These wires pass through vertical openings in a kind of frame-work, *D E*, and then pass over a roller in front of the frame. As the cloth becomes woven it is wound on another roller situated beneath the one just referred to. The apparatus at *D E* consists of two sets, or four frames of vertical wires, each about as thick as a common knitting-pin, and in the middle of each of these wires a small hole is punched, through which one wire of the warp is passed. Thus each wire of the warp has a separate perforation appropriated to itself. These frames are suspended, two and two together, by cords passing over the top of the loom, or else round pulleys fixed to an upper beam. *F G* are two treadles, by which the weaver draws down the frames alternately, during the process of weaving.

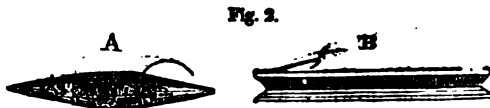
The warp-wires being thus arranged in a parallel horizontal layer from the beam to the front roller, it is evident that, by pressing down the treadles alternately, the warp-wires in the loop-holes of the frames *D E* will be alternately elevated and depressed, so as to form a passage, under some of the wires and above others, for a shuttle containing a bobbin of wire. As the shuttle passes in this way across the warp, it leaves one thread of "weft" behind it, which is immediately driven up close to the weft-thread immediately preceding it, by an instrument called the *reed*, which swings on the lower part of the lever *H*. The warp-wires being reversed in position by the action of the treadles, the layer, row, or set of wires, which was before elevated, is now depressed, and the depressed wires elevated, and another weft-thread is similarly thrown across by the shuttle, and driven up by means of the reed.

The instrument last spoken of, *i.e.* the reed, is com-

posed of small bars of steel wire, set as close as possible, so as only just to admit the warp-wires between them, and the swing-frame H, to which it is attached, is balanced and aided in its oscillations by a heavy movable piece of timber I, resting on pivots on the upper part of the frame.

As the work advances the woven cloth is wound on the lower front roller or beam by moving the beam c round a little, by means of a ratchet wheel at one end, and the connecting lever k. Thus the weaving proceeds, thread after thread of weft being thrown across the warp, the two sets of warp-wires being alternately elevated and depressed.

The shuttles are of two kinds, according to the thickness of the wire employed. In general, the form is that represented at A in the annexed cut (fig. 2,) differing



but little from the linen-weaver's shuttle, as formerly used. It is a kind of thick blunt needle, similar at both ends, and made of box-wood. It is about six inches in length, and has an aperture in the middle for the insertion of a bobbin or pirn. This bobbin is a little cylinder rotating on its axis by means of pivots at the ends, and the wire being wound on the bobbin, the rotation causes it to be given off as wanted by the weaver. When the wire is very thick it does not leave the bobbin with sufficient ease and celerity, and in that case it is wound on a kind of notched stick, represented at B, and then driven across the warp-threads.

Power-loom weaving has been applied to wire-cloth, as well as to fibrous materials, such as linen, cotton, and woollen, but the demand is not sufficiently extensive to render this application of steam power of high importance.

The reader will readily call to mind the many purposes for which twisted wire is applied, under the general name of "wire-work." Of those kinds which are woven, the coarser specimens are used for fences, pheasantries, lanterns, &c., and the finer for flour-dressing machines, paper-mill washers, fine sieves, meat-safes, dish-covers, window-blinds, and a variety of other purposes.

When the meshes are very minute, the fabric is termed *wire gauze*,—a substance which has become interesting since the curious discovery of Sir H. Davy, that such gauze is incapable of permitting the passage of flame.

The experiment may be performed with a piece of wire-gauze, about nine inches square, and of such fineness as to contain about thirty meshes in the square inch. If we bring the gauze gradually down upon the flame of a candle, or of a spirit-lamp, an appearance will be presented as shown in fig. 3. The flame does not pass through the gauze, but only the hot inflammable vapour of the flame, which may be ignited at the upper surface, as shown in fig. 4.

If two pieces of paper be attached, one to each surface of the gauze, and flame be applied below, the under piece will of course be consumed; but the upper piece will remain uninjured by the flame, so long as the wire-gauze remains below red-heat. If, instead of paper, we place camphor on the upper surface of the gauze, the camphor will not take fire there; but having melted, will pass through the gauze, and burn on the under surface only. If gunpowder be sprinkled on the gauze, it will not ignite until the wire is hot enough for the purpose. When Lycopodium is projected on flame it instantly breaks out into a blaze; but if this substance be projected on the wire-gauze, it merely blackens, and does not take fire at all.

We see, then, from these experiments, that wire-gauze is a barrier to the progress of combustion, and that it

intercepts heat as well as flame. If we place a piece of cotton-stuff upon the gauze, and bring the latter down upon a flame, the cotton will remain uninjured until the wire gets red-hot:—the flame will then pass through and consume the stuff. We see then that wire-gauze ceases to intercept flame as soon as by increase of temperature it ceases to intercept heat.

Fig. 3.

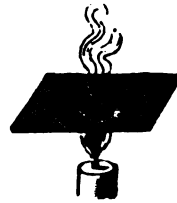
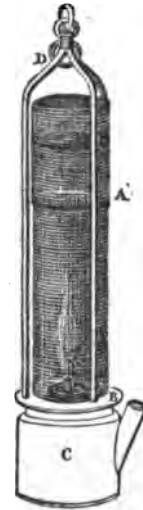


Fig. 4.



Fig. 5.



Now since the wire-gauze is formed of a good conducting substance, so much heat is abstracted from the flame, that the vapour which passes through the meshes is not hot enough to appear as flame; but when the gauze is red-hot, sufficient heat passes through to kindle the vapour, and then the flame is both below and above the gauze; in which case the latter only bisects the flame as in fig. 4.

The remarkable property of wire-gauze, was applied by Sir H. Davy to the construction of the miner's safety lamp. Coal-mines are frequently infested with an inflammable compound of hydrogen and carbon called carburetted hydrogen, or by the miners, *fire-damp*. This gas by mingling with the atmospheric air becomes explosive; so that the means whereby the miner dispelled the darkness of his gloomy workshop often produced his destruction. To remedy the frequent disasters thus occasioned, Sir H. Davy invented a lamp, the flame of which is entirely surrounded by a hollow cylinder of wire-gauze A, (fig 5,) with a double top, carefully fastened, by doubling over, to the brass rim B, which screws on to the lamp C. The whole is protected and rendered portable by the frame and ring D. It is obvious that the flame of the lamp cannot penetrate from within to the surrounding medium, in consequence of the cooling power of the metallic tissue.

Another humane application of wire-gauze was made by the Chevalier Aldini, who applied this substance, together with other badly conducting materials, as a protection against fire. The incombustible parts of dress for covering the body, arms, and legs, he formed out of strong cloth, previously steeped in an alum solution; and the parts intended for the head were made of asbestos. The head-dress was a large cap entirely covering the head down to the neck, with proper apertures for the eyes, nostrils, and mouth. To this dress was superadded a wire-gauze dress consisting of a cap, a cuirass, a covering for the body and thighs; a pair of boots of double wire-gauze, and a shield.

Numerous experiments were made to show the efficacy of these defences in resisting flame. Among many others we may mention those exhibited to a committee of the Academy of Sciences at Paris. Two parallel rows of straw and brushwood, supported by iron frames, were placed three feet apart and extended thirty feet in length

When this mass was ignited, the spectators were obliged to move to a distance of nine or ten yards to avoid the heat. The flames appeared to fill up the whole space between the rows, and rose to the height of about ten feet. When the flames were most fierce, six firemen, clad in the incombustible dresses, marched many times at a slow pace along the fiery passage. One of the men carried behind him a child eight years old in a wicker basket covered with metallic gauze.

A still more striking exhibition was made in 1829 in the yard of the barracks of Saint Gervais. Two towers were erected, each two stories high, and were surrounded with faggots and straw, and ignited. The firemen entered the towers with impunity, and one of them with his child in the wire-gauze basket rushed into the flames which were raging to the height of eight yards. This violent combustion, accompanied by a thick black smoke, hid him from the view of the spectators, and he remained so long invisible that serious apprehensions were felt for his safety; but he at length appeared, uninjured, and exulting in having braved the terrors of this fiery gulf.

It is remarkable that, in these trials, the firemen were able to breathe in the midst of the flames without difficulty. This effect arises from the circumstance that much of the heat is intercepted by the wire-gauze in the passage of the heated air to the lungs; and also from the remarkable power of the human body to resist great heat, and of the lungs to breathe very hot air.

Like some vast flood, unbounded, fierce, and strong,
His nature leads ungoverned man along,
Like mighty bulwarks made to stem that tide,
The laws are formed, and placed on every side;
Whene'er it breaks the bonds by these decreed,
New statutes rise, and stronger laws succeed;
More and more gentle grows the dying stream,
More and more strong the rising bulwarks seem;
Till, like a miner working sure and slow,
Luxury creeps on, and ruins all below!
The basis sinks, the ample piles decay,
The stately fabric shakes and falls away;
Primeval want and ignorance come on,
But Freedom, that exalts the savage state, is gone.—
CRABBE.

PRINTING was invented by a soldier, gunpowder by a monk, and several branches of the clothing trade by a bishop; this last is said, however, agreeably to the vulgar notions concerning Bishop Blaze, the patron saint of the woolcombers. But he obtained that honour, not on account of any improvements he made in the trade, but because he suffered martyrdom by having his flesh torn by carding irons.

MELANCHOLY.—Of the melancholy of common life there are two species that have but little resemblance. There is a sullen gloom which disposes to unkindness and every bad passion; a fretfulness in all the daily and hourly intercourse of familiar life, which, if it weary at last the assiduities of friendship, sees only the neglect which has forced and not the perversity of humour which gave occasion to it, and soon learns to hate, therefore, what it considers as ingratitude and injustice; or which, if friendship be still assiduous as before, sees in these very assiduities, a proof, not of the strength of that affection which has forgotten the acrimony to soothe the supposed uneasiness which gave it rise, but a proof that there has been no offensive acrimony to be forgotten, and persists therefore in every peevish caprice till the domestic tyranny becomes habitual. This melancholy temper, so poisonous to the happiness, not of the individual only, but of all those who are within the circle of its influence, and who feel their misery the more because it may perhaps arise from one whom they strive, and vainly strive to love, is the temper of a vulgar mind. But there is a melancholy of a gentler species, a melancholy which as it arises, in a great measure, from a view of the sufferings of man, disposes to a warmer love of man this sufferer, and which is almost as essential to the finer emotions of virtue as it is to the nicer sensibilities of poetic genius.—DR. THOMAS BROWN.

TRANSLATION OF SOME LINES WRITTEN IN LATIN
BY LADY JANE GREY.

ENDLESS all malice if our God is nigh,
Fruitless all pains if He his help deny;
Patient I pass these gloomy hours away,
And wait the morning of eternal day.

If ever any book was truly poetical,—if ever any abounded with poetry, it is *Paradise Lost*. What an expansion of facts from a small seed of history! What worlds are invented,—what embellishments of nature upon what our senses present us with! Divine things are more nobly, more divinely, represented to the imagination than by any other poem; a more beautiful idea is given of Nature than any poet has pretended to,—Nature—as just came out of the hand of God, in all its virgin loveliness, glory, and purity; and the human race is shown, not, as Homer's, more gigantic, more robust, more valiant, but without comparison more truly amiable, more so than by the pictures and statues of the greatest masters. And all these sublime ideas are conveyed to us in the most effectual and engaging manner. The mind of the reader is tempered and prepared by pleasure: it is drawn and allured, it is awakened and invigorated, to receive such impressions as the poet intended to give it. The poem opens the fountains of knowledge, piety, and virtue; and pours along full streams of peace, comfort, and joy, to such as can penetrate the true sense of the writer, and obediently listen to his song.—RICHARDSON.

Circles are praised, not that abound
In largeness, but th' exactly round;
Such praise they merit, who excel,
Not in wide spheres, but acting well.—?

THE common imagination that we have of Paradise on the other side of death, is, that of a lofty aerial region, where the inmates float in ether, or are mysteriously suspended upon nothing—where all the warm and sensible accompaniments which give such an expression of strength, and life, and colouring, to our present habitation, are attenuated into a sort of spiritual element, that is meagre, and imperceptible, and utterly uninviting to the eye of mortals here below—where every vestige of materialism is done away, and nothing left but certain unearthly scenes that have no power of allurement, and certain unearthly ecstasies, with which it is felt impossible to sympathize. The holders of this imagination forget all the while that really there is no essential connexion between materialism and sin—that the world which we now inhabit, had all the amplitude and solidity of its present materialism before sin entered into it—that God so far, on that account, from looking slightly upon it after it had received the last touch of his creating hand, reviewed the earth, and the waters, and the firmament, and all the green herbage, with the living creatures, and the man whom He had raised in dominion over them, and He saw everything that He had made, and, behold, it was all very good. They forget that on the birth of materialism when it stood out in the freshness of those glories which the great Architect of Nature had impressed upon it, that the "the morning stars sung together, and all the sons of God shouted for joy." They forget the appeals that are made everywhere in the Bible to this material workmanship—and how, from the face of these visible heavens, and the garniture of this earth that we tread upon, the greatness and the goodness of God are reflected on the view of his worshippers. No, my brethren, the object of the administration we sit under, is to extirpate sin, but it is not to sweep away materialism. By the convulsions of the last day, it may be shaken, and broken down from its present arrangements; and thrown into such fitful agitations, as that the whole of its existing framework shall fall to pieces; and with a heat so fervent as to melt its most solid elements, may it be utterly dissolved. And thus may the earth again become without form and void, but without one particle of its substance going into annihilation. Out of the ruins of this second chaos, may another heaven and another earth be made to arise; and a new materialism, with other aspects of magnificence and beauty, emerge from the wreck of this mighty transformation; and the world be peopled as before, with the varieties of material loveliness, and space be again lighted up into a firmament of material splendour.—DR. CHALMERS.

RURAL SPORTS FOR THE MONTHS.

AUGUST.

Now wailin' winds, and slaught'ring guns
Bring autumn's pleasant weather;
The moorcock springs, on whirring wings,
Among the blooming heather.

THE sport which is eagerly anticipated and vigorously pursued by our northern neighbours at this season of the year is grouse shooting. On the extensive moors and dry central mountains of Scotland red grouse especially abound, finding cover and protection from their enemies in the wide-spread carpet of heather, and being concealed from observation by their similarity of colour with that of their place of shelter. The Heath, which is so common in the northern parts of the kingdom that our moors and mountain sides are completely empurpled with its blossoms, is a most valuable plant, and admirably adapted for the situations in which it is found. Multitudes of birds find sustenance in the tender buds and numerous seeds; while to the poor this plant affords a convenient substitute for more expensive fuel. On the slopes and flats where the heath is of considerable length, the red grouse is sure to be abundant, but so difficult is it to raise them from their cover when the season has been unfavourable, and they are not in good feather, that we are told that "one who has little knowledge of the moors may wander for days, in the places where they are most abundant, and not see a single bird."

Scotland is undoubtedly superior to every other part of Great Britain for the breeding and rearing of grouse, yet there are other localities where they are, or have been found. Black grouse were formerly common in the New Forest in Hampshire, and in some parts of Derbyshire, Devonshire, and Staffordshire, but red grouse were more rarely found, and are probably not to be met with in any one of those counties at the present time. The heights and moors of England, especially of the southern parts, are deficient in cover and in food, and are not therefore adapted for the protection of these birds. In Yorkshire they are to be met with in tolerable abundance, but the ravages of the lead miners have greatly lessened their numbers. These men act in concert, and are not easily hindered or restrained from their pursuit. According to Mr. Blaine they go from ten to twenty in a body, marching in a line from forty to sixty yards' distance from each other, and as they are excellent walkers, and usually expert shooters, they destroy a vast number of birds, especially as they generally begin their maraudings before the legal time. They also take other advantages, for certain houses of call are ready to receive the birds and to dispatch them by coach to London, or by horse-loads to the large provincial towns or watering-places on the coast. The system of plunder is therefore complete; and the sporting, as it regards grouse, is in a great measure annihilated.

English grouse shooters usually proceed towards the northern counties from Staffordshire to the Tweed, or from Whitby to Whitehaven, but the poaching propensities of the miners, as above noticed, have left some districts, once abounding in game, now nearly destitute of it. Among the most esteemed localities for this sport we may mention Kirby Lonsdale, Brough, Bowes, Sedburgh, Kirkby Stephen, and the old Spittal. Leaving our readers to seek for information concerning these places in professedly sporting publications, we proceed to notice the grouse shooting of Ireland and Scotland.

The numbers of grouse in Ireland are few when compared with those of England and Scotland. A sportsman tells us that he saw more of them on the mountains about Langholm in Scotland in one day, than he ever saw in Ireland in twenty, although he has visited the best preserved mountains of the latter country. These are on the south side of the great Galty Mountains, near Michells' Town in the counties of Cork, Limerick, and

Tipperary, and are considered to be the best for grouse in Ireland. Enveloped by these mountains is a tract of country belonging to the Earl of Kingston, celebrated among others for the abundance of different kinds of game to be found on it, and especially of grouse. The Kerry, Wicklow, Clogheen, Nenagh, and all the north country mountains, are likewise said to have plenty of grouse on them, and to be in general well-preserved.

In the Highlands of Scotland grouse shooting is so eagerly followed, that the lairds are enabled to exact considerable sums from sportsmen by way of rent for their shooting quarters during the season. The distance, and the expenses connected with a journey to the Highlands do not deter a considerable number of persons from undertaking it, for the shooting of red grouse is one of the highest marks of the sportsman's ambition. This sport commences by law on the 12th of August, some days before the shooting of black grouse, and in setting out to the moors, the grouser is careful to provide himself well with all the requisite materials, since the distance of the shooting locality from places where he can be re-supplied is generally great. The safest plan therefore to prevent disappointment is to take duplicates of all the materials. "We rented some grousing grounds," says Blaine, "near Brough in Westmoreland, the ascents to some of which were so precipitous, that we could only make our way up the gullies and water-courses for more than three miles to our point. As we were too enthusiastic in the sport, particularly in the first part of the season, not to be every-day engaged in it, we employed a mule in carrying us up to our ground; and the same plan we would strongly recommend to other sportsmen thus situated; for mules, it is well known, are hardy and remarkably safe."

The heavy mist so frequent in mountainous regions is a great drawback to this sport, it is also of little avail to beat the moors in the heat of the day, so that success in grousing may be considered very precarious. Perhaps it is mainly owing to the risk and uncertainty connected with the sport, that it is so highly esteemed and zealously practised.

The red grouse is exclusively confined to the British Islands, and has never been found on any part of the Continent. It is fifteen inches long, and weighs about nineteen ounces, being a little larger than the ptarmigan, though the difference, except in the length of the wings, is inconsiderable. The bill is black; the eyes hazel; the nostrils shaded with small red and black feathers; at the base of the lower bill there is a white spot on each side; the throat is red; each eye is arched with a large naked spot; the body is beautifully mottled with deep red and black, which gives it the appearance of tortoiseshell; the breast and belly are of a purplish hue, crossed with small dusky lines; the tail consists of sixteen feathers of equal length, the four middlemost barred with red, the others black; the quills are dusky; the legs are clothed with soft white feathers down to the claws, which are strong, and of a light colour. The female is somewhat less: the naked skin above each eye is not so conspicuous, and the colours of its plumage, in general, much lighter than those of the male.

The red grouse (*Tetrao Scoticus*) belongs to a sub-genus of the order *Gallinidae*. It appears to have been unknown to Linnæus, while Gmelin regarded it as a variety of the ptarmigan. The food of this bird consists of mountain and bog-berries, and the young shoots of heath. It has been remarked that in cultivated districts, a great change has taken place in the habits of the grouse, and instead of seeking a precarious subsistence on the moors during severe weather, they migrate towards the lower grounds, where hundreds crowd to the corn-sheaves; and as the grain there remains out a considerable portion of the winter, so they escape starvation even in the worst seasons. The female lays from five to ten eggs early in the spring, in

a rude nest on the ground, and is remarkable for care and attention to her young. She resolutely fights their battles against the birds of prey and the vermin that attack them, nor is the male bird neglectful of his offspring. In order to secure the flight of the *cheepers*, (as young grouse are called,) both parents will practise such manoeuvres as may best divert the shooter's attention, so that we find a sportsman saying:—"The very self-devotion which makes the parents so ready a mark, by the lingering flight they make, in order to secure the retreat of their brood, should plead for them, especially when the cheepers are now almost arrived at maturity, and consequently are fit prey for the shooter."

Several instances are recorded of the grouse being reared in a domesticated state. A gentleman, residing at Green Mount, Tipperary, Ireland, is said to have kept two brace of grouse for several years, which were so tame that it was a common practice with their owner to bring the birds and his setters into the parlour together, and divert himself with seeing the dogs set: the birds did not pay the smallest attention to the dogs, or indicate the least wish to escape.

In concluding our notice of the sport for which the present month is distinguished we take the opportunity of expressing our regret that any reader of the *Saturday Magazine* should disapprove of the publication of our accounts of rural sports, on the ground that some of the incidents are calculated to justify and encourage cruel and unfeeling pursuits. The description of the several sports practised throughout our country is a mere description of *facts*, employed in this instance as a vehicle for conveying information respecting the animals pursued, and the localities which they inhabit. This was distinctly stated in our opening remarks, (to which we beg to refer our readers, Vol. XVIII., p. 38,) and we are not conscious of having departed from the plan originally laid down. In the description of the angler's sport, we have used the term "fascinating," in a way which, though it has excited the objections of a correspondent, we know to be strictly true. The artist and the admirer of nature have expatiated with delight on the scenes which in their days of angling they were led to explore, and which, but for that amusement, they might never have beheld. We perfectly agree with our correspondent, in his remark that such advantages as these may be attained by other and more rational means. In the article in question, while we have given the opinion of the honest Isaak Walton, to show what a person of mild and amiable disposition can say in defence of this sport, we have also given the satirical remarks of Sir Walter Scott, directed at such as would endeavour to prove that fishes are possessed of a very low degree of sensibility to pain.

For ourselves, we see but immaterial shades of difference, as far as it regards *cruelty*, in the several sports which have for their object the extinction of animal life, and we can therefore fully adopt the language of our favourite poet, when he says with respect to animals:—

... If man's convenience, health,
Or safety interfere, his rights and claims
Are paramount, and must extinguish theirs.
Else they are all—the meanest things that are,—
As free to live, and to enjoy that life,
As God was free to form them at the first,
Who in His sovereign wisdom made them all.

COWPER.

TRUE, 'twas of old by God decreed
That birds for man's support may bleed,
His words to Noah: not so plain
The license which those words contain,
Nor know I well what records hold
The license, in what court enrolled,
To cut their lives for *pastime* short,
Or of their sufferings make our sport.

But most accordant to his word
I deem it, that the needful bird
Or beast should fall by those who make
For business, rather than delight.
And surely most it bears the sign
And likeness of the stamp divine;
And sure 'tis most from semblance free
And blame of wanton cruelty;
And most accordant to the part
Which suits the meek and feeling heart;
Whom duty leads not on, that they
Should turn from deeds of blood away,
Nor on their victims' sufferings pore,
Nor bathe unbid their hands in gore.
Him, who is merciful and kind
To all his works, the thoughtful mind
Most seeks by kindness to express:
And "gentle heart loves gentleness".

MANT'S *British Menck.*



RED GROUSE. *Tetrao Soturus.*

* Chaucer.

I can conceive no office more noble than that of a Christian minister. The triumphs of successful legislation may adorn the statesmen—the laurels of conquest may wreath the brow of the victor—but the Christian minister may boast of acquisitions more important than the one and more permanent than the other. He may be buried in an obscure and impoverished parish—his circle may be narrow—his enjoyments few—his relaxations sparing—but his name will be precious to those whom he has comforted in affliction, soothed in suffering, and cheered in death.—Nor is this all;—his memory will ever be a fictionately cherished by those who reverence in him the instrument of their eternal salvation.—ANONYMOUS.

Books are the legacies that genius leaves to mankind, to be delivered down from generation to generation, as presents to the posterity of those who are yet unborn.—ADDISON.

Rough uncultivated ground, dismal to the eye, inspires peevishness and discontent: may not this be one cause of the harsh manners of savages?

A field richly ornamented, containing beautiful objects of various kinds, displays in full lustre the goodness of the Deity, and the ample provision He has made for our happiness. Ought not the spectator to be filled with gratitude to his Maker, and with benevolence to his fellow-creatures? Other fine arts may be perverted to excite irregular and even vicious emotions; but gardening, which inspires the purest and most refined pleasures, cannot fail to promote every good affection. The gaiety and harmony of mind it produces, inclining the spectator to communicate his satisfaction to others, and to make them happy as he himself, tend naturally to establish in him a habit of humanity and benevolence.—LORD KAIMES.

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TURKEY AND THE TURKISH PROVINCES.



RUINED CARAVANSERAI AT HAFSA.

BULGARIA AND THE BULGARIANS.

BULGARIA, a province of European Turkey, owes its origin, like many other nations or tribes in the eastern parts of Europe, to an immigration of Tartar hordes, from the countries near the Caspian. There was a country called Great Bulgaria, on the confines of Asia and Europe, whose inhabitants penetrated to the west of the Black Sea, about the sixth century of the Christian era. They were repelled by the celebrated Belisarius: but in the following century they succeeded in forming a kingdom, which they called Little Bulgaria, along the southern shores of the Danube, in the heart of what is now European Turkey. The victories of Justinian the Second, Emperor of Constantinople, kept the Bulgarians in awe for a time; but they gradually extended their power at the expense of the Greek Empire, till, in the tenth century, they became masters of Dardania, Thessaly, and Epirus, under Simeon, the most celebrated of all their kings. Bulgaria was subsequently again united to the empire as a tributary state, and so continued for two centuries; but, in the thirteenth, it recovered its independence, and maintained a continual struggle with its more powerful neighbours; till it was at length reduced to a Turkish province by Bajazet, in 1396. As a Turkish province it has ever since remained.

Bulgaria is bounded in a more definite manner than most of the Turkish provinces. Its northern limit is the Danube, which separates it from Wallachia; the eastern boundary is the Black Sea; the southern is the mountains of the Balkan; and the western is formed

principally by two small rivers. Placed, as it were, on the declivity of the Balkan, nearly the whole province is rugged and mountainous. Few countries owe more to the liberal hand of nature than Bulgaria. The soil is everywhere productive, and the numerous streams fertilize the fields which they traverse; while the beauty of the climate in summer, tempered by a considerable degree of cold in winter, contributes materially to the rapid increase of every kind of produce. All sorts of grain, cattle, horses, wool, iron, and wine, are raised in abundance, and would render this a highly flourishing country under a more liberal government than that of the Turks; for the Danube affords an easy communication with the neighbouring provinces and the Mediterranean, by means of the Black Sea. Bulgaria is considered by the Turks as the granary of Constantinople, so that the exportation of corn to any other place is strictly prohibited. Wheat, barley, and millet are raised in large quantities; and at one part of the province are large rice farms belonging to the Sultan, from the produce of which, many of the officers receive their salaries in kind. Honey, of excellent quality, is produced in great abundance, but the exportation is prohibited, on the same ground as that of corn, viz., in order to secure a plentiful supply to the capital.

The Rev. Mr. Walsh gives a favourable picture of the peasantry of this province. Although it forms part of Turkey, yet the inhabitants, like those of Moldavia and Wallachia, are Greek Christians, and have little of the Turkish character. The Turks who reside there are chiefly officials, or, at least, persons who deem them-

selves superior to the native inhabitants of the province. Mr. Walsh draws a striking contrast between the Bulgarians, who are simple, kind, and affectionate; and the Turks residing among them, who were rude and often brutal in their conduct.

On the road, (he says,) we frequently met groups of both, always separate, but employed in the same avocations; the Turks were known by turbans, sashes, pistols, and yatigans; but still more by a ferocity of aspect, a rude assumption of demeanour, and a careless kind of contempt, that at once repulsed and disgusted us. They never turned their buffaloes or arubas out of the way to let us pass, or showed the smallest wish to be civil and obliging; on the contrary, they were pleased if they pushed us into a bog in the narrow road, or entangled us among trees and bushes. Any accommodation in houses was out of the question; if we approached one for a drink of milk or water, we ran the hazard of being stabbed or shot.

The Bulgarian peasants are distinguished by caps of brown sheep-skin; jackets of cloth, made of the undyed wool of dark brown sheep, which their wives spin and weave; white cloth trousers, and sandals of raw leather, drawn under the sole, and laced with strings over the instep. They carry neither pistol, yatigan, nor any other weapon of offence. The dress of the females is described as being neat, clean, and comfortable. It generally consists of a jacket and petticoat of dark blue cloth, with a bright border of list round the edges or down the seams; and an under-garment of hemp and cotton, very large, hanging far below the petticoat, and gathered in full folds round the neck and arms, and worked or woven with lace-like borders. Married women wear handkerchiefs on their heads, with a long lappel hanging down the back behind; girls have their heads uncovered, with their hair braided and ornamented with different coins. All wear ear-rings, bracelets, and finger-rings, from an early age; and nearly all go bare-footed.

Those who are accustomed to read books of travels, cannot fail to remark—at first with surprise, and afterwards, perhaps, with a smile—the very discordant results at which authors arrive respecting the manners, character, and industry of the people with whom they come in contact in their travels. The truth is, that, in most cases, these writers, however desirous they may be to adhere to the truth, have seldom opportunities to sift the matters on which they offer opinions. One traveller may pass through a country in the bleak season of winter, and his account of it will be tinged with the cheerlessness which he observes; whereas another, who happened to travel there in a more genial season, will speak in glowing language of the country. Again, if a traveller happens to meet with kind usage from those with whom he has communication, he is apt to jump to the conclusion that the inhabitants, as a nation, are kind; while an opposite treatment will lead to an opposite result. We mention these circumstances, because we have found that the Bulgarians, their character, manners, and dwellings, are represented in different lights by different travellers; and we have wished to point out the probable cause for these discrepancies. The traveller from whom we just took an extract, says, that the countenances of the peasantry are so open, artless, and benevolent, and their demeanour so kind and cordial, that every one he met seemed to welcome him as a friend. Whenever their buffaloes or arubas stopped up the way, the peasants were prompt to turn them aside; and whenever they saw him embarrassed, or obliged to get out of the road, they were eager to show that it was not their fault. Their houses were always open to him, and his presence was a kind of jubilee to the family; and the compensation he gave for their hospitality was so small, and their mode of receiving it so disinterested, as to induce him to believe that if none had been offered, none would have been asked for.—Another traveller, who passed through this province in the winter

season, when all was discomfort, has scarcely a word to say in favour either of the people or the country. We believe, however, that, in this instance, those who speak in rather favourable terms approach nearer to the truth.

A brief notice of Mr. Tiets's journey from the northern to the southern boundaries of the province will enable us to describe some of its features. The party, consisting of two gentlemen, two servants, a Tatar or armed courier, and two postillions, were mounted on seven horses; while four horses carried the luggage; all the horses being hired, for a certain agreed sum, to carry the traveller and luggage from Rustchuk on the banks of the Danube, to Constantinople. The travellers left Rustchuk in the winter season, and travelled along a road which is deemed one of the best in the Turkish empire. Arriving at a river over which there was no bridge, the travellers had to swim their horses across; and as the water was partially covered with ice, the foraging was anything but agreeable. However, after a good hour's ride they arrived at a village inhabited by Bulgarian Christians, entered a peasant's dwelling, and thoroughly dried themselves upon mats and carpets. Meanwhile the Tatar, who was a Turk, prepared a meal in the Turkish manner; consisting of a roasted fowl, a dish of pilau, which consists of dried rice cooked in a little fat,—a dish of kibabs, consisting of small pieces of mutton, stuck on a wooden skewer, and roasted,—and finally cheese-cakes, to which succeeded a dessert of figs, dates, and grapes. The place of a table was supplied by a low footstool turned upside down, on the four inverted legs of which was placed a round wooden dish for the reception of the food. The cottage—as appears to be generally the case in Bulgaria—was inhabited by a whole family, and the travellers sat comfortably round a blazing fire, conversing with the host; while the young men were smoking, and the women and girls were spinning cotton and wool. The Turks know the value of the Bulgarians as an industrious people, and seem, on the whole, to treat them more mildly than most others of their Christian subjects.

The travellers proceeded at a quick rate through a country sparingly supplied with towns and villages; meeting on their way with many fountains, founded in most cases by the pious endowment of individuals, for the refreshment of travellers who would else suffer from the little accommodation afforded in the way of inns or khans. Much taste is usually displayed in selecting an agreeable spot, shaded by trees, close to the road side, as the site of these springs; an iron or earthenware vessel is often found in a small niche built over the spouting tube, and around it are a few large stones, serving as seats. A well-kept, and gradually-ascending road conducted the travellers through a few villages to the foot of the Balkan mountains, which separate Bulgaria from Roumelia. The northern or Bulgarian side of these mountains is cooler than the southern, and is covered with large forests, consisting of fir, beech, and oak trees. The entrance to the pass of the Balkan is very romantic. On the left, close to the road, and surrounded by cypresses and plantains, is an elegant fountain; on the right, at the distance of about a mile, a pleasant village nestles in a hollow, at the foot of the mountain. The travellers passed over a bridge, beneath which a loud rushing stream descended from the heights; and then rode through a narrow ravine, bordered on either side by precipitous and almost overhanging rocks, and occasionally shaded by large oak trees. After ascending for four hours, they arrived at the small town of Tirnowa, which is deemed the metropolis of Bulgaria. We may here remark, that Bulgaria contains very few important towns; the inhabitants being rather of a pastoral character, living in villages more than in towns.

The travellers left Tirnowa, and ascended by a path contiguous to fearful abysses, and full of loose stones;

it was so narrow, that the horses were obliged to follow one another, in single file; and in many spots the sure-footed animals pass over fathomless chasms scarcely a foot wide. They at length reached a place where the road became exceedingly narrow, and made a bend round a sharp crag lying on the right, whilst on the left a very deep abyss yawned. The Tatar drew a pistol from his belt, and fired twice, after which he explained to his employers the purpose of so doing. It appears that there is no possibility of two horses, especially if loaded, traversing this narrow path abreast: in case, therefore, of a caravan being on the point of entering the pass from the opposite direction, the pistol-shot is a signal that the path is already occupied, and that the advancing caravan must stop. After having passed this dangerous place, the travellers, came to the village of Gablowa, seated high in the mountains, close to a torrent interrupted by many falls; it was inhabited wholly by Bulgarian iron-smiths, the red flames of whose furnaces shone through almost every door, and the blows of whose hammers resounded from the surrounding mountains. As we have now reached the summit of the Balkan pass, the southern boundary of Bulgaria, we shall not follow the travellers any further in this direction.

Dr. Mc Michael, who travelled on horseback through Bulgaria from the Danube to the Balkan, nearly in the same manner as the travellers just alluded to, gives the following description of a village scene, shortly before arriving at the mountains:—

At midday we halted in the centre of a small village; and one of our *surugees* having placed himself on a little eminence set up a loud and piercing shout, which he maintained as long as his respiration would allow. No inhabitant had been visible as we entered the village; but after one or two repetitions of this extraordinary summons, an elderly peasant was seen making towards us with all possible speed, whom our conductor, on his approach, saluted with the dignified appellation of *Schorbatschie*, or captain, upbraiding him, however, at the same time, with delay. He, it appeared, was the chief of the village, and on him devolved the duty of providing strangers with food and lodging: should the traveller be a Turk, these accommodations are harshly exacted, and, I believe, never requited; and though we always endeavoured at our departure to satisfy our hosts, yet, at this remuneration was uncertain, our arrival in a village was never greeted by any very smiling countenances. On this occasion the *Schorbatschie* conducted us to a hut, where we obtained our usual refreshment of bread, eggs and wine, of not an unpleasant taste, though very weak in its quality; these articles of food were to be procured in almost every village we passed through, and if it were a large one, the Turkish luxury of *yacourt* was generally to be found.

There are one or two Bulgarian towns near the Danube, such as Silistria and Rustchuk, which are worthy of notice; but as we have it in contemplation to describe the Danube and its banks, in a series of articles, we shall not dwell farther on the subject here.—Our frontispiece represents the partially decayed remains of one of those caravanserais which the traveller so frequently meets with in Turkey.

THERE is a tear, whose muteness speaks
More than all language can convey,—
A tear, by which the full heart seeks
Its warm emotions to pourtray;
'Tis the most precious gem, in sooth,
That can by virtue's eyes be viewed,
In the heart's mine of age or youth,—
It is the tear of gratitude.—†

BEWARE how you allow words to pass for more than they are worth, and bear in mind what alteration is sometimes produced in their current value by the course of time.—SOUTHHEY.

No prince ever loved peace more than King Henry the Seventh of England. The usual preface to all his treaties was, "that when Christ came into the world peace was sung, and when He went out of the world peace was bequeathed."

ON CHESS. No. XVI.

THE AUTOMATON CHESS-PLAYER. 4.

DURING the exhibition of the Automaton Chess-Player in London under its new proprietor, M. Maelzel, the mysterious box, without which M. de Kempelen stated the automaton could not play, was no longer consulted. Maelzel held a lighted candle in the interior before playing, and then left the candle burning on an adjoining slab. The mode of exhibiting the interior of the chest, the winding up of the machinery, and some other minor circumstances, were carefully observed by several persons who endeavoured to prove the existence of a concealed confederate. None, however, were successful, until Mr. Willis, of Cambridge, a gentleman well known for his high scientific attainments, published his attempt to analyse the automaton chess-player. Taking advantage of just so much as was seen and heard at the exhibition, and with the assistance of numerous drawings, his reasonings amount to the following simple conclusion; that the man, who really played the chess automaton, was concealed in the chest.

We now proceed to lay before the reader an abstract of Mr. Willis's clever work.

At the commencement of the exhibition the spectators are shown the interior of the chest, which appears to be so occupied by pieces of machinery that the concealment of a human being seems impossible. When the movements of the automaton begin, the beholders, in the first moments of surprise, and in the absence of any ostensible living cause, naturally refer the effect to the mechanism which has been exhibited, because the movements immediately follow the familiar action and well-known sound of winding up clock-work, and are skillfully accompanied by the grating noise of moving wheels. But still there is no evidence that the concealed machinery exerts any influence on the arm of the automaton, or that the machinery is ever in motion at all. The machinery at rest is freely exposed: the chest is ostentatiously opened, and the semblance at least of wheels, and pulleys, and levers, is submitted to inspection without reserve; but when their reality should appear, and their connection with the automaton be made manifest, the doors are carefully closed and no further examination permitted. The glaring contradiction between the eager display on the one hand and studied concealment on the other can only be reconciled by considering the exhibition of the mechanism as a mere stratagem, calculated to distract the attention and mislead the judgment of the spectators. This opinion, too, receives further support from the undeviating mode of disclosing the interior of the chest: doors and drawers are opened in one uniform order, in which no variation had ever been observed. The mode, too, of winding up was sufficient to convince a skilful mechanist that the axis turned by the key was quite free and unconnected either with spring or weight, or any system of machinery.

In all machines requiring to be wound up two consequences are inseparable from their construction: the first is, that in winding up the machinery, the key is limited in the number of its revolutions; and the second is, that some relative proportion must be constantly maintained betwixt the winding up and the work performed, in order to enable the machine to continue its movements. Now these results are not observable in the chess-player; for the automaton will sometimes execute sixty-three moves with only one winding up; at other times the exhibitor has been observed to repeat the winding up after seven moves, and even after three moves; and once probably from inadvertence without the intervention of a single move; whilst, in every other instance, the key appeared to perform the same number of revolutions; evincing thereby that the revolving axis was unconnected with machinery, except, perhaps a ratchet wheel and click, or some similar apparatus, to enable it to produce the necessary sounds, and consequently that the key, like that of a child's watch, might be turned whenever the purposes of the exhibition seemed to require it.

We come now to examine the interior of the chest,

and, by the assistance of several diagrams, the reader will have no difficulty in understanding how a human being was concealed within the machine, although it was apparently thrown completely open to public inspection before the automaton commenced play. The letters of reference apply to all the figures as well in this as in the preceding articles.

It will be first remarked that the drawer G (figs. 5 and 6,) does not, when closed, extend to the back of the chest, but leaves behind it an open space o, which is never seen by the spectators. The smaller division of the chest, the front door of which is seen open at A, (figs. 3 and 7,) is divided into two parts by a screen I, (fig. 3, where the reader is supposed to look down upon the internal arrangements,) movable upon a hinge and so constructed that it closes upon the machinery H, the same instant the door B is closed: this machinery H occupies the front part, and the hinder part K is empty; but it communicates with the open space o behind the drawer. The back of the greater division of the chest is double, and the part P (fig. 6) moves on a joint at the upper part and forms, when raised, an opening S, (fig. 5,) between the two divisions of the chest, by carrying with it part of the partition R, which consists of cloth tightly stretched.

It will be seen that the body of the Turk is occupied by an inner trunk N, (figs. 5 and 6,) the interior of which is not exhibited. This trunk N communicates with the chest by an opening at T. Thus, by simply raising the false back, a connection is made between the two cupboards, the trunk N and the space o behind the drawer.

At U (fig. 4) is a sliding panel which is moved on one side; the chess-player is introduced before the company are admitted, and the panel moved into its place. The player raises the false back of the larger cupboard, and occupies the position represented in fig. 7, by the shaded figure. All is now ready for the exhibition: the door A of the smaller division of the chest is opened, and a quantity of machinery is seen in so crowded a state that nothing can be seen far beyond the opening, and the visitor concludes that the whole cupboard is filled with similar machinery, and he is confirmed in this conclusion when the opposite door B (fig. 3) is also opened, a candle held to it, and the light is seen to glimmer among the wheel-work. The door B is then locked, and the screen I falls into its place at the same instant. This door B is made to close by its own weight, but is also locked because the head of the chess-player is soon to be placed behind it; and the chess-automaton would cease to be a mystery should this door fly open in wheeling the machine about the room. No notice is taken of this door being locked, because the keys are wanted for other locks.

The door B being secured and the screen I closed, the exhibitor, leaving the door A open, proceeds to open other parts of the machine. The drawer G is next opened for the apparent purpose of showing the chess-men, cushion, and counters, contained in it; but the real object is to give the player time to shift his position from that shown in fig. 7 to that seen in figs. 7 and 9, and to replace the false back and partition preparatory to the opening of the great cupboard. It will be seen that the body of the living player is now in the small compartment between the screen I (fig. 3) and the door B, both of which are closed, while his legs are contained in the open space o behind the drawer G, and thus the door A can be left open with impunity. The great cupboard being opened, a glance of the eye is sufficient to show that no person is concealed in it: and to make this more sure a lighted candle is held at a door which opens at the back. The doors A C C being left open, the chest is wheeled round to show the trunk of the figure; the door D (fig. 3) is opened, and the bunch of keys allowed to remain in it, probably to remove any suspicion which may have arisen by locking the door B. The drapery of the figure is then raised, and two

doors, one in the trunk and the other in the thigh, opened; the chest is then wheeled round into its original position and the door closed. Meanwhile the concealed player withdraws his legs from behind the drawer, which he can do the more readily while it is left open.

In all this routine the spectator imagines that he has inspected the whole of the interior of the machine, and feels convinced that the parts not exposed are full of machinery: whereas several parts have not been shown at all, and even when all the doors except B are open, about one half of the chest is quite excluded from the sight.

The drawer G being pushed in and the doors A C C closed, the exhibitor occupies some time in adjusting the machinery at the back; during which the player assumes the position shown in a front view in fig. 10, and in profile in fig. 11. In this position his head being above the chess-board he sees through the waistcoat of the figure as easily as through a veil, all the pieces on the chess-board, and he can readily take up and put down a piece by means of a string communicating with the fingers of the figure. His right hand being within the chest is employed to keep in motion the wheel-work for producing the noise heard during the moves and to perform any other movements of the figure*.

This solution by Mr. Willis, of the difficult problem of the chess-automaton is highly creditable to his sagacity, for, except in his extensive knowledge of mechanical science, he had no facilities of observation that did not belong to an ordinary spectator. We need not, therefore, be surprised that, when all the avenues to the interior of the chest were closed, Mr. Willis should fall into error respecting the mode by which the concealed player conducted the game; for, it must be obvious, that "the waistcoat of the figure" would afford a very inefficient concealment against the eyes and ears of numerous spectators, sharpened as they were by curiosity to the detection of the slightest motion or sound. But



An elevation of the front of the chest, showing the concealed player in his first position when the door A is opened.



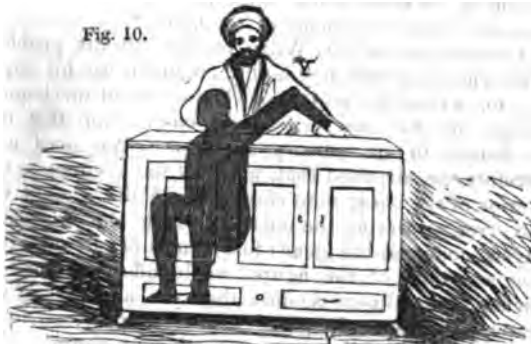
A side elevation, of the same, with the drawer open.

* The reader will not fail to notice a discrepancy between M. Winisch's account of the mode of exhibiting the automaton and the mode actually adopted in London.

whatever is deficient in Mr. Willis's account has been subsequently supplied by M. Mouret, who, for a long time, constituted the source of vitality of the chess-automaton: this information, together with whatever else we may have to say on the subject, will appear in our next and concluding article.



A front elevation, showing the concealed player in his second position, when the door is closed and A C O open.



A front elevation, showing the concealed player in his third position, or that in which he plays the game.



A side elevation of the same.

We are willing enough to keep at ever so great a distance from the faults, to which we have little or no inclination; and often affect to make our zeal in that respect remarkable; but then perhaps more favourite vices have easy entrance into our breasts, and take firm possession of them. We are shocked, for instance, and with much cause, at the monstrous and ruinous eagerness for pleasure, the profligate and unprecedented contempt of religion, that prevails in the world; our behaviour, on those heads, is unblameable, exemplary, and we value ourselves upon it beyond bounds. Yet possibly we indulge ourselves, all the while, to the full another way; are unjust and fraudulent, or selfish and unreasonable, or penurious and hard-hearted, or censorious and unforgiving, or peevish and ill-tempered; make every one about us uneasy, and those chiefly whose happiness ought to be our first care. This is applauding ourselves for being fortified, where the enemy is not likely to make an attack; and leaving the places that are most exposed, quite undefended.

—ARCHBISHOP SECKER.

THE BETEL-CHEWERS OF THE EAST.

WHETHER to blunt the edge of painful reflection, (remarks Mr. Marsden,) or owing to an aversion our natures have to total inaction, most nations have been addicted to the practice of enjoying by mastication, or otherwise, the flavour of substances possessing an inebriating quality. The South Americans chew the cocoa and mambée, and the Eastern people the *betel* and *areca*, (or, as they are called in the Malay language, *sirik* and *pinang*) much in the same way as tobacco is used in other parts of the world. All persons, without exception of age or sex, begin at an early age to accustom themselves to the use of betel, until it becomes an article of such necessity that many natives of the East would rather be deprived of their ordinary food than of the means of gratifying this acquired want. Europeans also who have resided long among the betel-chewers contract the habit, and enjoy it quite as much as the natives.

Betel, or *pawn*, as it is called in Bengal, consists of part of the fruit of the areca palm, folded in the leaves of a kind of pepper plant, called *betel*, smeared with a little lime, procured by burning shells, and from the form thus given to the article, the term *betel-nut* is derived.

The areca palm is a tree growing to the height of forty or fifty feet, with a straight round stem, six or eight inches in diameter, covered with a smooth ash-coloured bark, marked with parallel rings. The leaves, of which there are only six or seven, spring from the top, and are six feet in length, declining downwards from a stalk of considerable length. The fruit or nut is enveloped in a green shell or skin, thin, brittle, and of the consistence of paper: it is of an oval shape, like a small egg, and is much like a nutmeg when deprived of its husk. When ripe it appears in clusters of a reddish colour, forming a beautiful contrast with the bright green of its leaves, and it then falls off to sow itself in the ground.

The betel plant is a species of vine, with a leaf somewhat like that of the ivy. It is the *Piper betel* of botany, in the natural order *Piperaceæ*, and of the same genus as the *Piper nigrum* of Linnæus. Its culture, which is carefully attended to, is managed in the same manner. Poles are planted in the ground, round which the betel twines itself, and as it runs up, the poles, having taken root, acquire greater height also. It is a creeping plant, deriving support from more hardy vegetables, but it is said not to be injurious to them, like some other plants of a similar nature. Particular attention is bestowed on the cultivation of the areca and the betel. It was stated some years ago that the number of trees in the Prince of Wales's Island amounted to 342,110.

In different parts of India betel is cultivated in gardens on an extensive scale. The soil most favourable for the palm is a black mould on a substratum of limestone, or intermixed with calcareous nodules. It is planted in rows, and carefully manured and watered during several years. It begins to bear from the eighth or tenth to the fifteenth year, and remains in perfection for thirty years. Some individuals, however, produce fruit up to the seventieth, or even the hundredth year, but the produce gradually declines both in quality and quantity. It is stated that every fertile tree produces on an average 857 nuts, and an ordinary tree as many as 600, but this is by no means a general rule, for some trees produce only about 200 nuts.

The betel leaf is cultivated either in separate gardens, where a red stony soil on the side of a rising ground is preferred, and plantains or bamboos planted along with the vines, which are arranged in trenches, to support them as they grow: or when an areca plantation is formed and the palms are about fifteen years old, cuttings of the vine are planted near the roots, and

trained up to the trees. In twelve or eighteen months the leaves of the vine are fit for sale, and in three years they have attained their full size; in the fourth year they die, and new plants must then be substituted. In about eighteen or twenty years the soil is considered to be exhausted. The gardens are always inclosed by a hedge; nevertheless the depredations of squirrels and even of elephants sometimes occasion great loss to the cultivators. The crop of the areca is produced during three months; and the nuts being pulled are each cut into seven or eight pieces, and piled up in a heap: equal quantities of it and of terra japonica, with a hundred leaves of betel-leaf, are then beaten together with water and the juice strained off. This is mixed with a decoction of the *Mimosa indica* and water, and the nuts from the whole heap are boiled in it. They are then dried in the sun. The fresh nut cannot be eaten, because in its crude state it contains a white viscous matter, insipid to the taste, but occasioning delirium, a property which is lost by boiling or drying the nut.

Betel is therefore compounded of three ingredients, the union of which is supposed to correct the effects which each would produce singly: the nut improves the bitterness of the leaf, and the lime prevents any injury to the stomach. The first consequences to the betel-chewer are to turn the saliva red, and in progress of time to make the teeth black. If the lime be omitted, the saliva will not be tinged; and the baneful effect of this alkali on the enamel of the teeth may be prevented by rubbing them with a preparation whereby they become permanently coated with a black substance which preserves them from corrosion.

The medicinal effects of betel are to dispel nausea, to excite an appetite, and to strengthen the stomach. It also possesses nutritious and enlivening qualities which render it very acceptable to its consumers. The terra japonica is not a universal ingredient; its use is limited to certain countries; and it is probably nothing more than a preparation from the areca nut itself. There are two varieties of this substance; the one very astringent, and the other less so, and rather sweet, which is preferred. To obtain the former, the fresh nuts are boiled during some hours in an iron vessel; the decoction is then strained off, and thickened by continued boiling. The nuts being dried, are subjected to a second boiling, and the nuts being taken out, this second decoction is thickened by evaporation, and thus the best terra japonica is procured. The nuts are then dried, cut into pieces, and sold. Terra japonica is also procured by boiling the wood of the keira tree, or *Mimosa catechu*. This substance is probably the same as the *gambir* of Sumatra, which we shall presently mention.

The betel-chewers carry the ingredients for compounding betel about with them, and serve it to their guests on all occasions; the prince in a gold stand, and the poor man in a brass box, or mat bag. The betel-stands of the upper ranks are usually of silver embossed with rude figures. The sultan of Mocomoco was presented with one by the East India Company with their arms on it: the sultan also possessed a box made of gold filagree, which Mr. Marsden describes thus; the form of the stand is the frustrum of an hexagonal pyramid, reversed, about six or eight inches in diameter; it contains many smaller vessels, fitted to the angles, for holding the nut, leaf, and *chunam*, or quick-lime; with places for the instruments (kachiss) employed in cutting the first, and spatulas for spreading the last.

When the first salutation is over, which in Sumatra consists of bending the body, and the inferior putting his joined hands between those of the superior, and then lifting them to his forehead, the betel is presented as a token of hospitality, and an act of politeness. To omit it on the one hand, or to reject it on the other, would be an affront; as it would be also, in a person of subordinate rank, to address a great man without the

precaution of chewing it before he speaks. All the preparation consists in spreading on the sirih leaf, a small quantity of the *chunam*, and folding it up with a slice of the pinang nut. Some mix with these, *gambir*, a substance prepared from the leaves of a tree of that name, by boiling their juices until a thick mass is obtained, from which little balls or squares are made: tobacco is also added, which is shred fine for the purpose, and carried between the lip and upper row of teeth. The red hue which is communicated to the mouth and lips is esteemed ornamental: and an agreeable flavour is imparted to the breath. The juice is usually, after the first fermentation produced by the lime, though not always, swallowed by the chewers of betel. In some countries it is not unusual for the guest who receives the betel from his host, to pass it between his thumb and fore-finger, and apply his own *chunam*, a practice which never gives offence, and is supposed to have originated from the horrible practice, once so common, of mixing up poison in the lime. The person, therefore, who receives the betel wipes off the *chunam* of his host, and applies his own before he passes the betel into his mouth.

It might reasonably be supposed that the active qualities of betel would injure the coats of the stomach, but experience seems to disprove such a consequence. It is common to see the teeth of elderly persons stand loose in the gums, which is probably an effect of this custom, but Mr. Marsden does not think that it affects the soundness of the teeth themselves. Children begin to chew betel very young, and yet, he says, their teeth are beautifully white, till pains are taken to disfigure them, by filing, and staining them black. To persons who are not accustomed to the composition, it causes a strong giddiness, astringes and excoriates the tongue and fauces, and deadens for a time the sense of taste. During the fast of *Ramadan*, Mahomedans abstain from the use of betel whilst the sun continues above the horizon; but excepting at this season it is the constant luxury of both sexes, from an early period of childhood, till, becoming toothless, they are reduced to the necessity of having the ingredients previously reduced to a paste for them, that without further effort the betel may dissolve in the mouth.

It is related in the *Life of Sir Stamford Raffles*, that when Lady Raffles reached Merambung, in Sumatra, being much fatigued with walking, the rest of the party having dispersed in various directions, she reclined under the shade of a tree, when a Malay girl approached in a graceful manner, and on being asked if she wanted anything, replied, "No, but as you are quite alone, I thought you might like to have a little *bicara* (talk;) so I came to offer you some *siri*, (betel,) and sit beside you."

It is stated in the *Encyclopædia Britannica* that Betel is a very considerable article of traffic in India and in China, and, indeed, throughout Asia. In the British settlements of Bombay, Madras and Bengal, the value of the imports amounted in a single year to 138,836*l.*; and if the quantities consumed throughout the East are taken into view, it will appear surprising how they can be obtained. But, owing to the constant and extensive demand, the plants affording the necessary ingredients are carefully cultivated; and multitudes are employed and subsisted in the production of this eastern luxury.

WHEN all is quiet and the mind at rest,
All in the calm of innocence are blest;
But when some scruple mixes with our joy,
We love to give the anxious mind employ.

CRABBE.

BEING persuaded of nothing more than of this, that, whether it be in matter of speculation or of practice, no untruth can possibly avail the patron and defender long, and that things most truly are likewise most, *behovefully spoken*—
HOOKER.

AGRICULTURAL CHEMISTRY.

2. ON THE INTERCHANGE OF CROPS (*concluded*),
AND ON MANURES.

WHEN we grow in the same soil for several years in succession different plants, the first of which leaves behind that which the second, and the second that which the third, may require, the soil will be a fruitful one for all the three kinds of produce. If the first plant, for example, be wheat, which consumes the greatest part of the silicate of potash in a soil, whilst the plants which succeed it are of such a kind as require only small quantities of potash, as is the case with the leguminosae, turnips, potatoes, &c.; the wheat may be again sowed with advantage after the fourth year; for during the interval of three years, the soil will, by the action of the atmosphere, be rendered capable of again yielding silicate of potash in sufficient quantity for the young plants. But if there be a successive growth of plants on the same soil which extract the same component parts, they gradually render that soil incapable of producing them.

The nutriment of young plants consists of carbonic acid, contained in the soil in the form of humus, and of nitrogen in the form of ammonia, both of which must be supplied to the plants. The formation of ammonia cannot be effected on cultivated land, but humus may be artificially produced. The sowing of a field with fallow plants, such as clover, rye, buck-wheat, &c., and the incorporation of the plants, when nearly at blossom, with the soil, effect this supply of humus in so far, that young plants subsequently growing in it find, at a certain period of their growth, a maximum of nutriment, that is, matter in the process of decay. The same end is obtained, but with much greater certainty, when the field is planted with esparsette or lucern. These plants are remarkable on account of the great ramification of their roots and strong development of their leaves, and for requiring only a small quantity of inorganic matter. Until they reach a certain period of their growth, they retain all the carbonic acid and ammonia which may have been conveyed to them by rain and the air, for that which is not absorbed by the soil is appropriated by the leaves: they also possess an extensive four or six-fold surface capable of assimilating these bodies, and of preventing the escape of ammonia from the soil by completely covering it in.

An immediate consequence of the production of the green principle of the leaves, and of their remaining component parts, as well as those of the stem, is the equally abundant excretion of organic matters into the soil from the roots. Matter is thus supplied which is capable of being converted into humus.

It will be seen, then, that the interchange of crops is so advantageous, because by the cultivation of different kinds of plants upon the same field in a proper order of succession, each kind of plant extracts only certain component parts of the soil, whilst it leaves behind or restores those which a second or third species of plant may require for its growth and perfect development. But although the quantity of humus in a soil may be increased by artificial cultivation, manures are necessary to replace the constituent parts of the soil which are removed in the seeds, roots, and leaves, of the plants raised upon it.

When we consider that every constituent of the body of man and animals is derived from plants, and that not a single element is generated by the vital principle, it is evident that all the inorganic constituents of the animal organism must be regarded, in some respect or other, as manure. During their life, the inorganic components of plants which are not required by the animal system, are disengaged from the organism. After their death, the nitrogen and carbon pass into the atmosphere as ammonia and carbonic acid, the products of their putre-

faction, and, at last, nothing remains except the phosphate of lime and other salts in their bones. Now this earthy residue of the putrefaction of animals must be considered, in a rational system of agriculture, (continues Professor Liebig,) as a powerful manure for plants, because that which has been abstracted from the soil for a series of years must be restored to it, if the land is to be kept in a permanent condition of fertility.

The author then proceeds to the analysis of various kinds of animal manure, in order to ascertain what substances a soil really receives by their means; whether these manures are all of a like nature and power; and whether, in every case, they administer to the necessities of a plant by an identical mode of action. We cannot follow up these details: but we may remark, that the fertilising properties of manures are due to the presence of ammonia, in some form or other. Plants obtain their nitrogen from ammonia, which is supplied to them by animal manure. It is a point, therefore, of the greatest importance to the agriculturist to supply nitrogen in sufficient quantity, and the readiest form in which it exists is putrescent animal liquid, which contains nitrogen in the forms of carbonate, phosphate, and lactate of ammonia, and in no other form than that of ammoniacal salts. Hence, great loss is experienced by the farmer in allowing his heaps of manure to exhale into the atmosphere their most fertilizing properties. The nitrogen of the heap escapes under the form of carbonate of ammonia, and a mere carbonaceous residue of decayed plants is after some years found in its place. The loss from the escape of ammonia from manure is very great, and, in spreading manure over land, there is a loss of fertilizing properties which, with a little care, might be preserved. The method of preservation is to mix the manure with such substances as rapidly absorb the volatile matters. Gypsum, chloride of calcium, sulphuric or muriatic acids, superphosphate of lime, may be employed for this purpose: they may be procured at a very low price, and their action is to convert the volatile ammonia into salts which possess no volatility. If a basin, filled with concentrated muriatic acid, be placed in a stable, it becomes filled, after a few days, with crystals of muriate of ammonia. The ammonia which escapes from stables, &c., is not only entirely lost as far as our vegetation is concerned, but it also works a slow, though not less certain, destruction of the walls of the building. For, when in contact with the lime of the mortar, it is converted into nitric acid, which gradually dissolves the lime. The ammonia emitted from stables, &c., is always in combination with carbonic acid. Carbonate of ammonia and sulphate of lime (gypsum), cannot be brought together at common temperatures without mutual decomposition. The ammonia enters into combination with the sulphuric acid, and the carbonic acid with the lime, forming compounds which are not volatile, and, consequently, destitute of all smell. Now if we strew the floors of our stables, from time to time, with common gypsum, they will lose all their offensive smell, and none of the ammonia which is formed can be lost, but will be retained in a condition serviceable as manure.

The application of manures to land requires much careful discrimination and a great deal of knowledge respecting what component parts of the soil were removed by the crops which preceded the manuring. In horse manure we restore to the land some of the component parts of the hay, straw, and oats, with which the horse was fed. Their principal constituents are the phosphates of lime and magnesia, carbonate of lime, and silicate of potash; the first three of these preponderate in the corn, the last in the hay. The peculiar action of solid animal manure is limited to their inorganic constituents, which restore to the land that which is removed in the form of corn, roots, or grain. When straw which has been used as litter is added to the land, a further quantity of silicate of potash and phosphates is restored;

which, if the straw be putrefied, are in exactly the same condition in which they were before being assimilated.

The vegetable constituents of manure has some influence on the fertility of land, for by their decay carbonic acid is furnished to the young plants. But their influence is probably not, very great when it is considered that a good soil is manured only once every six or seven years, or once every eleven or twelve years, when esparsette or lucern has been raised on it, that the quantity of carbon thus given to the land corresponds to only 5·8 per cent. of what is removed in the form of herbs, straw, and grain, and further, that the rain water received by a soil contains much more carbon in the form of carbonic acid than these vegetable constituents of the manure.

The use of animal manure in the crude form frequently does harm to the soil by disseminating the seeds of weeds which have remained in the manure without being deprived of their power of germination, and yet, says Liebig, it is considered surprising that where they have once flourished, they cannot again be expelled by all our endeavours: we think it very astonishing, while we really sow them ourselves every year. The botanist Ingenhous, attached to the Dutch embassy to China, could scarcely find a single plant on the corn-fields of the Chinese, except the corn itself.

Bone manure, from the quantity of phosphates of lime and magnesia contained in it, is a valuable substance for land. Liebig says that the manure of an acre of land with 40 lbs. of bone dust is sufficient to supply three crops of wheat, clover, potatoes, turnips, &c., with phosphates. But the form in which they are restored to a soil is not a matter of indifference. For the more finely the bones are reduced to powder, and the more intimately they are mixed with the soil, the more easily are they assimilated. The most easy and practical mode of effecting their division is to pour over the bones, in a state of fine powder, half of their weight of sulphuric acid diluted with three or four parts of water, and after they have been digested for some time, to add one hundred parts of water, and sprinkle this mixture over the field before the plough. In a few seconds, the free acids unite with the bases contained in the earth, and a neutral salt is formed in a very fine state of division. Experiments instituted on a soil formed from grauwacke, for the purpose of ascertaining the action of manure thus prepared, have distinctly shown that neither corn, nor kitchen-garden plants suffer injurious effects in consequence, but that on the contrary they thrive with much more vigour.

In glue-manufactories many hundred tons of a solution of phosphates in muriatic acid are yearly thrown away as being useless. Professor Liebig suggests the importance of examining whether this solution might not be substituted for the bones. The free acid would combine with the alkalis in the soil, especially with the lime, and a soluble salt would thus be produced, which is known to possess a favourable action upon the growth of plants. This salt, muriate of lime (or chloride of calcium) is one of those compounds which attracts water from the atmosphere with great avidity, and might supply the place of gypsum in decomposing carbonate of ammonia, with the formation of sal-ammonia and carbonate of lime. A solution of bones in muriatic acid placed on land in autumn or in winter would, therefore, not only restore a necessary constituent of the soil, and attract moisture to it, but would also give it the power to retain all the ammonia which fell upon it dissolved in the rain during the period of six months.

There are numerous details in Professor Liebig's work, which, though of first-rate importance, are not suited to our pages. Our subject is rather to excite attention to this subject than to gratify it: and we cannot but express a hope that the views of the author may be fairly tested by our Agricultural Societies, and reduced to a set of plain rules and directions for the benefit of all persons engaged in agricultural pursuits.

The subject of manures is only now beginning to be understood; but it seems to be a principle of agriculture, that those substances which have been removed from a soil must be completely restored to it, and whether this restoration be effected by means of animal manure, ashes, or bones, is in great measure a matter of indifference. Liebig looks forward to the time when the fields will be manured with a solution of glass (silicate of potash), with the ashes of burnt straw, and with salts of phosphoric acid, prepared in chemical manufactories, exactly as medicines are now prepared to be administered to the patient, as the exigency of the case requires.

China is the birth-place of the experimental art; the incessant striving after experiments has conducted the Chinese a thousand years since to discoveries, which have been the envy and admiration of Europeans for centuries, especially in regard to dyeing and painting, and to the manufacture of porcelain, silk, and colours for painters. These we were long unable to imitate, and yet they were discovered by them without the assistance of scientific principles: for in the books of the Chinese we find recipes and directions for use, but never explanations of processes.

Half a century sufficed to Europeans not only to equal but to surpass the Chinese in the arts and manufactures, and this was owing merely to the application of correct principles deduced from the study of chemistry. But how infinitely inferior is the agriculture of Europe to that of China! The Chinese are the most admirable gardeners and trainers of plants, for each of which they understand how to prepare and apply the best adapted manure. The agriculture of their country is the most perfect in the world; and there, where the climate in the most fertile districts differs little from the European, very little value is attached to animal manure. With us, thick books are written, but no experiments instituted; the quantity of manure consumed by this and that plant, is expressed in hundredth parts; and yet we know not what manure is.

Those who, in confidence of superior capacities, or attainments, disregard the common maxims of life, should remember that nothing can atone for the want of prudence; that negligence and irregularity long continued will make knowledge useless, wit ridiculous, and genius contemptible.
—JOHNSON.

SEEK you to train your favourite boy?
Each caution, every care, employ,
And, ere you venture to confide,
Let his preceptor's heart be tried;
Weigh well his manners, life, and scope:
On these depend thy future hope.—GAY.

It is truly a most Christian exercise to extract a sentiment of piety from the works and the appearances of nature. It has the authority of the sacred writers upon its side, and even our Saviour himself gives it the weight and the solemnity of his example. "Behold the lilies of the field; they toil not, neither do they spin, yet your heavenly Father careth for them." He expatiates on a single flower, and draws from it the delightful argument of confidence in God. He gives us to see that taste may be combined with piety, and that the same heart may be occupied with all that is serious in the contemplations of religion, and be at the same time alive to the charms and the loveliness of nature.
—DR. CHALMERS.

WITH us it has all the authority of a moral aphorism, that the sobrieties of human virtue can never be invaded, without the equities of human virtue being also invaded. The moralities of human life are too closely linked and interwoven with each other, as that though one should be detached, the others might be left uninjured and entire; and so no one can cast his purity away from him without a violence being done to the general moral structure and consistency of his whole character.

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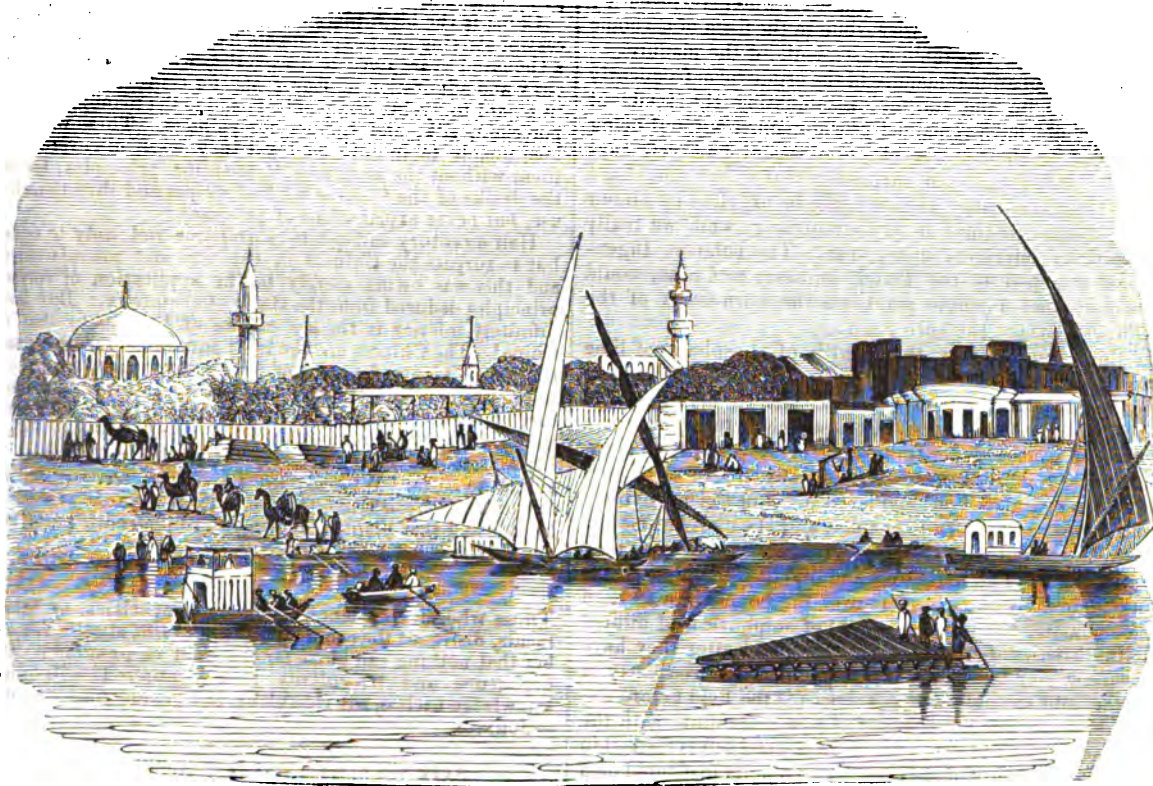
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SUPPLEMENT,

AUGUST, 1841.

{ PRICE
ONE PENNY.

A STEAM VOYAGE TO INDIA.



LANDING-PLACE AT BOULAK, NEAR CAIRO.

INTRODUCTION. DIFFICULTIES CONNECTED WITH A STEAM VOYAGE TO INDIA.

Motions and means, on land and sea, at war
With old poetic feeling, not for this
Shall ye, by poets even, be judged amiss.
Nor shall your presence, howso'er it mar
The loveliness of Nature, prove a bar
To the Mind's gaining that prophetic sense
Of future change, that point of vision whence
May be discovered what in soul ye are.
In spite of all that beauty may disown
In your harsh features, Nature doth embrace
Her lawful offspring in Man's art; and Time,
Pleased with your triumphs o'er his brother Space,
Accepts from your bold hands the proffered crown
Of hope, and smiles on you with cheer sublime.—

WORDSWORTH.

THE advantages resulting from the establishment of steam-navigation are so numerous, that we need not feel any surprise at the attempt to extend its benefits to our Eastern possessions. A few minutes' inspection of a terrestrial globe, or of a good map of the world, will show how circuitous is the route by which the passage from England to India is made, round the southern promontory of Africa; and a little consideration of the peculiar winds prevalent in the Indian seas, and known by the names of the *trade winds* and the *monsoons*, would show how desirable it is to have a motive power for shipping independent of the winds. Hence have arisen two different classes of projects; one for establishing a route to India shorter than the accustomed one round the Cape of Good Hope; and another, for performing the voyage in steam-vessels instead of sailing-vessels. Each of these classes of projects has had numerous advocates, who, in too many cases, have carried on the discussions

Vol. XIX.

relative to the subject in a spirit of partisanship which has done more evil than good.

In attempting to select a shorter route than the accustomed one, the attention of navigators was naturally directed to the Mediterranean, the western end of which communicates with the Atlantic, and the eastern end is separated by a comparatively short distance from two seas which empty themselves into the Indian Ocean, viz., the Red Sea and the Persian Gulf. If we notice the position of the north-east corner of the Mediterranean, we see that it is not very far distant from the upper part of the river Euphrates, which flows downward into the Persian Gulf, and thence into the Indian Ocean. We also see that from the mouth of the River Nile, on the Mediterranean coast, to Suez at the head of the Red Sea, the distance is very small, and that this narrow tract of land, called the Isthmus of Suez, is the only bar to an uninterrupted water communication from England to India. Now these two facts have been the bases on which numerous projects have been founded within the last few years. Colonel Chesney and other officers have been commissioned by the English Government to survey the river Euphrates, with the view of ascertaining whether an available route might be established in that direction; while at the same time various public companies have been established for forwarding what we may perhaps term the Red Sea project. The books, pamphlets, debates, letters, and plans which have been published on these subjects are so numerous, that a bare enumeration of them would exceed our limits; and we shall therefore simply state, that for the present the Euphrates plan appears to be abandoned, chiefly on account of the lawless character of the natives on either bank of that river. We shall therefore confine ourselves to the other project. A voyage was made by the *Enterprise* steam-vessel from

588

England to India, round the Cape of Good Hope, as long back as the year 1826; and a steam voyage was made from Bombay to Egypt, by way of the Red Sea, in 1830; and it then became a question, on observing the success of these two attempts, how far the Red Sea might be made the channel of a steam-packet route from England to India. To show the manner in which it has been proposed to work out this plan, we will give a short abstract of a scheme for establishing a post-office communication on this route proposed by Captain Head in 1832. He proposed that the post-office steamers, which at that time ran once a month from Falmouth to Malta, should carry the mail-packet to the last-mentioned place, performing the distance of 2250 miles in sixteen days. After stopping two days at Malta, the packet was to be forwarded by steam to Alexandria, the great commercial port of Egypt; the distance, about 837 miles, being performed in six days. At about half-way between Alexandria and Suez, that is, between the Mediterranean and Red Seas, lies the city of Cairo; and it was supposed that a land journey of from four to six days, by way of Cairo, would convey the packet from Alexandria to Suez. It was proposed that another steamer should be ready to convey the packet from Suez to Bombay; but as this distance is nearly three thousand miles, it was proposed to establish a coal depôt at Aden, at the mouth of the Red Sea, 1323 miles from Suez. The vessel was to remain two days at Aden, for the purpose of taking in a supply of coals and other stores, and was then to proceed on her voyage to Bombay, from which place communication might be held with Calcutta and Madras in the way most convenient. It was calculated that the whole distance from Falmouth to Bombay, about 6260 miles, might be traversed in fifty-one days.

The above is a very fair example of the plans which were proposed in reference to this subject; but it soon became evident that many difficult questions had to be decided before the practical adoption of any such plans could be resolved on. Among these questions were such as the following;—whether the plan should be put in operation by the Government, by the East India Company, or by private joint-stock companies; whether the whole route should be undertaken by the same company, or whether one company should perform the passage from England to Egypt, and another from Egypt to India; whether Mehemet Ali, the Pacha of Egypt, would countenance the establishment of a route through his dominions; whether the route from Alexandria to Cairo should be performed by land, or by boats or packets along the river Nile; whether the steam-voyage should terminate at Bombay, or should be extended round the southern point of India to Madras and Calcutta; and lastly, whether it should be only a post-office communication, or one for travellers generally. Slowly, and not till after much warm controversy and discussion, have these difficult questions been decided; and we proceed to state the actual results which have been attained.

In the early part of the year 1838, it was announced that the Sultan of Aden, at the mouth of the Red Sea, had surrendered that place to the English, for the purpose of a coal depôt, on an annual compensation to be paid to him by the East India Company. The acquisition of this town, which has the best harbour in the Red Sea, placed the steam-communication between Bombay and Suez, on a firmer footing than before. This possession, however, was not undisturbed by the restless and fierce propensities of the Arabs; for in the Autumn of 1839 a daring attack was made on the town by the ex-sultan and six thousand Arabs. The attack was completely repelled; and the Arabs had cause to lament the instigations of their chief, who told them "that all the buttons worn by the English were of solid gold, and that precious stones and valuables of all kinds awaited their expected victory." This discomfiture was followed by a determination on the part of the Arabs to starve out the English, if possible; they completely cut off the communication from Aden to the interior, and killed any straggling soldiers of the garrison whom they met with. The garrison had to obtain provisions by the aid of their ships. Matters continued much in the same state till towards the middle of the year 1840, when the Arabs made three desperate attempts to gain the town, in May, June, and July; but they were invariably repulsed with great loss; and the Indian government strengthened the garrison and fortifications of Aden. From the accounts which reached England in the early part of the present year, it appears that the Arabs had discontinued their attacks, the hard-worked

soldiers had recovered their health, the supply of provisions was abundant, the climate very fine, and the trade of the town increasing; so we may now probably reckon Aden as a permanent English establishment, and as a depôt for the Red Sea steamers.

From this mention of Aden, we pass on to notice the proceedings of the steam-companies. The voyage from Bombay to Suez and back continued to be made at intervals, long before the completion of arrangements for continuing the voyage to England. On the 1st of April, 1840, the *Victoria* steamer left Bombay; reached Aden on the 9th; set sail again on the 17th, after remaining at Aden twenty-seven hours; and reached Suez on the 14th; thus performing the journey from Bombay to Suez, 2992 miles, in less than sixteen days and a-half. She set sail again on the 21st; reached Aden on the 27th; and arrived at Bombay on the 6th of May. The mail from England happened to reach Suez, after a rapid voyage, about three days after the arrival of the *Victoria* at that place; and it thence resulted that despatches from England, dated April 6th, actually reached Bombay on the 6th of May, after an interval of only thirty-one days. This unexampled celerity of communication acted as a great spur to the furtherance of the plans on this subject. About the middle of the year, two of the companies which had entertained projects on this subject, seemed to approximate towards an agreement. One of these companies proposed to forward mails and letters to and from India by two routes, one a land-route through France *via* Marseilles, and the other a sea-route by Falmouth and Gibraltar; both uniting at Malta.

The outward mails through France were to leave London on the 4th of every month; while the sea-packets were to start on the 1st; both to reach Malta on the 13th, and to start from thence to Alexandria on the 14th. The land-route was principally for the post-department, as allowing letters to be despatched three days later; but for the sea-route, the vessels were to be fitted up for the reception of passengers. The vessels were to leave the passengers and letters at Alexandria, from whence they were to be despatched to India by any other company which might act in concert with the one just alluded to; and were then to return to England with the mail from India. The arrangement proposed to Government, with respect to the post-office, was, that letters would be conveyed throughout the distance from London to Alexandria in fifteen days, and from Alexandria to London, on account of adverse winds in the Mediterranean, in sixteen days.

It has proved, in this as well as many other projects in which steam-power is concerned, that the estimates have been more than equalled by the performances. The following is an extract from the log of the *Oriental*, for her first trip to Alexandria and back, in the autumn of the year 1840:—

OUTWARD VOYAGE.		Hours	Distances Naut. Mils.
Time steaming from Falmouth to Gibraltar ..	122½	.....	1064
" " Gibraltar to Malta ..	111½	.....	980
" " Malta to Alexandria ..	96½	.....	834
Total time out (steaming) ..	330½	.....	2688
Or 13 days, 17½ hours.			
HOMeward VOYAGE.			
Time steaming from Alexandria to Malta ..	92½	.....	826
" " Malta to Gibraltar ..	109½	.....	988
" " Gibraltar to Falmouth ..	110	.....	1068
Total time home (steaming) ..	321	.....	2882
Or 13 days, 9 hours.			

The stoppages at Gibraltar and Malta are not reckoned in this account; but, including the allowance for them, the vessel performed the whole distance out and home in 36½ hours less than the contract time.

As a farther elucidation of the singular effects which this rapid system of travelling may be supposed to produce on the old modes of communication, we give the following from a Calcutta journal of last year:—"The express which came in on the 27th May to Calcutta from Bombay, with the Europe mail, left that presidency on the 7th. Thus, there was communication between London and Bombay in one month and two days, and between London and Calcutta in one month and twelve days—or forty-two days! the shortest period on record. On the 26th of February, the residents at the Cape were in possession of English intelligence to the 4th of December, received from Madras, whither it had been conveyed by the overland mail! Who would have supposed, ten years ago, that the Cape of Good Hope, then the half-

way house for English news on its way to India, would at this date be indebted to an arrival from this country for its own share of intelligence?"

It was not until the early part of the present year that the various difficulties to which we alluded in the former part of this paper, were overcome by the coalition of two companies; of which companies, one was formed principally of persons connected with the Mediterranean traffic, and the other of mercantile men in India, who were more nearly acquainted with the traffic of the Red Sea. By the united exertions of the two bodies, the whole distance from England to India will be placed under the regulations of one system; and it appears, from an announcement in the public journals about three or four months ago, that arrangements are being made for extending this communication, not only to Bombay, the nearest important city of India, but also to Ceylon, Madras, and Calcutta, with the full sanction and support of the East India Company. The Government has also contracted for the conveyance of mails to and from Alexandria and London, one mail to start every month in each direction. Arrangements are also being made for placing steamers on the Nile, for the more speedy conveyance from Alexandria; and also, with the sanction of the Pacha of Egypt, the land route over the Desert from Cairo to Suez is being made more efficient. It thus appears that the plans which have been for sixteen or eighteen years under discussion, will at length be brought into practical application, in a manner which meets the wishes and receives the sanction of the Government, of the East India Company, and of the commercial world in general.

SECTION I. ROUTE TO INDIA BY WAY OF EGYPT AND THE RED SEA.

We now propose to follow out an idea which has been partially acted on in three of our former Supplements, viz, to make an imaginary trip from India to England, or from England to India, and notice the chief objects of interest on the way. On the occasions just alluded to, our journeys were overland through Persia; but we now intend to trace the route followed by travellers under the new system, in which Egypt and the Red Sea constitute portions of the route. A lively and pleasing writer, the late Miss Emma Roberts, made this journey in the latter end of the year 1839; and from her graphic account of the incidents and details of her journey, we shall be able to illustrate in a tolerably clear manner the nature of this remarkable and diversified route. We shall borrow from other sources in our notice of cities and countries.

Miss Roberts accompanied her sister, the lady of Captain Mc Naghten, to India in 1828, where she remained three or four years; after which she returned to England. But the alterations in the commercial arrangements of India, consequent on the renewal of the Company's Charter, having given a new tone to Anglo-Indian society, she was desirous of once again visiting a land which had many pleasant associations for her. She quitted England in September, 1839, arrived at Bombay in November in the same year, and resided in different parts of Western India for about ten months, when she died, to the universal regret of the European inhabitants in that land.

The route followed by this lady was overland through France, by packet from Marseilles to Alexandria, up the Nile to Cairo, across the Desert to Suez, and thence by sea to Bombay. Miss Roberts and a female friend proceeded to Havre, by steam. After staying a few hours at Havre, the travellers proceeded by another steamer to Rouen, up the river Seine. Of Havre Miss Roberts says:—"Havre appears to carry on a considerable commerce with India, several shops being wholly devoted to the sale of the productions of the East, while the number of parrots and monkeys to be seen show that the intercourse must be very extensive. The shops had a very English air about them; and though the houses were taller, and rather more dilapidated in their appearance, than they are usually found at home, they reminded us of familiar scenes; and but for the novelty of dining at a *table d'hôte*, we might have fancied ourselves still in England. . . . English carriages were arriving every hour; the steamer from Southampton brought an immense number of passengers, and travellers seemed to look in from every part of the world."

At 4 o'clock on the following morning the travellers left Havre in the Rouen steamer. The banks of the Seine are picturesque, presenting pleasing objects of rural enjoyment; the houses have a neat and clean appearance, and are surrounded with little parterres or gardens filled with flowers. By about

noon the steamer reached Rouen. This ancient city presents many attractions for a traveller, particularly those connected with the memory of Joan of Arc; but nothing seemed to arrest our travellers' attention more than the houses of the trading classes. Seven or eight stories in height, weather-stained, and dilapidated, the upper floors are so destitute of everything which an English person calls *comfort*, that the splendour of the shops below excites considerable surprise. It is, however, impossible to devote much time to descriptions of French towns, so we must proceed in our route. At 4 o'clock on the following morning, two boats proceeded from Rouen up the Seine, in one of which Miss Roberts and her companion embarked; and after going a certain distance up the river, they landed, and proceeded the rest of the way to Paris by a railway which had been recently opened. It may be here remarked, that, however pleasant may be a voyage up the river Seine, considered in respect of the scenery on its banks, an English traveller is always subjected to considerable inconvenience, on account of the strictness of the arrangements in France with respect to passports.

To describe anything relating to Paris would be, of course, unnecessary after our recent Supplements on that subject; we shall therefore merely say that the travellers proceeded by diligence to Chalons, having despatched their luggage by *messagerie* to Marseilles. Instead of stopping at Chalons, they proceeded uninterruptedly to Lyons, where they remained a few hours, and then started in a steamer down the river Rhone to Marseilles. They stopped for a short time at Beaucaire, the disembarking at which will remind many a traveller of scenes which they have witnessed. "The night was very dark, and a scene of great confusion took place in the disembarkation. We had agreed to wait quietly until the remainder of the passengers got on shore; and Miss E. and myself, glad to escape from the bustle and confusion of the deck, went down below to collect our baggage, &c. The quay was crowded with porters, all vociferating and struggling to get hold of parcels to carry, while the *commissionaires* from the hotels were more than ever eager in their recommendations of their respective houses: their noise and gesticulations were so great, and their requests urged with so much boldness, that we might have been led to suppose we had fallen into the hands of banditti, who would plunder us the moment we got into their clutches."

The distance from Beaucaire to Marseilles is traversed in the course of a few hours. Marseilles is a city and seaport of France, the capital of the department of Bouches de Rhone (Mouths of the Rhone). It is not situated exactly at the mouth of the Rhone, but some short distance from it, on the eastern curve of the Gulf of Lyons, and therefore on the shores of the Mediterranean. Its direct distance from Paris in a straight line is rather more than four hundred miles; but by the route usually followed by travellers through Auxerre, Chalons, and Lyons, it is about five hundred. Marseilles was known by the name of *Massilia*, so long ago as six hundred years before the Christian era, it having been founded by a colony of Ionians. During the long interval which has since elapsed, more than twenty-four centuries, Marseilles has ever been a place of importance; first in the hands of the Greek colonists; then as a Roman city; then as a possession of the Franks; afterwards as the capital of the Kingdom of Provence; subsequently as a port whence several armaments of Crusaders sailed; and in more recent times as a commercial city of the French kingdom. The site of Marseilles is a rich valley or hollow inclosed on the land-side by hills, and on the sea-side by a harbour formed of an inlet of the sea. From the summit of a hill on the north side of the town, a fine view is obtained of the town and of the numerous country-houses (said to be five or six thousand in number,) which occupy the surrounding parts of the valley. The entrance from Paris is by a fine broad planted road or street, which extends into the heart of the town, and is prolonged in a direct line, by a street of less width, quite through the town. Eastward of this street is the old town, occupying a triangular point north of the harbour; while the western side constitutes the new town, which consists of broad straight streets, provided with paved foot-paths and lined with well-built houses. The port or harbour is capable of containing twelve hundred vessels, and is surrounded by fine quays used as a promenade by the townsmen in fine weather. There are several other promenades, as well as open squares or "places." As a commercial city Marseilles is one of the first in France, since the entire French trade with the

Levant, as well as a considerable portion of that with Italy, Spain, and Barbary, is carried on from that port. The number of vessels which enter the port is estimated at five or six thousand annually; and the customs and other dues collected are estimated at nearly one million sterling. It has communications by daily public conveyances with Lyons, Aix, Avignon, Nismes, Toulon, Geneva, and other places; and by steam-boats at brief intervals with Nice, Genoa, Leghorn, Bastia, Civita Vecchia, and Naples; and at longer intervals with Port Vendre, Barcelona, and Valentinia. The commercial character which these communications impart to Marseilles makes it the resort of foreigners of all nations; and the variety of costume, continual bustle, and medley of languages which this circumstance occasions, are among the most striking features of the place.

The great increase of letters consequent on the reduction of the rates of postage in England and France, as well as the rapidity of communication with India by way of Egypt, have led to the establishment of packets at Marseilles, for the conveyance of mails between that place and Malta. In some instances this is altogether a French speculation, while in others it results from an arrangement between the post-office authorities of the two countries. As an illustration of the mode in which the route *via* Marseilles is made available to English correspondents, we may mention that, on the 4th day of every month for the last year and a half, a mail-packet has left London, with letters of that date, and proceeded through France to Marseilles, where a steamer was in readiness to forward it to Malta, in time to meet another steamer which left Falmouth with passengers on the 1st of the same month; the letters and passengers afterwards proceeding in the same vessel to Alexandria. These circumstances being premised, it will be easier to understand the mode in which the travellers whom we propose to accompany, obtained a passage to Malta. There was an English steamer waiting at Marseilles, to carry the mail as soon as it should arrive from England; and a French steamer which was about to start immediately. Miss Roberts and her companion, therefore, after spending a short time at Marseilles, engaged a passage in the *Megara* English steamer, and proceeded on their journey as soon as the mails arrived from England.

A glance of the map of Europe will show, more clearly than words can describe, the route from Marseilles to Malta. Marseilles is at the northern margin of a kind of semicircular portion of the Mediterranean, the curve of which is formed by the continuous coasts of Spain, France, and Italy, and the base or diameter by the northern coast of Africa. Rather eastward of the centre of this semicircle are the islands of Corsica and Sardinia; while between the southern point of Italy and the shore of Africa is Sicily, at the southern extremity of which is the little island of Malta. This island is one of the most important in the Mediterranean, both in a political and a commercial point of view. It serves as a rendezvous and garrison for troops, to protect English interests in that part of the world; and it furnishes a convenient depot and harbour for ships on their way along the Mediterranean. The distance along the Mediterranean from west to east, from Gibraltar to Egypt, is about two thousand miles, and Malta is situated not far from the middle point of this line. This very advantageous position gave rise to the arrangement to which we just alluded, whereby a steamer with passengers, *via* Falmouth and Gibraltar, meets a mail-packet, which left England three days later than the steamer, and proceeded to Malta by way of Marseilles. The distance from Marseilles to Malta is somewhat less than from Gibraltar to Malta, the former occupying a steamer about four days to traverse, and the latter about five days.

SECTION II. ARRIVAL AT MALTA AND VOYAGE TO ALEXANDRIA.

We may now relieve these details by a few of Miss Roberts' pleasant notes of her journey from Marseilles to Malta. "The *Megara* belonged to a class of steamers built for the Government upon some new-fangled principle, and which have the art of rolling in any sea. Though the waters of the Mediterranean were scarcely ruffled by the breeze, which was in our favour, there was so much motion in the vessel, that it was impossible to employ ourselves in any way except in reading. In other respects, the *Megara* was commodious enough; the stern cabin, with smaller ones opening into it, and each containing two bed-places, was appropriated to the ladies, the whole being neatly fitted up. We found some agreeable fellow-passengers; the only draw-

back being a family of three children. In consequence of the cabins being thus occupied, we could not preserve the neatness and order which are so essential to comfort, and which need not be dispensed with even in a short voyage. Our commandant, Mr. Goldsmith, a descendant of the brother of the poet, and who appeared to have inherited the benevolence of his distinguished relative, was indefatigable in his exertions to render us happy." The only coasts in sight during the voyage to Malta, were those of Sardinia and Africa, Sicily being too far off to be visible; of Sardinia the travellers were only near enough to see a long succession of irregular hills, which presented a beautiful appearance by the light of an Italian sky. The vessel arrived at Malta on the morning of the fifth day from leaving Marseilles, having been four days and five nights on the voyage. The travellers hastened to gain a view of the island, as soon as the vessel arrived before it. "Much as I had heard of the gay singularity of the appearance of Malta, I felt surprise as well as delight at the beautiful scene around; nor was I at all prepared for the extent of the city of Valetta. The excessive whiteness of the houses, built of the rock of which the island is composed, contrasted with the vivid green of their verandahs, gives to the whole landscape the air of a painting, in which the artist has employed the most brilliant colours for sea and sky, and habitations of a sort of fairy-land. Nor does a nearer approach destroy this illusion; there are no prominently squalid features in Malta; the beggars, who crowd round every stranger, being the only evidence, at a cursory gaze, of its poverty."

Miss Roberts found, on reaching Malta, that the *Acheron* steamer had arrived there from Falmouth and Gibraltar, with the Levant mails, and that these mails were to be forwarded to Alexandria in the government steamer *Volcano*. The reader will remember, that, at that period (the autumn of 1839,) affairs were in a very unsettled state between Mehemet Ali and the European powers; and the travellers were recommended to proceed in the government steamer to Egypt without delay, as the best means of ensuring a passage to the Red Sea. Miss Roberts and her lady companion then went on board this vessel, and proceeded on their journey to Alexandria. In her notes she made sad complaints of the neglect and inattention which the passengers experienced from the officers of the government steamer; but, as we believe that the proceedings of the last year and a half have made many favourable changes in this respect, we will not detail the circumstances which gave rise to the complaints. Suffice it to say, then, that the vessel, after a five days' voyage, arrived at Alexandria. It may be convenient to the reader to bear in mind, that the overland mail-route from London to Marseilles, the sea-route from Falmouth to Gibraltar, from Gibraltar to Malta, from Marseilles to Malta, and from Malta to Alexandria, do not differ one from another in point of time more than about one day; the average time for all these portions of the journey being from four to five days each. The route from Malta to Alexandria passes somewhat to the south of the island of Candia, but is in other respects almost entirely out of sight of land. The *Volcano* had on board one of Mehemet Ali's *protégés*, a young Egyptian who had been educated at the pasha's expense in England, where he had resided for ten years, principally in the neighbourhood of a dock-yard, in order to study the art of ship-building. Although the temperature is almost too high for comfort, yet the Mediterranean steamers are often kept cool by a wind-sail, which keeps up a current of air in the cabins.

The *Volcano* had other ladies on board; and, on landing at Alexandria, "the lady-passengers, who arrived in the steamer, agreed to prosecute the remainder of the journey in company; our party, therefore, consisted of four, with two servants and a baby; the latter a beautiful little creature, of seven months old, the pet and delight of us all. This darling never cried, excepting when she was hungry; and she would eat anything, and go to anybody. One of the servants who attended upon her was a Mohammedan native of India, an excellent person, much attached to his little charge; and we were altogether a very agreeable party, quite ready to enjoy all the pleasures, and to encounter all the difficulties, which might come in our way."—If there ever is a time when a cheerful tone of spirits is necessary, it is at such a period as this, when females, accustomed to the comforts of English society, are about to brave the rude and often lawless customs of an Oriental country, deprived of those associations which a residence at home presents to them.

* For an account of Malta, see *Saturday Magazine*, vol. XVII. pp. 82, 170, 250.

Referring to our Number 534 for a description of Alexandria, we may here merely remark, that Miss Roberts found it all that travellers describe it to be, a city of narrow streets choked with sand; and, as the political state of Egypt rendered it desirable to hasten her departure for the Red Sea as much as possible, she set off for the Nile, to proceed by boat up that river to Cairo. The party left the hotel in which they had been accommodated, and rode to the place where they were to take boat. The cavalcade was a curious one:—"Our supplies consisted of tea, coffee, wine, wax-candles, (employing a good glass lanthorn for a candlestick), fowls, bread, fruit, milk, eggs, and butter; a couple of fowls and a piece of beef being ready roasted for the first meal. We also carried with us some bottles of filtered water. The baggage of the party was conveyed upon three camels and a donkey, and we formed a curious-looking cavalcade as we left the hotel. In the first place, the native Indian servant bestrode a donkey, carrying at the same time our beautiful baby in his arms, who wore a pink silk bonnet, and had a parasol over her head. All the assistance he required from others was to urge on his beast, and by the application of sundry whacks and thumps, he soon got a-head. The ladies, in coloured muslin dresses, and black silk shawls, rode in a cluster, attended by the janissary, and two Arab servants, also on donkey-back; a gentleman, who volunteered his escort, and the owners of the donkeys, who walked by our sides." On arriving at the banks of the canal which leads from Alexandria to the Nile, the party got into a miserable-looking boat containing two cabins or rather cribs, in which the ladies could hardly stand upright. The arrangements had not then been entered on, which have since been put in operation, of performing the voyage to Cairo in commodious iron steamers; and the passengers passed a sleepless night on board this boat, tormented, in no small degree, with musquitoes and other unwelcome visitors.

On arriving at Atfee, preparations were made for ascending the Nile. Nearly all the boats at that place were engaged by Mehemet Ali, who happened to be at Atfee at the time; but the governor of the town engaged that one should be placed at the disposal of the travellers. All these matters, it will be observed, are now put in better train by the establishment of steamers on the Nile. The mails were carried up to Cairo in the same boat which carried the travellers.

The voyage up the Nile was made in tolerable comfort, the ladies enjoying as much open air as the size of their boat would allow, and watching whatever objects were presented to their notice from shore. However famed may be this noble river, yet to a traveller by it, the banks on either side are singularly uninteresting; date trees thinly scattered, and villages at wide intervals, are nearly the only objects which break the monotony of the flat shores. The boat was propelled in three different ways, according to circumstances; by sails; by oars, or by dragging with ropes along a towing-path. "Our arrival at a village," says Miss Roberts, "alone relieved the monotony of the landscape. Some of these places were prettily situated under groves of dates and wild fig-trees, and they occasionally boasted houses of a decent description; the majority, were, however, most wretched, and we were often surprised to see persons respectably dressed, and mounted upon good-looking donkeys, emerge from streets and lanes leading to the most squalid and poverty-stricken dwellings imaginable. The arrival of a boat caused all the beggars to hasten down to the river-side; these chiefly consisted of very old or blind persons. We had provided ourselves with *paras*, a small copper coin, for the purpose of giving alms to the miserable beings who solicited our charity; and the poor creatures always went away well-satisfied with the trifling gift bestowed upon them." The far-famed Pyramids came in sight when still thirty-five miles distant; and on the second evening after embarkation the boat entered Boulak, the port of Cairo.

It was at half-past nine in the evening, on October 4th, 1839, that the travellers landed at Boulak; and as the gates of Cairo are closed at nine in the evening, it was apprehended that admission would not be gained that evening. It fortunately happened, however, that there was a *moolid*, or religious fair, held that evening at the opposite end of the city, and that the gate adjacent thereto was still open. The party, therefore, hired donkeys, and proceeded round the outside of the city, passing through the middle of the fair on their way to the open gate. The peasants were not a little surprised to see, by the light of their lamps and lanthorns, a group of European ladies riding on donkeys, at

ten or eleven o'clock at night; but no insult or hindrance was offered to them, and they safely arrived at the hotel in Cairo to which they were recommended. Here we must leave them for awhile. Our articles on Cairo will give a tolerably exact idea, so far as they extend, of the curiosities and inhabitants of this Egyptian metropolis; and we shall therefore refrain from entering into similar details here.

SECTION III. ARRANGEMENTS FOR CROSSING THE DESERT.

It will now be desirable for us to notice a few points respecting the route from Cairo to Suez, the place of embarkation on the steamers destined for Bombay. From the banks of the Nile to Syria is one continuous desert, into which juts the arm of the Red Sea, at the extremity of which Suez is situated. Hence the upper part of this arm or branch is bordered on both sides by desert tracks; and Suez cannot be reached except across the Desert, whether in a south-western direction from Syria, a southern direction from the Mediterranean, or an eastern direction from Cairo. The route to Suez by way of Cairo is not made on account of shortness, for it is really longer than if passengers landed from the Mediterranean at a point due north of Suez, but because there is no convenient harbour at the last-mentioned spot, and no secure town on the route. For these reasons, the route by way of Alexandria and Cairo is adopted; and the latter place having been reached, a journey of about seventy miles over the Desert has to be made to Suez.

Now it is a question of no small importance how this route shall be traversed in a manner at all safe and comfortable. A military officer, inured to the vicissitudes of active service, could gallop over this distance in a few hours, and could easily accommodate himself to the fare he might meet on the way; but if a regular line of communication, for passengers as well as letters, is to be established, it is obvious that so precarious a channel would not suffice. Perhaps we could not better explain the views which have been entertained of the best mode of surmounting these difficulties, than by giving a few extracts from a report made by an officer appointed to inquire into this matter. In the early part of the year 1838 one of the steam navigation companies to which we before alluded, sent Colonel Burr to Egypt, to forward certain plans for performing the overland portion of the journey from Cairo to Suez. In a letter which that officer wrote from Cairo in the month of March in that year, he thus alludes to the nature of the arrangements which he was making.

"I have nearly completed an arrangement, by which four comfortable carriages, for the conveyance of at least thirty passengers, will be set going by September next; I only await Colonel Campbell's approval to complete the thing. The advance for the purchase of the four carriages, with two baggage waggons, and forty mules, will be 1000*l.*, the property being ours, and merely lent to the contractors, who engage to keep the whole in an efficient state for at least five years, and to carry passengers in, say twenty-four hours, including halts, for 6*l.* each." After proceeding to express a hope that the Pacha would lend his countenance to the project, the Colonel details an agreement which he had made with a Cairo firm for building stations at certain distances on the line of route. From a report subsequently made by the committee of the company which had sent out Colonel Burr, it appeared, that supposing the Pacha's consent could be obtained, of which there seemed little doubt, it was proposed to build a centre station and four intermediate ones. The centre station to contain one room twenty-four feet by eighteen, and five sleeping apartments of fourteen feet by twelve, and fifteen feet high, with stabling and other requisite buildings; the whole inclosed and protected by a wall fifteen feet high, built of stone. A water-tank also to be added, sufficiently large for the use of the mules. The intermediate bungalows, or stations, were to be similar in character, but rather smaller.

The arrangements proposed as to the hours of starting and the rate of travelling were these:—*From Cairo.* If more than a sufficient number of passengers for one van are anxious to proceed to Suez, the first van to start within forty-eight hours before the departure of the steamer from Suez, and the second within twelve hours after the first. If only sufficient passengers for one van, to start thirty-six hours before the departure of the steamer; or as may otherwise be agreed on by the majority of passengers. *From Suez.* The first van to start six hours after the landing of the first lady passengers from the steamer; the second, twelve hours after the first, if the number of passengers exceed ten. In the event of there being no lady passengers,

then the first van to start six hours after the landing of the first ten male passengers. Ladies to have always a prior claim as to proceeding by the first or subsequent carriages. The rate of travelling to be twenty hours actual travelling; two and a half hours stoppage at the central station; and three quarters of an hour at the other stations.

Such were the views which, in 1838, were entertained of the most feasible mode of establishing a regular route across the Desert. It was in the autumn of 1839 that Miss Roberts made this journey; and we shall now see the manner in which she performed it, and the incidents which she met with on the way. The ladies of the party, after remaining two or three days in Cairo, set off together to traverse the Desert to Suez, where the *Berenice* steamer had just arrived from Bombay. The vehicles provided consisted of donkey-chairs, one for each lady; consisting of a common arm-chair fastened into a sort of wooden tray, which projected in front about a foot, thereby enabling the passenger to carry a small basket or other package; each chair was slung by the arms to long bamboos, one on either side, and these, by means of ropes or straps placed across, were fastened upon the backs of donkeys, one in front and one behind. This formed a very comfortable vehicle; and the party were well pleased with the kind of accommodation. Besides the vehicles, there were two stout donkeys, carrying the beds and carpet-bags of the whole company; three others on which servant-men rode; and a few spare ones in case of accident on the road; while the owners or drivers of the donkeys were eight or ten in number. Thus the cavalcade proceeded, at an easy walking pace; and reached the first *bungalow*, or travellers' resting-house, by the evening of the first day. The bungalow was then in an unfinished state, being unprovided with windows; but it was sufficiently forward to furnish the required shelter. The building was approached from the front by a narrow passage, on either side of which were sleeping-rooms for travellers, as well as a kitchen, &c.; while at the farther end was stabling for the animals. The rooms were at that time unprovided with beds; but the beds which the travellers brought with them were spread out, and made as comfortable as circumstances would admit.

The party started again at nine o'clock on the following morning, with the air at a warm temperature, but moderated by a pleasant breeze which blew across the desert. On the road they were overtaken by a *kalifa*, which they had seen bivouacking in the desert the previous evening. This *kalifa* or party consisted of the governor of Jiddah, who was travelling to Suez with his wife and family. The lady travelled in a vehicle formed of two rude kinds of sofas or settees, canopied overhead, and having a resting-place for the feet; it was placed on the top of a camel, with a cloth curtain, to exclude the sun, and to ensure the privacy customary among Mohammedan females. The travellers, on their way to Suez, occasionally met small parties of Bedouins, distinguished by their fierce countenances glaring from beneath the large rolls of cloth twisted over their turbans. One or two, superior to the rest, were handsomely dressed, well armed, and mounted on handsomely caparisoned camels. Small as the means of defence were on the part of the travellers, the Bedouins did not attempt to plunder their baggage; the power of Mehemet Ali having infused a spirit of obedience into these men, such as pachas and governors can seldom effect.

About the middle of the day they arrived at another bungalow, where they stopped an hour or two; here they again found the *kalifa* which had passed them in the morning, the females of which shared with our travellers the scanty accommodation of the place. The party was soon again in motion, enjoying the curious scene which their own cavalcade must have presented. The five vehicles were sometimes abreast, giving the riders an opportunity of conversing; but more frequently they were scattered over the plain, the guides allowing the donkeys to choose their path provided its general direction were onward. Occasionally a spare donkey, or one carrying the baggage, would stray off in an oblique direction, and then the drivers were compelled to make a wide detour to bring them in again. Once or twice, too, the ropes by which a chair was fastened, would slip, and deposit the fair occupant on the ground; or a donkey would stumble and fall; but no serious accident occurred. The resting-place for the night, at about midway from Cairo to Suez, consisted of tents, the bungalow having been only just commenced. The ladies of the party occupied one tent, on either side of which were divans or raised platforms, on which to place the beds. There were other tents occupied by English gentlemen who

were passing from Suez, where they had landed from the *Berenice*; and thus the desert became a kind of half-way station, (it is not far from being so in actual distance,) at which English travellers to and from India met.

The next morning, soon after they had started, the travellers met a double-bodied phaeton, drawn by two horses and two camels, having an English gentleman and a Persian within, and an Arab riding as postillion on one of the camels; this curious medley had just come from Suez, and was proceeding at a rapid rate to Cairo. These were followed by other passengers by the *Berenice*, some of whom were ladies riding in donkey-chairs, and others mounted on the backs of camels. In the middle of the day our travellers arrived at another bungalow; where they met one of the vans which had been provided for this route by the Steam Navigation Company; it consisted of a tilted cart upon springs, and was drawn by a pair of horses. Nothing farther occurred worthy of notice till they arrived at the resting-place for the night; when they were overtaken by three English gentlemen, who had wished to visit the Pyramids before proceeding onward to India, and who had crossed the desert in great haste. The whole party were to start at three o'clock in the following morning; and while all else were asleep, Miss Roberts silently left her tent by starlight, and roamed forth with an object which we will state in her own words:—"I had long desired to spend a night alone upon the desert; and without wandering to a dangerous distance, I placed a ridge of sand between my solitary station and the objects which brought the busy world to view, and indulged in thoughts of scenes and circumstances which happened long ago. According to the best authorities we were in the track of the Israelites; and in meditations suggested by this interesting portion of Bible history, the time passed so rapidly, that I was surprised when I found the people astir and preparing for our departure."

The party started at three o'clock, and did not stop till they arrived at the end of the journey, except for a few minutes at the last bungalow, which they reached at nine o'clock. It was about the middle of the fourth day, after having spent three nights and portion of four days on the road, that they reached Suez. The reader, by comparing the details just given, with the plans proposed in the early part of 1838 for the passage of the desert, will see that those plans had been acted on to a slight extent, by the establishment of one or two bungalows, and one or two vehicles to traverse the route. But many circumstances, to which we need not particularly allude here, prevented the proposed plan from being carried out in its fullest extent; and the contests which took place during the year 1840 between Mehemet Ali and the European powers put a temporary check on the prosecution of these schemes, although the Pacha, in the midst of his difficulties, seemed generally disposed to guarantee the safe conduct of English travellers across the desert. The termination of hostilities in that quarter has allowed attention to be steadily directed to this overland route; and at the present time increased facilities for travellers are being provided, by the establishment of iron steamers from Alexandria to Cairo, and of convenient vehicles and resting-places from Cairo to Suez.

We may here say a few words respecting the route from Cairo to Suez across the Desert. There are the strongest reasons for believing that a ship canal anciently existed along this route, by which a vessel could sail uninterruptedly from the Mediterranean to the Red Sea. Passages in some of the early writers clearly point to the existence of such a canal; while the researches of modern travellers have no less clearly led to the tracing of a remarkably level valley, or, if we may use the term—trough, which was once filled with water. When the French had possession of Egypt, the engineers who accompanied the army surveyed this track with much accuracy, and formed a plan for re-opening the ancient canal. It appears not improbable that if the French had retained possession of that country, they would have carried out a scheme which offered such an advantageous naval path to our Indian possessions, towards which Buonaparte was known to have directed a longing eye. As events turned out, however, the scheme was abandoned; but still it has not been forgotten; and we think that there is no impropriety or inconsistency in surmising that the time will come when one of these plans will be accomplished; viz.—the re-opening of the ancient canal from Cairo to Suez; the laying down of a railway on the very level valley which the site of this canal presents; or the establishment of a canal from the Mediterranean to Suez, altogether independent of the route by Alexandria, the Nile, and Cairo.

SECTION IV. EMBARKATION ON THE RED SEA.

We now proceed onward towards India. From Miss Roberts's account of Suez, it appears to be a place possessed of but few attractions:—"Distance lends no enchantment to the view at Suez. It is difficult to fancy that the few miserable buildings, appearing upon the margin of the sea, actually constitute a town; and the heart sinks at the approach to a place so barren and desolate. My donkeys carried me through a gap in the wall, which answered all the purposes of a gateway; and we passed along broken ground and among wretched inhabitants, more fit for the abode of savage beasts than men. Even the superior description of houses bore so forlorn and dilapidated an appearance, that I actually trembled as I approached them, fearing that my guide would stop and tell me that my journey was at an end." There were two hotels or lodging-houses in the town, established by the agents of the English houses connected with the steam communication with India; and in one of these hotels Miss Roberts and her companions took up their abode for the two or three days of their stay in Suez. The *Berenice*, a government steamer in which the travellers embarked for Bombay, was complained of by Miss Roberts as being sadly unfitted for the wants of the passengers; but as this is one of the circumstances which have probably been put on a better footing since that time, we will not dwell on these discomforts.

It may be desirable to take a general sketch of the Red Sea, on which we are now embarked. This celebrated sea is a very long and narrow sheet of water, extending from Suez in a direction nearly south-east to the straits of Bab-el-Mandeb. At its upper or northern extremity it is divided into two diverging points, one proceeding north-west to Suez, and called the Gulf of Suez; the other proceeding north-east to Akaba, and called the Gulf of Akaba. Between these two Gulfs is a jutting promontory on which is situated Mount Sinai and many other spots celebrated in sacred history. After having left this promontory, and entered the sea into which the two gulfs jointly enter, we have Egypt on the west side, and Arabia on the east. The Arabian side presents to us, at distances greater or less from the shore, Medina, Mecca, Mocha, and other towns; while on the African side there are few places of importance besides Cosseir and Berenice. Cosseir is the first of these towns to which we arrive; and as there are many curious circumstances connected with its position and history, we will offer a few remarks on the subject.

Cosseir is situated on a part of the coast almost exactly parallel with the famed city of Thebes, on the Nile, at about a hundred miles distance from it; and there is evidence that there was anciently a considerable traffic in this direction. Cosseir was the sea-port of Thebes, at the time when that magnificent city was the metropolis of the Pharaohs. At the present day the road from Cosseir to Kenneh, a town on the Nile not far distant from Thebes, is spoken of as very good; indeed the obstacles to travelling seem to be so few, that Mr. Lushington, who some years ago crossed it in a journey homeward from Bombay in the depth of winter, records with high glee the gratification of enjoying an excellent Christmas dinner at the middle resting-stage of the journey, and describes the weather and the atmosphere, both during the night and day, as being bland, cheering and salubrious. Wells of good water have always subsisted about midway on the route; and it is said that excellent water has been found at other places by boring. One of the most extraordinary circumstances connected with this route is, that there are indications of what may be called a railway track having existed there in former times; that is, that an artificial level appears to have been constructed for the whole distance, as a means of diminishing friction. In the evidence given before a Committee of the House of Commons on steam communication with India, a few years ago, several witnesses gave it as their opinion, from ocular inspection, that an excellent coach or wagon road might be formed with very little trouble from Cosseir to the Nile; and Colonel Burr, to whom we have before referred as an agent of one of the companies employed in establishing a convenient route from Cairo to Suez, was also directed by the company to visit the Cosseir route, and to ascertain the practicability of building stations. We believe, however, that the Suez route has been deemed more convenient of the two, and that the route by Cosseir is at present abandoned, so far as regular passengers to or from India are concerned. Of Cosseir itself, an English traveller, who visited it three or four years ago, thus speaks:—"Cosseir is a very small

harbour, only capable of holding two or three ships, which take shelter to leeward of a coral reef, on which they lay their anchors, but subject to be driven on shore in case of a sudden change of wind; but as this seldom or ever happens, we have never had any accidents. The native boats, which draw very little water, lie close in to the town, and take their cargo of grain in with great facility. The town consists of about three hundred houses, ill built; and the inhabitants are merely those who are employed in shipping off grain, and a few who keep the bazaar. The English agent is a civil obliging creature, a son of the one at Genneh. Waghorn has a packet agent here: an Italian doctor serves him, Signor Morice, who stands upon a wooden leg. A large caravan of camels, which were returning to Genneh after bringing over grain, afforded us a cheap opportunity of getting to the Nile. We hired three, for which we paid five piastres, each ten-pence. We bade adieu to Cosseir with gladness; and after the second hour of our journey, we saw the Red Sea for the last time. The caravan consisted of eighty camels."

At some distance southward of Cosseir, on the African shore of the Red Sea, is situated the remains of the ancient port of Berenice. As Cosseir was the site of the sea-port to Thebes under the dynasty of the Pharaohs, so was Berenice the metropolitan sea-point in the times of the Greek and Roman supremacy. The route from Berenice to Thebes appears never to have been used since the times just referred to, although Belzoni describes it as being one of the best harbours in the Red Sea. The town is in a state of complete ruin; and it does not appear that there are sufficient advantages attending this route to render a reconstruction desirable.

When we have proceeded sufficiently southward along the Red Sea to be opposite Mecca, we find on the Arabian coast the sea-port town of Jeddah. It presents a very imposing appearance from the sea; but a nearer approach dissipates the favourable impression which its appearance from a distance is calculated to make, as is indeed the case with most Oriental towns. The port is formed by successive crescents of coral, behind which vessels can ride at anchor in perfect security, even in the roughest weather. As these reefs only rise to the water's edge, they afford shelter only from the sea; so that, while a vessel rides in perfect safety in smooth water, she remains exposed to the winds. When the wind blows strongly, the side of the reefs exposed to its force becomes fringed with a white feathery curl, which increases in height on their edges as they extend seaward. The houses of the town are constructed of madrepora, and consist of several stories; but from irregularity of design, and a certain dirtiness in their external appearance, they are not so pleasing as the houses in some other parts of Arabia. The windows are latticed, and the projecting balcony, so general an ornament to the buildings of the East, is here left unpainted, giving the dwellings a neglected and decayed appearance. The doorways and windows are in every variety of the Arabesque style. Like all Oriental towns, the streets are exceeding narrow, so that in some of them the sun cannot shine more than one hour of the day, and only at one season. The bazaars are well supplied; and, during the pilgrimage to Mecca, filled with strangers from all the Moslem countries of the East. The shops are small cells, about eight feet square, in which the merchant sits amidst his wares; the buyer stands in the street, and where the bazaar is not covered, a small mat or piece of sail-cloth protects him from the sun. Merchants, pilgrims, dervishes, and beggars, crowd the bazaars to excess.

Shortly after we have passed the sea-port and town of Mocha, (for a description of which we refer to our No. 243), we come to the strait of Bab-el-Mandeb, which is the narrow channel by which the Red Sea empties its waters into the Indian Ocean. It is formed by two projecting or approaching promontories of the Arabian and Abyssinian shores. From Cape Bab-el-Mandeb on the Arabian side, to the Abyssinian coast, the nearest distance is sixteen miles, which is therefore deemed the width of the strait. At a few miles distance from the Arabian shore is a little island called Perim, which divides the strait into two parts, of which the eastern is called the Little Strait, and the western the Great Strait. The Little Strait is the one most generally used by seamen, principally because the depth of water is such as to allow of anchorage. The Large Strait, which is about nine or ten miles wide, is so very deep, that a rope of a hundred fathoms will not reach the bottom. The name of the strait, Bab-el-Mandeb, which, in Arabic, signifies the "Gate of Tears," seems to have been given in

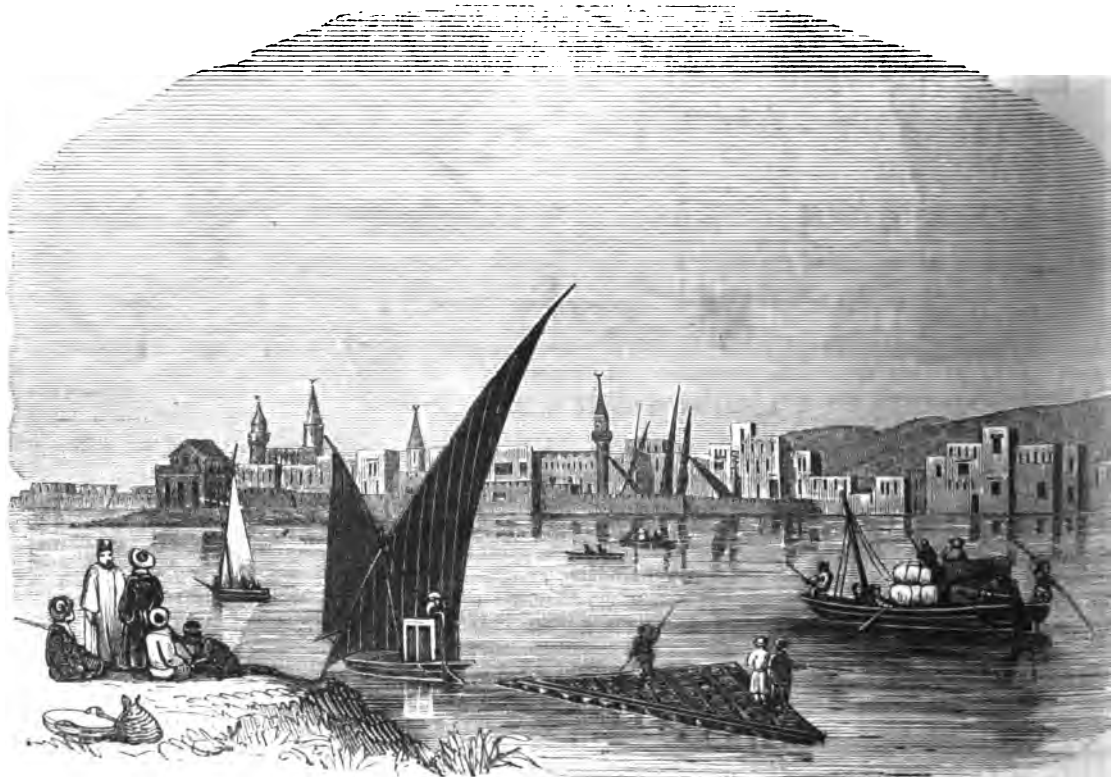
consequence of the dangers to which small and light vessels are exposed in a narrow sea, surrounded by rocky shores, and subject to frequent gusts of wind. Although the Little Strait is four miles wide, yet the available width for navigation is less than a mile. A recent voyager, who entered the straits in an Arabian vessel, says, "It fell calm, and the current drifted us about in the narrowest part of the strait, which is hardly half a mile wide. The moon rose, and we were in some degree relieved from our anxiety, as it enabled us to judge our distance from the shore, and ascertain for certainty if we were taking the right course, which is hereabouts rather difficult to discover in the dark. Our jolly-boat was lowered, and we towed the vessel off the land, which we had approached so near, that, should any wind have blown, it would have been kept from catching our sail by the rocks, which frowned above us. The ancient mariners, by the names they have given to the different headlands and islands here and in the neighbourhood, have left us an everlasting memorial of the dangers attending the Eastern maritime commerce in those times. The entrance of the sea is called the Gate of Sorrow or Weeping; the Cape itself, Affliction; the extreme east-point of Africa, which must have been the last land they lost sight of, the Cape of Burial."

We at length arrive at Aden situated a short distance without the strait, and in the direct route from thence to Bombay; and here we join company again with Miss Roberts and her fellow travellers, whom we left at the upper part of the Red Sea. The party landed at Aden, and were conveyed in palanquins to the place where the cantonments were situated, now fast advancing towards the dignity of fortifications. The road led for a mile or two along the sea-shore, with high crags piled on one side; after which the party ascended a height, which led to an aperture in the hills called the Pass, around which was wild but beautiful scenery. The narrow and inclosed pass led down a rather steep declivity to a sort of basin, surrounded on three sides with lofty hills, and on the fourth by the sea. It will be remembered, from the circumstances which we detailed in the early part of the paper, that about the time when Miss Roberts visited Aden, the British settlements had not been freed from the hostile attacks of the Arabs. The following is that lady's account of the place as she found it at the time of her visit:—"At first sight of Aden, it is difficult to suppose it to be the residence of human beings, and more especially of European

families. The town, if such it may be called, consists of a few scattered houses of stone, apparently loosely put together, with pigeon-holes for windows, and roofs which, being flat, and apparently surrounded by a low parapet, afford no idea of their being habitable. It is difficult to find a comparison for these dwellings, which appeared to be composed of nothing more than four walls, and yet to judge, from the apertures, contained two or more stories. The greater numbers were inclosed in a sort of yard or compound, the fences being formed of long yellow reeds; the less substantial dwellings were entirely made of these reeds, so that they looked like immense crates or cages for domestic fowls. My palanquin at length stopped at a flight of steps hewn out of the rock; and I found myself at the entrance of a habitation, half-bungalow, half-tent; and certainly, as the permanent abode of civilized beings, the strangest residence I had ever seen. The upright and framework were made of reeds and bamboos, lined with thin mats, which had at one time been double, but the harbour thus afforded for rats being found inconvenient, the outer casing had been removed." The explanation of this apparently strange state of things is this; that the Indian government had not at that time fixed upon the site intended for the station offices, &c., at Aden, and the European inhabitants delayed building their houses, which were to be durable stone structures, until the decision was made. Since that period, much progress has been made in developing the resources of Aden, and establishing it as a valuable dependency of the British crown.

Here we bring to a conclusion our notice of the interesting points connected with a steam voyage to India. From the peninsula on which Aden is situated, no land intervenes till the traveller arrives at Bombay; he leaves Socotra, an island which was at one time to have been used as a coal depôt instead of Aden, on the right, and the southern coast of Arabia, together with the entrance to the Persian Gulf, on the left. The importance of Aden consists partly in the fact, that, from that port a steamer can be supplied with fuel and all other stores for the voyage from thence to Bombay.

A little reflection on the details which have been given in this paper will convince the reader, that the grand project of steam communication with India, (for grand it certainly is,) is still only in its infancy, and that we may look forward to a successive chain of improvements in every part of the commercial machinery by which it is accomplished.



SURZ.



SKETCHES OF CAIRO. II.



A TURKISH EFFENDEE WRITING A MEMORIAL.

The houses of Cairo are generally of brick, cased externally, and often internally, with the soft calcareous stone of the neighbouring mountain, which when newly cut is of a light yellowish hue, but its colour soon darkens. The alternate courses of the front are sometimes coloured red and white, particularly in large houses, as is the case with most mosques. The superstructure projects about two feet: the roof is flat and covered with plaster.

The houses are rich in that description of ornament known to architects as the *Arabesque*, in which much taste and fancy are often displayed. Entrances to houses are often richly adorned, and over the doors is frequently sculptured the invocation *Ya Allah!* "O God!" and the words "The Creator is the Everlasting," or "He is the Creator, the Everlasting," painted in large black and white characters upon the door, both as

a charm, and to remind the master of the house, whenever he enters it, of his own mortality.

Many of the tradesmen also place over their shops (generally upon the hanging shutter turned up in front) a paper inscribed with the name of God or that of the Prophet, or both, or the profession of the faith, ("There is no deity but God: Mohhammad is God's apostle,) the *bismillah*, ("In the name of God, the compassionate, the merciful,") or some maxim of the Prophet, or a verse of the Ckooran, as "Verily we have granted thee a manifest victory," or an invocation to the Deity, such as "O thou Opener [of the doors of prosperity or subsistence]! O thou Wise! O thou Supplier of our wants! O thou Bountiful!" This invocation is often pronounced by the tradesman when he first opens his shop in the morning, and by the pedestrian vender of small commodities, bread, vegetables, &c., when he sets

out on his daily rounds. It is a custom among the lower orders to put the first piece of money that they receive in the day to the lips and forehead before it is consigned to the pocket.

The apartments on the ground-floor next the street are furnished with small wooden grated windows, placed sufficiently high to prevent the passengers, even on horseback, from seeing through them. The upper windows project a foot or two, and are mostly formed of turned wooden lattice-work, which is so close that it shuts out much of the light and sun, and screens the inmates from view, while at the same time it admits the air. A little projecting window is sometimes formed so as to be constantly exposed to a current of air: within this are placed porous earthen bottles, for cooling water by evaporation. Many houses are furnished with glazed window-frames placed within the lattice-work, which are closed during winter.

The houses are generally two or three stories high; and almost every house that is sufficiently large incloses an open court, which is entered by a passage, constructed with one or two turnings, in order to prevent passengers from looking along it. In this passage, just within the door, is a long stone seat, built against the back or side-wall, for the porter and other servants. In the court is a well of slightly brackish water, which filters through the soil from the Nile, and on its most shaded side are commonly two water-jars, which are replenished daily with water of the Nile, brought in skins. The principal apartments look into this court.

For a minute description of the various apartments, and the general domestic economy of the houses of Cairo, we refer the reader to Mr. Lane's valuable work. In the plan of almost every house there is an utter want of regularity. The apartments are generally of different heights, so that a person has to ascend or descend one, two, or more steps, to pass from one chamber to another adjoining it. The principal aim of the architect is to render the house as private as possible, particularly that part of it which is inhabited by the females of the establishment, and not to make any window in such a situation as to overlook the apartments of another house. Another object of the architect in building a house for a person of rank or wealth is to make a secret door, from which the tenant may make his escape, in case of danger from an arrest, or an attempt at assassination, and it is also common to make a hiding-place for treasure in some part of the house.

In every point of view, (says Mr. Lane,) Musr (or Cairo) must be regarded as the first Arab city of our age, and the manners and customs of its inhabitants are particularly interesting, as they are a combination of those which prevail most generally in the towns of Arabia, Syria, and the whole of Northern Africa, and in a great degree in Turkey. There is no other place in which we can obtain so complete a knowledge of the most civilized classes of the Arabs.

The term *Arab* is used, wherever the Arabic language is spoken, only to designate the Bedawees collectively: in speaking of a tribe or of a small number of those people, the word *Orban* is also used, and a single individual is called *Bedawee*. In Cairo the distinction of tribes is almost wholly lost, the native Mooslim inhabitants calling themselves commonly *El Musreeyeen*, *Owlad Musr*, and *Owlad el-Beled*, which signify "people of Musr," "children of Musr," and "children of the town."

The Mooslim Egyptians are described as a good-looking race of men, about the middle height, robust and well-proportioned, with fine open foreheads, and a half-smiling expression about the mouth which is rather prepossessing. It is difficult for the stranger to imagine how the poor little children that are seen with meagre skinny limbs, can ever acquire the well-built muscular frame of the young men.

Travellers have been struck with the number of men in Egypt who are either wholly or partially blind. Many suffer from ophthalmia and other diseases, but the practice was long common for mothers to extirpate the right eyes of their male children, to unfit them for military service. The Pacha adopted many plans for stopping this horrid practice, and none succeeded until he ingeniously ordered two regiments of one-eyed soldiers to be raised: the conscription being therefore no longer to be evaded by this mutilation, the custom ceased.

The costume of the Mooslims will be understood better by referring to figures than to printed descriptions. Among the few personal ornaments worn by the men the most remarkable is the seal-ring which decorates the little finger of the right hand. This ring is generally of silver with a cornelian or other stone, upon which is engraved the wearer's name, accompanied by the words "his servant," that is "the servant or worshipper of God," and often by other words expressive of the person's trust in God, &c. Mr. Lane says:—

The Prophet disapproved of gold; therefore few Mooslims wear gold rings, but the women have various ornaments (rings, bracelets, &c.) of that precious metal. The seal-ring is used for signing letters and other writings, and its impression is considered more valid than the sign-manual*. A little ink is dabbed upon it with one of the fingers, and it is pressed upon the paper, the person who uses it having first touched his tongue with another finger, and moistened the place in the paper which is to be stamped. Almost every person who can afford it has a seal-ring, even though he be a servant. The regular scribes, literary men, and many others, wear a silver, brass, or copper *dawáye*, which is a case, with receptacles for ink and pens, stuck in the girdle†. Some have, in the place of this, or in addition to it, a case-knife, or a dagger.

The Egyptian usually takes his pipe with him wherever he goes, (unless it be to the mosque,) or it is carried by a servant, although it is not common to smoke during a ride or a walk. He thrusts the tobacco-purse in his bosom: as also a handkerchief embroidered with coloured silks and gold, and neatly folded. Many persons of the middle orders who wish to avoid being thought rich, conceal their rich dress under a long black cotton gown, such as is worn by the lower classes.

In all Mohhâmmadan countries the most important part of the male attire is the turban, and the respect paid to it is very great. Its colours and forms are often prescribed by law, and serve as distinguishing marks whether of respect or aversion. In the houses of the more wealthy classes there is usually a particular chair devoted to its reception at night, which chair is never used for any other purpose. As an example of the respect paid to the turban, it was related to Mr. Lane that an *alim* (a man of science or learning) being thrown off his donkey in the streets of Cairo, his turban fell off and rolled along for several yards; whereupon the passengers ran after it, crying, "Lift up the crown of El-Islam!" while the poor *alim*, whom no one came to assist, called out in anger, "Lift up the *sheykh* (master or doctor) of El-Islam!"

As it is highly indecorous in a woman to discover her features except to her immediate relations, the veil is in constant use: this is a long narrow piece of muslin, suspended by a gold ornament from the upper part of the forehead, and covering the nose and lower half of the face: the eyes and part of the forehead being exposed. The expression of the eyes is considerably heightened by staining the eyelids with a black powder, called *kohl*: this is the smoke-black produced by burning an aromatic resin, or the shells of almonds. The *kohl* is applied with a small probe of wood, ivory, or silver, tapering towards the end, but blunt: this is moistened some-

* Therefore, giving the ring to another person is the utmost mark of confidence. See Genesis xli. 42.

† This is a very ancient custom. See Ezekiel ix. 3, 11.

times with rose-water, then dipped into the powder, and drawn along the edges of the eyelids. This custom prevailed among the ancient Egyptians, as is shown by the sculptures and paintings in the temples and tombs; and kohl-vessels, with the probes, and even the remains of the black powder, have been found in the ancient tombs.

Females are also accustomed to stain certain parts of their hands and feet with the leaves of the henna tree, or Egyptian privet, which impart a yellowish red, or deep orange colour. Many thus dye only the nails; others extend the dye as high as the first joint; some also make a stripe along the second joints: it is common also to dye the whole of the inside of the hand and sole of the foot. The colour is not permanent, but requires to be renewed after two or three weeks.

Many of the females of the lower orders adorn their persons with indelible marks of a blue or greenish hue. The operation is performed with several needles tied together: with these the skin is pricked in the desired pattern; some smoke-black mixed with milk is then rubbed in, and about a week after, before the skin has healed, a paste of the pounded fresh leaves of white beet or clover is applied, which gives a blue or greenish colour to the marks.

Parents in Egypt treat their children with the utmost love and tenderness; and however much the son is caressed and fondled, he generally displays a most profound and praiseworthy respect for his parents. Disobedience to parents is considered by the Mooslims as one of the greatest of sins, and accordingly an undutiful child is very seldom heard of among the Egyptians or the Arabs. Sons scarcely ever sit or eat, or smoke in the presence of the father, unless requested to do so; and they often even wait upon him and upon his guests at meals, and on other occasions: and they do not cease to act thus when they have become men.

But although the children are objects of so much solicitude, they are, with the exception of those of the wealthier classes, generally very dirty and shabbily clad. Mr. Lane says:—

The stranger here is disgusted by the sight of them, and at once condemns the modern Egyptians as a very filthy people, without requiring any other reason for forming such an opinion of them; but it is often the case that those children who are most petted and beloved are the dirtiest and worst clad. It is not uncommon to see, in the city in which I am writing, a lady shuffling along in her ample *w'ab* and *hab'arah* of new and rich and glistening silks, and one who scents the whole street with the odour of musk or civet as she passes along, with all that appears of her person scrupulously clean and delicate, her eyes neatly bordered with kohl, applied in the most careful manner, and the tip of a finger or two showing the fresh dye of the henna, and by her side a little boy or girl, her own child, with a face besmeared with dirt, and with clothes appearing as though they had been worn for months without being washed. Few things surprised me so much as sights of this kind on my first arrival in this country. I naturally inquired the cause of what struck me as so strange and inconsistent, and was informed that the affectionate mothers thus neglected the appearance of their children, and purposely left them unwashed, and clothed them so shabbily, particularly when they had to take them out in public, from fear of the evil eye, which is excessively dreaded, and especially in the case of children, since they are generally esteemed the greatest of blessings, and therefore most likely to be coveted.

The group shown in our frontispiece is taken from one of the prints in Mr. Hay's noble volume already referred to (p. 50), where it is also thus described:—A Turkish Effendee seated in a *wakaleh*, or building chiefly designed for the reception of merchants and their goods, writing a memorial for a client who appears in the *gibbeh*, or long cloth robe, over the *kustán*, or silken vest, and with his *dawáye* or ink-horn in his girdle. The Effendee merely wears the saltah, or jacket, over his *kustán*, and is seated upon one of the coarse mats of the country, another mat being used as a screen behind him. His *zurf*, or paper case, with his pipe, are beside him.

The writing paper used in Egypt is thick and glazed;

it is chiefly imported from Venice, and glazed in Egypt. The ink is very thick and gummy. Reeds are used instead of pens; and they suit the Arabic character much better. The Arab, in writing, places the paper upon his knee, or upon the palm of his left hand, or upon what is called a *mis'ned 'eh*, composed of a dozen or more pieces of paper attached together at the four corners, and resembling a thin book, which he rests on his knee. His ink and pens are contained in his *dawáye*, together with the penknife, and an ivory instrument upon which the pen is laid to be nibbed. He rules his paper by laying under it a piece of pasteboard with strings strained and glued across it, and slightly pressing it over each string. Scissars are included among the apparatus of a writer: they are used for cutting the paper: a torn edge being considered as unbecoming.

THE GOOD MISSIONARY.

He left his Christian friends and native strand,
By pity for benighted men constrained;
His heart was fraught with charity unfeigned;
His life was strict, his manners meek and bland.
Long dwelt he lonely in a heathen land,
In want and weariness,—yet ne'er complained;
But laboured that the lost sheep might be gained,
Not seeking recompense from human hand.
The credit of the arduous works he wrought
Was reaped by other men who came behind:
The world gave him no honour—none he sought,
But cherished Christ's example in his mind.
To one great aim his heart and hopes were given,—
To serve his God, and gather souls to Heaven.

FRINGLX.

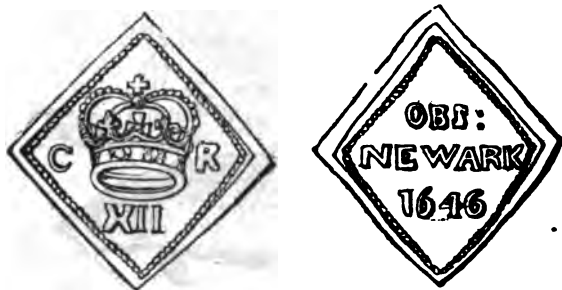
THE joy, resulting from the diffusion of blessings to all around us, is the purest and sublimest that can enter the human mind, and can be conceived only by those who have experienced it. Next to the consolations of divine grace, it is the most sovereign balm to the miseries of life, both in him who is the object of it, and in him who exercises it; and it will not only soothe and tranquillise a troubled spirit, but inspire a constant flow of good humour, content, and gaiety of heart.—BISHOP PORTEUS.

THE tender parent, whose breasts have nourished, and whose prayers have blessed us, slumbers in the dust. The lovely child, whose life and qualities were just expanding to view, is cropped by an untimely blast. The friend of our bosoms, who was dear to us as our own souls, is gone, irrecoverably gone, to that bourn, whence no traveller returns. We think with sadness, that they once were. We sigh with anguish, that they will be here no more. But we shall go to them. We shall lie down in the grave together, and our ashes shall be mingled with theirs. In the morning of the resurrection, they will revive together. We shall appear with them before the throne of the Lamb. If we have been as little children, we shall enter with them into the kingdom of Heaven, where there shall be no more sorrow, separation, nor death; and God shall wipe away all tears from every eye.—DEMON.

THE strict honesty of the Bedawin among themselves is proverbial, however little regard they may have to the right of property in others. If an Arab's camel dies on the road, and he cannot remove the load, he only draws a circle in the sand round about, and leaves it. In this way it will remain safe and untouched for months. In passing through Wady Sa'l on our way to 'Akabah, we saw a black tent hanging on a tree: Tuweilib said it was there when he passed the year before, and would never be stolen. Theft, he said, was held in abhorrence among the Táwarah, but the present year the famine was so great that individuals were sometimes driven to steal food. He had just returned from Egypt with a camel-load of grain for his family, which he had put into one of their magazines as a place of safety, but it had all been stolen. Burckhardt relates that he was shown in Wady Humr a point upon the rocks, from which one of the Táwarah, a few years before, had cast down his son headlong, bound hand and foot, for an offence of the very same kind.—ROBINSON'S *Palestine*.

SIEGE-PIECES.

Once more by Newark's castle-gate,
 Long left without a warder,
 I stood, looked, listened, and with Thee
 Great Minstrel of the Border.—WORDSWORTH



NEWARK SIEGE-PIECE.

IN addition to the various sorts of money, both foreign and domestic, which we have considered in previous articles, we must now say a few words respecting those remarkable specimens of coin termed **SIEGE-PIECES**. They sometimes come under the appellation of **OBSDIONAL** money; because these pieces are made to serve the purpose of regular money in a town which is in a state of siege, or so blockaded as to be cut off from communication with the rest of the country.

The usage of coining money for the immediate use of a blockaded town is very ancient, and the pieces thus struck generally bear in their fabrication and material, evidences of the calamitous and bereaved condition which gave rise to their existence. They are mostly of bad metal, and rudely formed; an observation to which some exceptions of course occur, but they are not numerous. The shape of these coins, or medals, varies:—sometimes they are round, sometimes oval, and sometimes square; occasionally, even octagon or triangular, &c. The type and inscriptions vary equally. Some are engraved on both sides, which, however, is rare; by far the greater part having no reverse. The arms of the besieged city are often found on them, and sometimes those of the sovereign or governor; but it is most common to see the *name* of the town only (either entire or abridged), with the date and value. The earliest specimens of this kind of money at present known, are those which were struck at the commencement of the sixteenth century, in Italy, at the sieges of Pavia and Cremona, under Francis the First. In 1529, a mint of this description was formed at Vienna, then besieged by the Turkish Sultan, Soliman the Second. The first war between Spain and Holland produced a considerable quantity of obsidional coins. It is scarcely necessary to observe, that these coins had merely a temporary and local value, like the *Tradesmen's Tokens** already described. They did not, therefore, pass into perpetual or general currency; but were in fact a sort of token or obligation contracted by the governor or the magistrates of the blockaded place, to meet the exigencies of the particular time.

We cannot but feel interested in remembering, that much of this obsidional money was put out by the Royalists, during the unhappy troubles and commotions which marked the reign of Charles the First. It is the more necessary for us to particularize, as we here refer back to the most engrossing times and events of our national history.

In regard to the unfortunate monarch just mentioned, we are told, that the unhappy situation of the king's affairs might be traced by his money, which grew worse and worse in the stamp, till at last they hardly deserved the name of *coins*; for they seemed to be rather the work of a smith (as perhaps they were), than of an en-

graver and coiner; it being manifest they were coined in the greatest hurry and confusion.

The principal English siege-pieces, of which specimens have come down to our times, are those stamped at Newark in 1643 and 1646, having the form of a lozenge, as may be seen at the head of this paper. Those stamped at the siege of Carlisle in 1645, are of an octangular shape. Of the Pontefract pieces, some are round, some octangular, and some lozenge-shaped. Another sort of money consisted merely of bits of silver-plate about an inch and a half long, with a rude representation of a castle stamped upon it, as that of Scarborough, as may be seen in the cut at the end of this article.

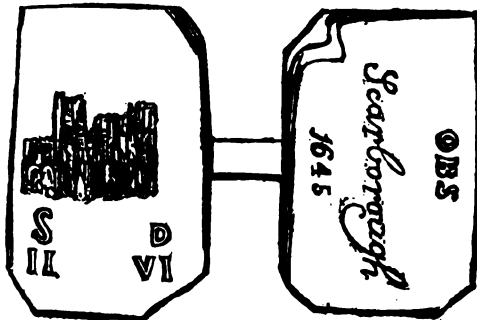
Newark, whose ancient castle, now in ruins, Wordsworth visited with his brother-poet, Sir Walter Scott, was held by a body of Royalists under the command of Sir John Henderson, at the beginning of the civil war. This town is in Nottinghamshire, and stands on an arm of the river Trent. In 1644, it was besieged by a body of Parliamentary forces under Sir John Meldrum and Lord Willoughby of Parham. Prince Rupert, advancing to relieve the place, surprised the besieged by the rapidity of his march, drove part of their forces over the Trent, and compelled another portion to capitulate, with all their artillery and ammunition. In the winter of 1644-5, it was again besieged by the Parliamentarians, but without success, the garrison having been relieved by Sir Marmaduke Langdale, who was sent by Prince Rupert for that purpose. The troops at Newark, now under Sir Richard Byron, being thus relieved from siege, were of material service to the King's cause in this part, beating some Parliamentary detachments, and keeping their posts in a state of alarm. Among other services, a detachment from this garrison assisted at the storming of Leicester in 1645. Not long after his defeat at Naseby, the king was at Welbeck, in the northern part of the county, and marched northward to Doncaster, with the view of joining Montrose in Scotland. Upon the arrival of a body of Scots, however, at Rotherham, the king retired to Newark, whither Sir Marmaduke Langdale had retreated after the battle of Naseby, in 1645. From Newark the King marched to Oxford, but was again at Newark in October, after the same year; and it was there that he was deserted by his nephews Rupert and Maurice, and by several of his officers. In November, being pressed by the approach of the Scots under the Earl of Leven, and by a body of Parliamentarians under Poyntz, from the west, he withdrew to Oxford. Newark was forthwith besieged by the Scots; and, in May, 1646, the King surrendered himself at Southwell to the Scotch commissioners, by whom he was conducted to the besiegers' quarters. The day after his arrival, Newark was delivered up by his orders.

The ancient and stupendous castle, once the glory, and still the ornament of Scarborough, was probably built in the reign of King Stephen. During the civil wars in the calamitous reign of Charles the First, this castle was twice besieged, and taken by the Parliamentary army. The first siege lasted for twelve months; and Sir John Meldrum, by whom the forces of Parliament were commanded, fell before the works. The command of the besieging army then devolved upon Sir Matthew Boynton, to whom Sir Hugh Cholmley, the governor, was obliged to surrender, on the 22nd of July, 1645. Colonel Boynton, the successor of the baronet, having declared for the King, the castle once more came into the hands of the Royalists; but, the garrison growing mutinous, the colonel was obliged to capitulate, and, on the 19th of December, 1648, the fortress was again surrendered to Parliament, and taken possession of in their name by Colonel Bethel. The castle, sharing the fate of its fellows, was dismantled by order of Parliament.

Scarborough is in the North Riding of Yorkshire,

* See Vol. XVII., p. 63, of this work.

and is situated in the recess of a beautiful bay on the shore of the German Ocean.



SINGER-PIECE OF SCARBOROUGH

HOOR-GLASS AND BIBLE.

Look, Christian! on thy BIBLE, and that glass,
Which abeds its sands through minutes, hours, and days,
And years; it speaks not: methinks it says
To every human heart,—“So mortals pass
On to their dark and silent grave!” alas!
For man:—an exile upon earth he strays,
Weary, and wandering through benighted ways;
To day in strength, to-morrow like the grass
That withers at his feet. “Lift up thy head,
Poor pilgrim, toiling in this vale of tears;
That Book declares whose blood for thee was shed,
Who died to give thee life; and though thy years
Pass like a shade, pointing to thy death-bed,
Out of the deep thy cry an angel hears,
And by his guiding hand thy steps to Heaven are led.”

BOWLES.

In accordance with a former promise, the old man (the Superior of the convent of Mount Sinai) put into our hands a small quantity of the manna of the peninsula, famous at least as being the successor of the Israelitish manna, though not to be regarded as the same substance. According to his account it is not produced every year; sometimes only every five or six years, and the quantity in general has greatly diminished. It is found in the form of shining drops on the twigs and branches (not upon the leaves) of the Turfa, (*Tamarix Gallica mansifera* of Ehrenberg,) from which it exudes in consequence of the puncture of an insect of the coccus kind, (*Coccus mansiparus* of the same naturalist.) What falls upon the sand is said not to be gathered. It has the appearance of gum, is of a sweetish taste, and melts when exposed to the sun or to a fire. The Arabs consider it as a great delicacy, and the pilgrims prize it highly, especially those from Russia, who pay a high price for it. The Superior had now but a small quantity, which he was keeping against an expected visit from the Russian consul-general in Egypt. Indeed, so scarce had it become of late years, as to bear a price of twenty or twenty-five piastres a pound.

Of the manna of the Old Testament it is said:—“When the dew that lay was gone up, behold, upon the face of the desert a small round thing, small as the hoar-frost on the ground,—and it was like coriander-seed, white; and the taste of it was like wafers with honey. And the people gathered it, and ground it in mills, and beat it in a mortar, or baked it in pans, and made cakes of it, and the taste of it was as the taste of fresh oil. And when the dew fell upon the camp in the night, the manna fell upon it.” Of all these characteristics not one is applicable to the present manna. And even could it be shown to be the same, still a supply of it in sufficient abundance for the daily consumption of two millions of people would have been no less a miracle.—ROBINSON'S *Palestine*.

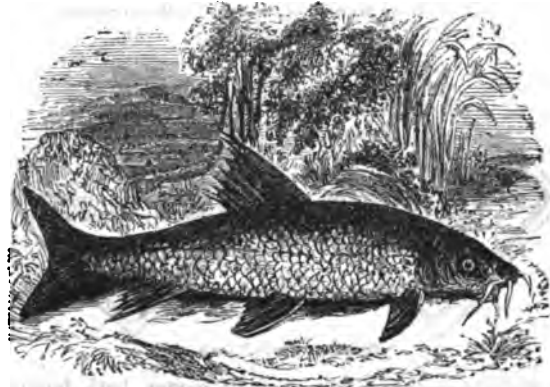
A MAN is seldom, if ever, unhappy for not knowing the thoughts of others; but he that does not attend to the motions of his own is certainly miserable.—MARCUS ANTONINUS.

WHEN to the angel's native home
The Father bids his children come,
Bids tears be dried, and sins forgiven,
Infant! of such as thou, is Heaven!—CROLY.

FRESH-WATER FISH.

VII.

THE BARBEL. (*Cyprinus Barbus*.)



THE name of this fish is derived from the *barbs*, *wattles*, or *cirri*, attached about its mouth. Many other fish are thus cirrated, and it appears probable that all such are ground-feeders, that is, they seek their food close to the bottom. In such genera as have these soft fleshy processes very highly developed, as in most of the *Siluridæ*, or cat-fish, they are employed to decoy others upon which they prey. The cat-fish, concealed from observation in the hollows of the bank, throws out his long cirri, which, being flexible, are mistaken for worms by other smaller fish, which are thus brought within reach of their true owner. They are much shorter among the cod-fish; and but slightly developed in the tench family. The long appendage rising from the nose of the frog-fishes (the genus *Lophius* of Linnæus), is analogous to these cirri.

It is probable, (says Mr. Swainson,) that these amphibious-looking creatures are the most imperfect swimmers in the whole class: and being carnivorous, this inaptitude for pursuing their prey is made up to them by a very long filament rising from the head, and terminated by a flat spoon-shaped enlargement, so as to bear a ludicrous resemblance to a fishing-line with a bait at the end: the fish lurks in its hole, and throws out this natural line, and thus attracts its prey. Its vulgar name of fishing-frog is, therefore, peculiarly expressive; for it not only angles, but it is of that type which represents the amphibious frogs among the aberrant fishes.

The term *barbel* seems to have been derived from the Latin *barba*, a beard; or, rather, *barbatulus*, having a little beard: thus Cicero speaks of the *Barbatulus nullus*. The barbel is called *barbello* in Italy; *barbeau* in France, where the diminutive *barbillon* is used to express a little barbel. The term barbel is also used in heraldry, but in a more extended sense; for the comb and wattles of the cock are said to be *barbel*, when of a different colour from the rest of the body. The fish barbel, in the coat of Bar, forms one of the quarterings of the arms of Margaret of Anjou, Queen of Henry the Sixth, and founder of Queen's College, Cambridge. She was daughter of René, duke of Anjou, titular king of Jerusalem. These arms are very beautifully painted in glass in the windows of Ockwells, in Berkshire*.

The cirri of the barbel are four in number, two hanging from the angles of the mouth, and two rather shorter attached to the upper jaw near the snout. This fish is remarkable for the great extension of the upper jaw beyond the lower, and this formation probably assists the animal in stirring up the ground in search of worms and insects.

The barbel is sometimes called the *bluish-white carp*: it is a handsome fish; its colour is of a slight silvery gray, with a darker cast on the upper parts; the scales middle-sized, rounded, and well-defined; the dorsal fin

* For an account of this beautiful mansion, see *Saturday Magazine* Vol. XVI., p. 90.

is rather small than large, situated on the middle of the back, and of a bluish-brown colour, with the second ray extremely strong, sharp, and serrated on both sides; the pectoral and ventral fins are pale brown and tipped with yellow; the tail is dull, purple, and forked; the snout or upper-lips reddish; the lateral line* straight or nearly so, and punctated with minute black dots. Mr. Blaine says, that—

There is to be observed (in full-grown barbels particularly) an incurvation of the last upper ray of the caudal fin or tail. With this the snared fish is able to make a very forcible attack on the line which holds him by a tail-stroke, in which this spinous hook first catches and then cuts it, and such a blow he will very frequently give if the line be allowed to slacken. The serrated dorsal spine, which bounds the second ray of that fin, forms also another offensive weapon both against nets and lines, and sometimes the hands of the angler suffer unless he be careful.

Walton also remarks, that—

The barbel affords an angler choice sport, being a lusty and a cunning fish; so lusty and cunning as to endanger the breaking of the angler's line, by running his head forcibly towards any covert, or hole, or bank, and then striking at the line to break it off with his tail; and also so cunning to nibble and suck off your worm close to the hook, and yet avoid the letting the hook come into his mouth.

The barbel is to be found in most of our rivers, as also in those of Middle and Southern Europe. Its most favourite haunts are in currents of moderate rapidity, which flow over gravelly beds and among large stones. These fish are gregarious, and lurk in shoals under the shelter of overhanging banks, or among the weed-beds of deep waters.

Under bridges in the strongest currents they may be seen, and counted one by one, apparently lying as fixtures, which has given rise to the custom of letting down hooks fixed on a lead, which, dropping among them occasionally, fastens one in a *foul* manner, as it is termed. They are unsuspecting in the extreme, and will often suffer themselves while grovelling in the gravel, to be caught up in this way. Piles, weirs, and locks, are likewise favourite resorts of theirs. Barbel are much in motion during the night, at which time they principally seek their food, for which their small penetrating eye gives facilities; and, if our observations are correct, the internal organization of their visual organ particularly fits it for crepuscular vision: that they are gifted with nocturnal vision in an eminent degree is certain, from the readiness with which they distinguish and take a bait during night-fishing. BLAINE.

While the barbel is boring and turning up the loose soil at the bottom of rivers in expectation of finding food for itself, small fish are seen, (according to Mr. Yarrell's observation,) attending it to pick up minute animalculæ in the removed earth.

The barbel varies from two to three feet in length, and from fifteen to eighteen pounds in weight. It spawns in May or June, and is very prolific. Barbel angling is a favourite spot with many, especially in the Thames and in the Lea; but as an article of food this fish is not esteemed: the roe is generally admitted to be poisonous, and cases are recorded where the flesh has produced inconvenient and even dangerous results to those who have eaten it. Other writers say, that both the roe and the flesh may be safely eaten; but we would caution our readers against both. During the spawning season fish are in general unwholesome, and the barbel probably more so than other fish; so that, if eaten at all times of the year, it may have proved injurious at one time and harmless at another, and hence, may have arisen the great diversity of opinion respecting the edible qualities of the barbel.

* "The lateral line, where it exists, as in the more typical groups, deserves much attention: the scales of which it is formed are always of a peculiar construction,—being perforated in the middle for the free issue of that mucous substance which is so prevalent among fish, and which is secreted in certain glands beneath: these scales are generally of a different shape from those of the body; and they have been recently employed by our best ichthyologists as additional aids for discriminating species, which otherwise bear a close resemblance." SWAINSON.

We will conclude our notice of the barbel with an amusing anecdote, related by Sir John Hawkins:—

Fishing for barbel is, at best, but a dull recreation. They are a sullen fish, and bite but slowly. The angler drops in his bait; the bullet, at the bottom of the line, fixes it to one spot of the river. Tired with waiting for a bite, he generally lays down his rod, and, exercising the patience of a setting-dog, waits till he sees the top of his rod move; then begins a struggle between him and the fish, which he calls his sport; and that being over, he lands his prize, fresh baits his hook, and lays in for another.

Living, some years ago, in a village on the banks of the Thames, I was used, in the summer months, to be much in a boat on the river. It chanced that, at Shepperton, where I had been for a few days, I frequently passed an elderly gentleman in his boat, who appeared to be fishing, at different stations, for barbel. After a few salutations had passed between us, and we were become a little acquainted, I took occasion to inquire of him what diversion he had met with. "Sir," says he, "I have had but bad luck to-day, for I fish for barbel, and you know they are not to be caught like gudgeons." "It is very true," answered I, "but what you want in tale, I suppose you make up in weight." "Why, Sir," says he, "that is just as it happens: it is true I like the sport, and love to catch fish, but my great delight is in *going after them*. I'll tell you what, Sir," continued he, "I am a man in years, and have used the sea all my life [he had been an India captain], but I mean to go no more; and have bought that little house which you see there [pointing to it], for the sake of fishing. I get into this boat [which he was then mopping] on a Monday morning, and fish on till Saturday night, for barbel, as I told you, for that is my delight; and this I have done for a month together, and in all that while have not had one bite."

On the wild gorse
Look for the rose of Shiraz, ere ye seek
Knowledge or virtue from the ill-trained sons
Of blind indulgence, luxury, or pride.

Mrs. West.

THE beginning, and progress, and end of human life resemble the origin, and growth, and decay of a plant. We both of us, at first, arose from one common parent,—the Earth; into which we shall be again resolved. If we are not blasted in the bud of life; or if, through the weakness of the frame and constitution, we are not bowed down again to the ground, still as we grow we are continually exposed to the storms and tempests that beat upon us, and break us down. Or should we be permitted to arrive at our full proportion of strength and height, and escape those diseases which impair our bloom, and those accidents which lie in wait to destroy us, yet in the course of Nature how soon do our organs decay, and the fountains of life dry up, our honours fall from our heads, and we languish, fade, and die!—Dr. JOHN TOTTIE.

THE BIBLE.—In every generation, and wherever the light of revelation has shone, men of all ranks, conditions, and states of mind, have found in this volume a correspondent for every movement toward the better felt in their own hearts. The needy soul has found supply, the feeble a help, the sorrowful a comfort; yea, be the reciprocity the least that can consist with mortal life, there is an answering grace ready to enter. The Bible has been found a spiritual world,—spiritual, and yet at the same time outward and common to all. You in one place, I in another, all men somewhere or at some time, meet with an assurance that the hopes and fears, the thoughts and yearnings that proceed from, or tend to, a right spirit in us, are not dreams or fleeting singularities, no voices heard in sleep, or spectres, which the eye suffers, but not perceives. As if on some dark night a pilgrim, suddenly beholding a bright star moving before him, should stop in fear and perplexity. But lo! traveller after traveller passes by him, and each, being questioned whither he is going, makes answer, "I am following you guiding star!" The pilgrim quickens his own steps, and presses onward in confidence. More confident still will he be, if, by the way-side, he should find, here and there, ancient monuments, each with its votive lamp, and on each the name of some former pilgrim, and a record that there he had seen or begun to follow the benignant star!—COLBRIDGE.

OPTICAL ILLUSIONS. V.

In our last paper on this subject, we brought before the reader the results of a series of experiments by Dr. Roget, and the very clear explanation which he gives of the causes of an apparent curvature in the spokes of a moving wheel, when seen through a series of parallel apertures. On the present occasion, we will direct our attention to various experiments performed by Professor Faraday as described a few years ago in a scientific journal.

Dr. Faraday notices several instances of phenomena bearing considerable resemblance to those described by Dr. Roget. Happening to be present in a large manufactory, he saw two cog-wheels which were moving with such velocity, that if the eye were retained immovable, no distinct appearance of the cogs in either could be observed; but upon standing in such a position that one wheel appeared behind the other, the distinct though shadowy resemblance of cogs moving slowly in one direction was immediately seen. He also adduces an instance of a somewhat similar kind, as having been witnessed by Mr. Brunel at the Thames Tunnel. Two small wheels being connected together, an endless rope which passed over and was carried by one of them, immediately returned and passed in the opposite direction over the other, and consequently moved the two wheels in opposite directions with great but equal velocities. When viewed from a particular position, they presented the appearance of a wheel with immovable radii.

Dr. Faraday, with that manipulative ingenuity which so distinguishes him in matters of science, devised means for illustrating many phenomena of this kind on a small scale. For instance, he suggests a mode of illustrating the phenomenon of the coach wheel, described by Dr. Roget. His plan is, to make a small wheel of pasteboard revolve before a black or dark-coloured ground; and whilst regarding the wheel fixedly, to traverse the space before it with a little barred grating also cut out of pasteboard. By altering the position of the grating and the direction of its motion, it will be seen that the straight lines in the wheel are always parallel to the bars of the grating, and that the convexity of the curved lines is always towards that side of the grating where its motion coincides in direction with the motion of the radii of the wheel. By varying the velocity of the wheel and the position of the grating, the curves present great variety of appearance.

A double wheel often presents a singular appearance. When the two wheels of a gig or carriage in motion are looked at from an oblique position, so that the line of sight crosses the axle, the space through which the wheels overlap appears to be divided into a number of fixed curved lines, passing from the axle of one wheel to the axle of the other. This is shown in an exceedingly pretty manner by the following arrangement, proposed by Dr. Faraday. Cut two equal wheels out of white cardboard, having an equal number of radii, from twelve to twenty or thirty, as in the annexed cut, fig. 1. Insert a large needle through their centres, so as to act as an axle for both, keeping them two or three inches apart. Revolve them between the fingers, and look at them in an oblique direction against a dark or black ground. The radii will then appear to have lost their individual existence, but will present the very curious appearance represented in fig. 2.

When a dark-coloured wheel of a carriage is moving on a light-coloured road, so that the sun shines almost directly on its broadside, and the wheel and its shadow are looked at obliquely, so that the one partly overlaps the other, then, in the overlapping part, luminous or light lines will be perceived curved more or less, and conjoining the axle and its shadow, if the wheel and shadow are superposed sufficiently; or, tending to do so, if they are superposed only in part: the appearance being the more perfect as the motion is more rapid. The mode

suggested for imitating this effect, is to make a pasteboard wheel, similar to that described in the last paragraph, to blacken it, to stick it on a pin, and to revolve it in sunshine or in candle-light before a sheet of white paper. An effect similar to that of fig. 3 may be thus produced.

Dr. Faraday contrived a very pretty machine, by which, with slight adjustments, a large variety of effects might be produced, more or less analogous to those which have engaged our attention. As some of our readers might possibly feel inclined to construct such an apparatus for themselves, we will give a representation of it, together with a description of the mode in which it was constructed.

A board was fixed upright upon the middle of another board, serving as a base. The upright board, represented by the framework of fig. 4, was cut so as to leave three vertical stems, one in the middle and two at the ends, forming points of support, which were supplied with little caps made of sheet copper, and bent into the shape of fig. 5. These copper caps, when in their places, furnish four bearings for the support of two axes, one on each side the middle. The axes are small pieces of steel wire tapered at the extremities; each has upon it a little roller or disk of soft wood, which, though it can be moved by force from one part of the axis to another, has still friction sufficient to carry the latter with it when turned round. These axes are made to revolve in the following manner. A circular copper plate about four inches in diameter has three pulleys of different diameter fixed upon its upper surface, whilst its lower surface is covered with a piece of sand-paper attached by cement. A hole is made through the centre of the plate and pulleys, and guarded by a brass tube, so fitted as to move steadily but freely upon an upright steel pin fixed in the middle of the centre wooden support; when the plate is in its place, it rests upon the two middle rollers belonging to the horizontal axes, whilst it is rendered steady by the upright pin. The plate can easily be turned round in a horizontal plane; and it then causes the two axes with their rollers, through the friction occasioned by the sand-paper, to revolve in opposite directions; and the velocities of these can be made either equal to each other, or to differ in almost any desired ratio, by shifting the rollers upon the horizontal axes nearer to or farther from the centre of the stand.

To produce motions of the axis in the *same* direction, an aperture was cut in the lower part of the upright board; a roller, turned for it, loosely fitted within the aperture; and a steel pin or rod passed as an axis through the roller. The roller hangs in its place by endless lines, made of thread, passing under it, and over little pulleys fixed on the horizontal axes; when, therefore, it is turned by the projecting pin, it causes the revolution of the axes. A variation in the velocities may be obtained by having the roller of different diameters in different parts, and by having pulleys of different dimensions.

This apparatus had to carry wheels either with cogs or spokes, according to the nature of the experiment about to be tried, and the arrangement of the wheels was as follows. The wheels were cut out of cardboard, with a diameter of about seven inches, and were formed with cogs or spokes at pleasure. A piece of cork, such as the end of a phial cork, about the tenth of an inch in thickness, was then fastened by a little soft cement to the middle of the wheel, and a perforation was made through the centre both of the cork and of the cardboard. The wheels could then at any time be put upon the axes, and, being held sufficiently firm by the friction of the cork, turned with them. By these arrangements the axes could be changed, or the wheels shifted, or the velocities altered, with very little trouble.

With such an apparatus as this Dr. Faraday made many curious experiments, all depending, in some degree

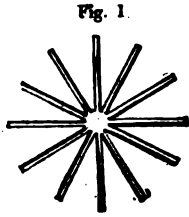


Fig. 1.

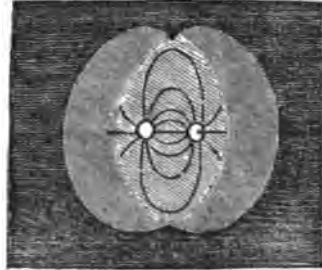


Fig. 2.



Fig. 3.

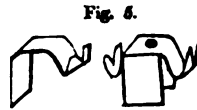


Fig. 4.

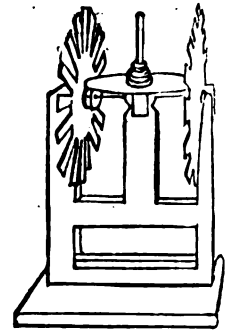


Fig. 5.

or other, on the principles before explained. Two equal cardboard wheels, with sixteen cogs each, were mounted in such a way as to have equal velocities, but in opposite directions. When put into motion, which was easily done by the thumb and finger, applied to the upper pulley of the horizontal copper plate, they presented each the appearance of an uniform tint at the part corresponding to the series of cogs or teeth, provided the eye was so placed as to see the whole of both wheels; but when such a position was chosen for the eye, that the wheels appeared to be superposed, then in place of an uniform tint, the appearance of teeth or cogs was seen,—misty, but perfectly stationary, whatever the degree of velocity given to the wheel. By cutting the cogs or teeth in the wheel nearest to the eye (the left one in the cut), deeper, the eye could be brought nearly into the prolongation of the axes of the wheels, and the phenomenon be seen in great completeness. The number of spectral teeth, if the term may be employed, presented to the eye under these circumstances, was exactly double the number of teeth in either wheel; thus a wheel with twelve teeth produced twenty-four black and twenty-four white alternations, giving the appearance of twenty-four teeth, with an equal number of intervening spaces. When one wheel was made to move a little faster than the other, by shifting the wooden roller on its axis, then the spectrum travelled in the direction of that wheel which had the greater velocity; and the greater the difference between the velocities of the two wheels, the faster did the spectral wheel appear to move. When the wheels were observed in such a direction that they only partially visually superposed each other, the effect took place only in those parts.

In another experiment wheels were fixed on the machine, consisting of radii or spokes, twelve in number, equal in length and width. When revolved alone, each wheel gave, with a certain velocity, a perfectly uniform tint, but when visually superposed there appeared a fixed wheel, having twenty-four spokes, equal in dimensions to the original spokes. Variations of the positions of the eye, or of the relative velocity of the two wheels, caused corresponding differences to occur in the spectral wheel.

In observing these effects Dr. Faraday states that either the wheels should be black or in shade, whilst the part beyond is illuminated, or else that the wheels should be white and enlightened, whilst the part beyond is in deep shade. The cog-wheels present nearly the same appearance in both cases, though in reality the parts of the spectrum which appear darkest by the one method are lightest by the other. The spoke wheels give a spectrum having white radii in the first method, and dark radii in the second. Placing the wheels between the eye and the clouds, on a white wall, or a lunar lamp, answers well for the first method, and for the second, merely reversing the position, and allowing the light to shine on the parts of the wheel towards the eye, whilst the back-ground is black.

In our next paper we shall describe other experiments relating to this singular subject, made by Dr. Faraday, and shall also state the mode in which that philosopher, acquiescing in the opinion of Dr. Roget, explains and accounts for the production of these phenomena.

WHAT a fine moral does Milton inculcate throughout his *Paradise Lost*, by showing that all the weakness and pain of the rebel angels was the natural consequence of their sinning. And it may in general be observed of Milton, that he is scarcely ever so far hurried on by the fire of his muse, as to forget the main end of all good writing, the recommendation of virtue and religion.—*THYRA*.

"It has always appeared to me," says Dr. Johnson, "as one of the most striking passages in the visions of Quevedo, that which stigmatises those as fools who complain that they failed of happiness by sudden death. Quevedo asks, How can death be sudden to a being who always knew that he must die, and that the time of his death was uncertain!"

THE names of Horeb and Sinai are used interchangeably in the Pentateuch, to denote the mountain on which the Law was given; and this circumstance has naturally occasioned difficulty to commentators. The most obvious and common explanation is, to regard one (Sinai) as the general name for the whole cluster, and the other (Horeb) as designating a particular mountain; much as the same names are employed by the Christians at the present day. So, too, the Arabs now apply the name *Jebel-et-Tûr* to the whole central granite region; while the different mountains of which it is composed are called *Jebel Kâtherin*, *Jebel Mûsa*, &c. On looking at the subjects during our sojourn at the convent, I was led to a similar conclusion; applying the names however differently, and regarding Horeb as the general name and Sinai as the particular one. Two circumstances seem to favour this conclusion. One is, that before and during the march of the Israelites from Egypt to the place where the Law was given, the latter is called only Horeb; just as the Arabs now speak of going from Cairo to *Jebel-et-Tûr*; while during the sojourn of the Hebrews before the mountain, it is spoken of (with one exception) only as Sinai; and after their departure, it is again referred to exclusively as Horeb. The other and main fact is, that while the Israelites were encamped at Rephidim, Moses was commanded to go on with the elders before the people, and smite the rock in Horeb, in order to obtain water for the camp. The necessary inference is, that some part of Horeb was near to Rephidim; while Sinai was yet a day's march distant.—*ROBINSON'S Palestine*.

THOU Uncreate, Unseen, and Undefined,
Source of all life, and Fountain of the mind,
Pervading Spirit! whom no eye can trace;
Felt through all time, and working in all space,
Imagination cannot paint that spot,
Around, above, beneath, where Thou art not!

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THE BANKS OF THE THAMES. VII.



HAMPTON BRIDGE.

If the reader have an opportunity of looking at a map of the course of the Thames, he will find that the point at which the river Wey enters the Thames is the most southern during its whole course. It is at that point that we resume our tour, between Chertsey and Oatlands.

Between Chertsey Bridge and the Wey, on the Surrey side of the river, is Woburn Park, a beautiful seat, the grounds of which were laid out as a *ferme ornée* by Mr. Southcote, whose talents in that species of gardening were thus apostrophised by Mason in his *English Garden*.—

On thee too, Southcote, shall the Muse bestow
No vulgar praise, for thou to humblest things
Could'st bring ennobling beauties: decked by thee,
The simple farm eclipsed the garden's pride,
E'en as the virgin blush of innocence
The mimicry of art,

Adjoining these grounds is Ham Farm, or Park, through which the river Wey finds its course to the Thames. This tributary, rising on the borders of Surrey, south-west of Haslemere, first takes its course by Liphook, in Hampshire: again entering Surrey it runs eastward to Godalming and Guildford, having been joined at Shalford by a stream which rises in the commons to the south of Wotton, and which, though small, supplies a great number of mills, besides embellishing many pleasure-grounds in its course. From Guildford the Wey passes north-eastward to Woking, leaves the town at a small distance on the north-west, then proceeds to

Weybridge, to which place it gives name, and there discharges itself into the Thames.

Eastward of Weybridge, and following the curvature of the river for some distance, is the manor of Oatlands, once belonging to the late Duke of York, and remarkable for the many hands into which it has passed. Before the time of Henry the Eighth it belonged to the family of Rede, one of the members of which exchanged it with the monarch for the manor of Tanbridge, in the same county. While royal property it was at intervals the residence of some branches of the royal family. Queen Elizabeth occasionally visited it; Ann, consort of James the First, here built a room called the silk-worm room. Charles the Second settled this manor on his mother, Henrietta Maria, for her life. The mansion had been much injured during the civil wars, and after the death of the queen, Charles granted a lease of it to the Earl of St. Albans. It next passed into the possession of Lord Chief-Justice Herbert, upon whose attainder it was granted to the Earl of Torrington. The next possessor and occupant was the Duke of Newcastle, from the descendant of whom the Duke of York purchased Oatlands.

We must now cross the Thames, and view the little village of Shepperton, the retreat of many an adherent of Izaak Walton. The quiet and serene beauties of the neighbourhood are well calculated for the mind of such a man as "honest Izaak," who learned the art of angling on the banks of the Thames, and whose *Angler's Wish*

points out the spots, the employments, and the associations which delighted him,

I in these flowery meads would be :
 These crystal streams should solace me,
 To whose harmonious bubbling noise
 I with my angle would rejoice.
 Or, on that bank, feel the west wind
 Breathe health and plenty, please my mind,
 To see sweet dew-drops kiss these flowers,
 And then washed off by April showers :
 Here hear my Kenna sing a song ;
 There see a blackbird feed her young,
 Or a laverock build her nest :
 Here give my weary spirits rest,
 And raise my low-pitched thoughts above
 Earth, or what poor mortals love :
 Thus free from law-suits, and the noise
 Of princes' courts, I would rejoice,
 Or with my Bryan and a book
 Loiter long days near Shawford brook ;
 There sit by him and eat my meat,
 There see the sun both rise and set ;
 There bid good morning to next day,
 There meditate my time away
 And angle on, and beg to have
 A quiet passage to a welcome grave.

While speaking of this prince of anglers, we may remark that the Thames, near the spot at which we have now arrived, abounds with almost every different species of fish that is to be found in other British rivers, such as perch, eels, roach, dace, bleak, barbel. The roach, it is said, are never seen below London bridge; the others are found as low as the water continues fresh. Flounders are seldom found above Fulham, whither they are conveyed by the tide. The salmon appears in the river about the middle of February, its capture being prohibited during certain of the autumnal and winter months. The shad, like the salmon, is a fish of passage; it appears about the beginning of June, the usual weight being from four to five pounds.

Again we cross to the Surrey side of the river, and pay a passing visit to the town of Walton. It has been stated, but on what grounds we do not know, that Walton was formerly in the county of Middlesex, but that, three or four hundred years ago, the old channel of the Thames was changed by an inundation, by which also a church was destroyed. At about a furlong above the bridge, at Walton, is a place called Cowey Stakes, where, according to some authorities, Cæsar passed the Thames. Stout stakes, driven into the bed of the river at this place, have been a source of much conjecture and discussion. Bede stated that the Britons had stationed themselves on the other side of the river, and had fenced the bank with sharp stakes, securely driven into the ground: these stakes he describes as being as thick as a man's thigh, and as being soldered or pointed with lead at the bottom, as if to make them penetrate more easily into the ground. It has, however, been justly observed by others that the object of driving these stakes could hardly have been the prevention of Cæsar's attempt to cross the river, since the stakes range directly across from bank to bank. Others have supposed that they are merely remains of a fishing-weir. Mr. Bray, the historian of Surrey, was informed by a fisherman, who had lived at Walton, and known the river all his life, that at this place he had taken up several stakes, of the thickness of his thigh, about six feet long, shod with iron, the wood very black, and so hard as to turn the edge of an axe. Mr. Speaker Onslow had a set of knife and fork handles made from them, which, when worked, were as black, hard, and heavy, as ebony. Whatever might have been the purpose for which these stakes were driven into the river, the remains of Roman camps in the neighbourhood seem to afford some support to the opinion that this was the spot at which Cæsar crossed the river.

Near Walton are the beautiful grounds of Paine's

Hill, long celebrated for the skill with which they were laid out by their proprietor, the Hon. Charles Hamilton. A considerable part of these grounds on the north side was taken from the barren heath; the south side was a bank above the river Mole, which runs at the foot of it. Availing himself of the inequalities of the land, he made his plantations and placed his buildings with the utmost judgment, and formed a spacious piece of water, which, though considerably above the bed of the river, is supplied from it by a simple but ingenious contrivance. Horace Walpole, in his *Observations on Gardening*, speaks with much commendation of these grounds. He distinguishes—

Three kinds of gardens,—the garden which connects itself with the park, the ornamental farm, and the forest or savage garden, by which I mean that kind of Alpine scenery, composed almost wholly of pines and firs, a few birch, and such trees as assimilate with a savage and mountainous country. Mr. Charles Hamilton, at Paine's Hill, has in my opinion given a perfect example of this mode in the utmost boundary of his garden. All is great and foreign and rude, the walks seem not designed, but cut through the wood of pines, and the style of the whole is so grand, and conducted with so serious an air of wild and uncultivated extent, that when you look down on this seeming forest, you are amazed to find only a few acres.

The church at Walton contains the tombs of several persons of some notoriety, among whom is William Lilly, the Astrologer. In the chancel are preserved several brass plates, which serve to record a very singular feat of activity. They appear to have been once laid over a grave stone. On one of these plates, John Selwyn, his wife, and eleven children, are represented in a praying posture; on another plate he is seen seated on the back of a stag, holding by one of the animal's horns with his left hand, and plunging a sword into its neck with his right. It appears, from a black-letter inscription, that this John Selwyn was under-keeper of the park at Oatlands, in the reign of Queen Elizabeth: the bugle-horn, the badge of his office, is apparent on the plates. This man, according to a tradition which seems to be supported by the testimony of the monument, was extremely famous from his strength, agility, and skill in horsemanship, specimens of all of which he exhibited before the queen, at a grand stag-hunt in that park. While attending at the hunt, as was the duty of his office, he, in the heat of the chase, suddenly leaped from his horse, upon the back of the stag, both running at the same time with the utmost speed, and not only kept his seat gracefully, in spite of every effort of the affrighted beast, but, drawing his sword, guided him with it towards the queen, and when near to her, plunged it into his throat, so that the stag fell dead at her feet.

Proceeding down the river from Walton, the view on either side is bounded by the osiers with which its banks are thickly covered, till the elegant village of Sunbury appears, presenting a long range of fine domestic structures, among which Sunbury Place, at its eastern extremity, is seen to great advantage from the river. This mansion, some years ago the residence of the Hon. Percy Wyndham, has four fronts, with a pavilion at each corner. The grounds are extensive, and the pleasure-lawn and plantations disposed with considerable taste and judgment. The ornamental dwellings of this handsome village are not confined to the margin of the river. The road leading northward to the common is bordered by many detached villas, with good continuous pleasure-grounds, and such likewise occur in other parts of the parish. Kempton Park contains an extensive mansion, built, in imitation of the Gothic style, by the late Mr. Hill, proprietor of the gunpowder mills on Hounslow Heath. On this domain stood a palace of our early kings, of the existence of which no tradition remains, though an inquisition, taken by order of Edward the Third, in 1331, and preserved among the records of

the Tower, describes it as having fallen into a dangerous state of dilapidation, and it was probably demolished at that time to save the expense of repairs.

The tourist next reaches Hampton Bridge, with the village of Hampton adjoining. In the reign of Edward the Confessor, Hampton belonged to Earl Algar, a powerful Saxon nobleman, and after the Norman Conquest it was held by Walter de St. Valeri, who probably gave the advowson of the living to the priory of Takely, in Essex, which was a cell to the abbey of St. Valeri, in Picardy, but the manor subsequently became the property of Sir Robert Gray, whose widow, in 1211, left it to the Knights Hospitallers, and they at one period had an establishment here for the sisters of that order. Three centuries afterwards it passed into the hands of the Crown, under circumstances which we shall detail when describing Hampton Court Palace.

The village of Hampton stands about one mile and a half from the palace, on the north side of the Thames. It contains several handsome villas, particularly one which belonged to the celebrated Garrick, on the lawn in front of which is a small temple dedicated to Shakspeare. Hampton Court Bridge, which is of wood, has a light and pleasing effect. There is also a ferry over the river at the village of Hampton, for carriages and foot-passengers.

By far the most attractive object at or near Hampton is Hampton Court Palace, a description of which we must defer to our next paper.

THE PATAGONIANS.

CAPTAIN KING, of H.M.S. *Adventure*, was engaged, with the expedition under his direction, for several years in surveying the southern shores of South America. The *Adventure* and the *Beagle* entered the Strait of Magalhens (commonly called Magellan,) in the latter end of December, 1826. This was, of course, the summer season of these regions. Captain King thus describes his first interview with the Patagonians.

In the evening an Indian was observed on horseback riding to and fro upon the beach, but the weather prevented my sending a boat until the next morning, when Lieut. Cooke went on shore to communicate with him and other Indians who appeared, soon after dawn, upon the beach. On landing, he was received without the least distrust. They were eight or ten in number, consisting of an old man and his wife, three young men, and the rest children, all mounted on good horses. The woman, who appeared to be about fifty years of age, was seated astride upon a pile of skins, hung round with joints of fresh guanaco meat* and dried horseflesh. They were all wrapped in mantles, made chiefly of the skins of guanacos. These mantles were large enough to cover the whole body. Some were made of skins of the zorillo, or skunk, an animal like the pole-cat, but ten times more offensive; and others, of skins of the llama.

The tallest of the Indians, excepting the old man, who did not dismount, was rather less than six feet in height. All were robust in appearance, and with respect to the length of body, and breadth of shoulders, of gigantic size; therefore, when on horseback, or seated in a boat, they appeared to be tall, as well as large men. In proportion to the parts above-mentioned, their extremities were very small and short, so that when standing they seemed but of moderate size, and their want of proportion was concealed by the mantle, which enveloped the body entirely, the head and feet being the only parts exposed.

When Mr. Cooke landed, he presented some medals (procured for the purpose of giving away to the Indians,) to the eldest man, and the woman; and suspended them round their necks. A friendly feeling being established, the natives dismounted, and even permitted our men to ride on their horses, without evincing the least displeasure at the advantage taken of their good nature.

Mr. Cooke returned to the ship with three natives, whom he had induced to go with us to Elizabeth Island; the others

* The flesh of the guanaco, or llama; which may be termed the wool of South America.

were to meet them and provide us with guanaco meat, to which arrangement the elders of the family had, after much persuasion, assented. At first they objected to their companions embarking with us, unless we left hostages for their safety; but as this was refused they did not press the point, and the three young men embarked. They went on board singing, in high glee.

While the ship was getting under way, I went ashore to a large number of Indians, who were waiting on the beach. When my boat landed they were mounted and collected in one place. I was surprised to hear the woman accost me in Spanish; of which, however, she knew but a few words. Having presented medals to each of the party, they dismounted (excepting the elders), and in a few minutes became quite familiar. By this time Capt. Stokes had landed, with several of his officers, who increased our party to nearly double the number of theirs; notwithstanding which they evinced neither fear or uneasiness. The woman, whose name was Maria, wished to be very communicative; she told me that the man was her husband, and that she had five children. One of the young men, whom we afterwards found to be a son of Maria, who was a principal person of the tribe, was mounted upon a very fine horse, well groomed, and equipped with a bridle and saddle that would have done credit to a respectable horseman of Buenos Ayres or Monte Video. The young man wore heavy brass spurs, like those of the Guacos of Buenos Ayres. The juvenile and feminine appearance of this youth made us think he was Maria's daughter, nor was it until a subsequent visit that our mistake was discovered. The absence of whiskers and beard gives all the younger men a very effeminate look, and many cannot be distinguished in appearance from the women, but by the mode in which they wrap their mantles around them, and by their hair, which is turned up and confined by a fillet of worsted yarn. The women cross their mantle over the breast like a shawl, and fasten it together with two iron pins or skewers, round which are twisted strings of beads and other ornaments. They also wear their hair divided, and gathered into long tresses or tails, which hang one before each ear; and those who have short hair, wear false tails made of horse-hair. Under their mantle the women wear a sort of petticoat, and the men a triangular piece of hide instead of breeches. Both sexes sit astride, but the women upon a heap of skins and mantles when riding. Both sexes wear boots made of the skins of horses' hind legs, of which the parts about the hock-joints serve for the heels.

The only weapons which we observed with these people were the bolas, or balls, precisely similar to those used by the Pampas Indians; but they are fitter for hunting than for offence or defence. Some are furnished with three balls, but, in general, there are only two. These balls are made of small bags or purses of hide, moistened, filled with iron pyrites, or some other heavy substance, and then dried. They are about the size of a hen's egg, and attached to the extremities of a thong, three or four yards in length. To use them, one ball is held in the hand, and the other swung several times round the head until both are thrown at the object, which they rarely miss. They wind round it violently, and, if it be an animal, throw it down. The bolas, with three balls, similarly connected together, are thrown in the same manner.

As more time could not be spared, we went on board.—The wind having been very strong and against the tide, the ship had much motion, which made our Patagonian passengers very sick. The next day, the wind proved contrary, and the Patagonians showed much uneasiness at being kept on board so much longer than they expected; but, as they seemed to understand the cause of their detention, and as their sickness ceased when we reached smooth water, they gradually recovered their good humour, and became very communicative. As well as we could understand their pronounciation, their names were Cojgh, Coichi, and Aighen. The Indians of Tierra del Fuego, with whom they are not on friendly terms, are designated by them Sapallios. This name was applied to them in a contemptuous manner.

Aighen's features were remarkably different from those of his companions. Instead of a flat nose, his was aquiline and prominent, and his countenance was full of expression. He proved to be good-tempered and easily pleased; and whenever a shade of melancholy began to appear, our assurance of landing him on the morrow, restored his good humour, which was shown by singing and laughing.

Coichi's head was long and flat, at the top; the forehead

broad and high, but covered with hair within an inch and a half of the eyebrow, which had scarcely any hair. The eyes were small, the nose was short, the mouth wide, and the lips thick. Neck short, and shoulders very broad. The arms were short, and wanting in muscle, as were also the thighs and legs. The body was long and large, and the breast broad and expanded; his height nearly six feet.

The next day we rounded Elizabeth Island, and reached Cape Negro, where we landed the Indians, after making them several useful presents, and sending some trifles by Aighen to Maria, who, with her tribe, had lighted large fires about the country behind Peckett's Harbour, to invite us to land. Our passengers frequently pointed to them, telling us that they were made by Maria, who had brought plenty of guanaco meat for us.

In the following May the *Adventure* was again in the same neighbourhood.

After the gale had abated, we proceeded with fair weather and a light breeze to the Second Narrow, when the wind fell; but the tide being in our favour we passed rapidly through. On a hill near us we observed three or four Patagonian Indians standing together, and their horses feeding close to them. A fire was soon kindled, to attract our notice, to which signal we replied by showing our colours; and had we not already communicated with these people, we should certainly have thought them giants, for they "loomed very large" as they stood on the summit of the hill. This optical deception must doubtless have been caused by mirage: the haze has always been observed to be very great during fine weather and a hot day, arising from rapid evaporation of the moisture so abundantly deposited on the surface of the ground, in all parts of the Strait.

As soon as the Patagonians found they were noticed, they mounted, and rode along the shore abreast of us, being joined by other parties, until the whole number could not have been less than forty. Several foals and dogs were with them. Having anchored in Gregory Bay, where I intended remaining for two days to communicate with them, I sent up a rocket, burnt a blue light, and dispatched Lieutenant Cooke on shore to ask for a large supply of guanaco meat, for which we would pay in knives and beads. The boat returned on board immediately, bringing four natives, three men, and Maria. This rather remarkable woman must have been, judging by her appearance, about forty years old; she is said to have been born at Assuncion, in Paraguay, but I think the place of her birth was nearer Buenos Ayres. She spoke broken, but intelligible, Spanish, and stated herself to be sister of Bysante, the cacique of a tribe near the Santa Cruz River, who is an important personage, on account of his size (which Maria described to be immense,) and his riches. In speaking of him, she said he was *very* rich; he had many mantles, and also many hides ("muy rico, tiene muchas mantas y tambien muchos cueros.") One of Maria's companions, a brother of Bysante, was the tallest and largest man of this tribe; and though he only measured six feet in height, his body was large enough for a much taller man. He was in great affliction; his daughter had died only two days before our arrival; but, notwithstanding his sad story, which soon found him friends, it was not long before he became quite intoxicated, and began to sing and roar on the subject of his misfortunes, with a sound more like the bellowing of a bull than the voice of a human being. Upon applying to Maria, who was not quite so tipsy as her brother, to prevent him from making such hideous noises, she laughed and said, "Oh, never mind, he's drunk, poor fellow! his daughter is dead," (Es boracho, povrecito, murio su hija); and then, assuming a serious tone, she looked towards the sky, and muttered in her own language a sort of prayer or invocation to their chief demon, or ruling spirit, whom Pigafetta, the companion and historian of Magalhaens, called *Setebos*, which Admiral Burney supposes to have been the original of one of Shakespeare's names in the *Tempest*:—

..... His art is of such power,
He could control my dam's god Setebos.

Maria's dress was similar to that of other females of the tribe; but she wore ear-rings, made of medals stamped with a figure of the Virgin Mary, which with the brass pin that secured her mantle across her breast, were given to her by one Lewis, who had passed by in an American sailing vessel, and who, we understood from her, had made them "Christians."

I accompanied Maria to the shore. On landing, she conducted me to the place where her family were seated round her property. They consisted of Manuel, her husband, and

three children, the eldest being known by the appellation of Capitan Chico, or "Little Chief." A skin being spread out for me to sit on, the family and the greater part of the tribe collected around. Maria then presented me with several mantles and skins, for which I gave in return, a sword, remnants of red baize, knives, scissors, looking-glasses, and beads: of the latter I afterwards distributed bunches to all the children, a present which caused evident satisfaction to the mothers, many of whom also obtained a share. The receivers were selected by Maria, who directed me to the youngest children first, then to the elder ones, and lastly to the girls and women. It was curious and amusing to witness the order with which this scene was conducted, and the remarkable patience of the children, who, with the greatest anxiety to possess their trinkets, neither opened their lips, nor held out a hand, until she pointed to them in succession.

Having told Maria that I had more things to dispose of for guanaco meat, she dismissed the tribe from around me, and, saying she was going for meat, mounted her horse, and rode off at a brisk pace.

On her return, with a very small quantity of guanaco meat, her husband told her that I had been very inquisitive about a red baize bundle, which he told me contained "Cristo," upon which she said to me, "Quiere mirar mi Cristo?" (Do you wish to see my Christ?) and then, upon my nodding assent, called around her a number of the tribe, who immediately obeyed her summons. Many of the women, however, remained to take care of their valuables. A ceremony then took place. Maria, who by the lead she took in the proceedings, appeared to be high priestess as well as cacique of the tribe, began by pulverising some whitish earth in the hollow of her hand, and then taking a mouthful of water, spat from time to time upon it, until she had formed a pigment, which she distributed to the rest, reserving only sufficient to mark her face, eyelids, arms, and hair with the figure of the cross. The manner in which this was done was peculiar. After rubbing the paint in her left hand smooth with the palm of the right, she scored marks across the paint, and again others at right angles, leaving the impression of as many crosses, which she stamped upon different parts of her body, rubbing the paint and marking the crosses afresh, after every stamp was made.

The men, after having marked themselves in a similar manner (to do which some stripped to the waist, and covered all their body with impressions), proceeded to do the same to the boys, who were not permitted to perform this part of the ceremony themselves. Manuel, Maria's husband, who seemed to be her chief assistant on the occasion, then took from the folds of the sacred wrapper an awl, and with it pierced either the arms or ears of all the party, each of whom presented in turn, pinched up between the finger and thumb, that portion of flesh which was to be perforated. The object evidently was to lose blood, and those from whom the blood flowed freely showed marks of satisfaction, while some whose wounds bled but little underwent the operation a second time.

When Manuel had finished he gave the awl to Maria, who pierced his arm, and then, with great solemnity and care, muttering and talking to herself in Spanish, (not two words of which could I catch, although I knelt down close to her, and listened with the greatest attention,) she removed two or three wrappers, and exposed to our view a small figure, carved in wood, representing a dead person, stretched out. * * * * Each family possesses its own household god, a small wooden image, about three inches in length, the rough imitation of a man's head and shoulders, which they consider as the representative of a superior being, attributing to it all the good or evil that happens to them.

A GENTLEMAN, who had recently become known to the bishop, asked me one day to let him look into a copy of the *Protestant Kempis*. He opened the volume at p. 259, and, pointing to a note at the foot of the page, he observed that "he knew a family, which had been led to study the works of Bishop Taylor, (whom previously they had known only by name,) by that single note of Bishop Jebb." His quotation made so deep an impression, that the family in question procured Taylor's works on the strength of it; and had since become intimately conversant with his writings. The anecdote is a proof of the service which may be rendered, in a line or two, where taste and judgment are directed to the promotion of good. This one quotation was, probably, more effective than the most laboured panegyric.—FOSTER'S *Life of Bishop Jebb*.

THE HAWK-MOTH.

The helpless crawling caterpillar trace
From the first period of his reptile race;
Clothed in dishonour, on the leafy spray
Unseen, he wears his silent hours away,
Till satiate grown of all that life supplies,
Self taught the voluntary martyr dies.
Deep under earth his darkling course he bands,
And to the tomb a willing guest descends:
There long secluded in his lonely cell
Forgets the sun, and bids the world farewell:
O'er the wide waste the wintry tempests reign,
And driving snows usurp the frozen plain:
In vain the tempests beat, the whirlwind blows.
No storms can violate his grave's repose.
But, when revolving months have won their way,
When smile the woods, and when the zephyrs play,
When laughs the vivid world in Summer's bloom,
He bursts and flies triumphant from the tomb;
And while his new-born beauties he displays,
With conscious joy his altered form surveys;
Mark while he moves amid the sunny beam,
O'er his soft wings the varying lustre gleam;
Launched into air on purple plumes he soars,
Gay natures face with wanton glance explores,
Proud of his various beauties wings his way,
And spoils the fairest flowers, himself more fair than they!
And deems weak man the future promise vain,
When worms can die, and glorious rise again?



Sphinx Nerion

THE Sphinxes, or Hawk-moths, belong to a very interesting family of lepidopterous* insects; which family has been named Crepuscularia, from the circumstance that many of the species are observed chiefly during the morning and evening twilight. These insects are distinguished by the antennæ, which are prismatic or fusiform, and usually thickest in the middle. Their colours are in general agreeably varied, the under wings being often banded. They fly with great strength and celerity, owing to the extent and firm consistence of their wings, the powerful muscles by which they are moved, and the bird-like manner in which their taper bodies are poised. During flight they produce a strong humming noise, occasioned by the rapid vibration of these wings, which renders their approach easily perceptible. Instead of settling upon flowers, like bees and other insects, they are frequently observed merely to hover over or before them, and to extend their long tubular trunks towards the nectaries. This peculiar hovering motion has obtained for them the appellation of *Hawk-moths*. The motions of one of these insects is beautifully described by Miss Mitford, who, in noticing her garden, traces "the gay gambols of the common butterflies, as they sport around the dahlias, or watches that rarer moth, which the country-people, fertile in pretty names, call the bee-bird; that bird-like insect which flutters in the hottest days over the sweetest flowers, inserting its long proboscis into the small tubes of the jasmine, and hovering over the scarlet

* The insects of this order were named by Linnaeus LEPIDOPTERA, or winged with scales; that is, the wings are covered with imbricated scales or feathers, presenting to the naked eye only the appearance of mere particles of dust or powder, but exhibiting under the microscope a regular series of scales or feathers, peculiar, as to shape or size, to each species.

flowers of the geranium, whose bright colour seems reflected on its own feathery breast; that insect which seems so thoroughly a creature of the air, never at rest, always when feeding self-poised and self-supported, and whose wings in their motion have a sound so deep, so full, so lulling, and so musical; nothing so pleasant as to sit amid that mixture of the flower and the leaf, watching the bee-bird."

The caterpillars of these moths vary greatly in their forms, especially in the fore-part of the body. In some this part is susceptible of great elongation, like the trunk of an elephant, whence those species are called elephant hawk-moths. This motion is effected when the insect is feeding or seeking food, at which time the neck assumes a narrow conical form, truncated in front, the head and face forming the truncated part; when in repose they withdraw this elongation. Other species elevate the fore-part of the body, while the rest of the body is applied flat to the surface on which it rests, which posture, resembling that of the Egyptian sphinx, has furnished a name to the insects. In some the skin is of so tough or flexible a texture, as to be capable of bearing great pressure without injury. Bonnet pressed the grub of the privet hawk-moth under water, till it was as flat and empty as the finger of a glove, yet within an hour it became plump and lively, as if nothing had happened. These caterpillars have also a horn on the eleventh ring, directed backwards, and a little curved. This, from its figure and direction, has been supposed an offensive or defensive weapon; but no one has observed the insect make use of it for such purposes. Besides, though called a horn, it is of a fleshy substance, and too soft to inflict any injury.

The caterpillars of the hawk-moths are smooth, and furnished with sixteen legs, the ten posterior being called pro-legs†; they are of cylindrical form. They live solitarily, and feed on the leaves of vegetables. They are at first very active, and when disturbed, fall from the leaf upon which they were placed, suspending themselves by a thread; when more aged they become sluggish. They undergo the chrysalis state and make their cocoons in the earth, or upon its surface covered with leaves. The chrysalis state generally lasts seven or eight months.

One of the most elegant insects of this genus is the *Sphinx Ligustri*, or Privet hawk-moth. It is a large insect, measuring nearly four inches and a half from wing's end to wing's end; the upper wings are of a brown colour most elegantly varied or shaded with deeper and lighter streaks and patches; the under wings and body are of a fine rose colour, barred with transverse black stripes. The caterpillar, which is very large, is smooth, and of a fine green, with seven oblique purple and white stripes along each side; and furnished at the hinder part with the horn referred to above. This beautiful caterpillar is often found in the months of July and August feeding on the privet, the lilac, the poplar, and some other trees, and generally changes to a chrysalis in August or September, retiring for that purpose to a considerable depth beneath the surface of the ground, and after casting its skin, continuing during the whole winter in a dormant state, the sphinx emerging from it in the succeeding June.

Sphinx ocellata is perhaps still more beautiful: it is rather smaller than the preceding: the body is brown, as also the wings, which are finely clouded with different shades, while the lower wings are of a bright rose colour, each marked with a fine ocellated black spot, with a blue

† Those caterpillars which spin silk, often escape a fall or elude danger by means of the silken line which they produce. With this line they often drop through a space of several feet, and frequently disappoint a bird that has marked them out for a prey. When the danger is over, the caterpillar returns to its former situation by climbing its silken cable, for which purpose its fore-legs are furnished with a curved claw; while the pro-legs, as they are called, are well adapted for holding it firm to the branch when it has regained it, the pro-legs being constructed on the principle of forming a vacuum, like the leather sucker with which boys lift and drag stones. So difficult is it to remove a caterpillar from a branch without injury, that collectors usually cut off the branch and bear the insect away upon it.

interior circle, and a black centre. This insect proceeds from a green caterpillar of a rough or shagreen-like surface, marked on each side by seven oblique yellowish-white streaks, and furnished like the preceding with a horn at the tail. It is principally found on the willow; it retires underground in August or September to undergo its changes, and re-appears in the following June as a perfect insect.

The most remarkable of all European insects of this genus is the *Sphinx Atropos* of Linnaeus. This is larger than the two former; the upper wings are of a fine dark grey, with slight markings of orange and white; the under wings are bright orange, marked by a pair of transverse black bands: the body is also orange-coloured, marked at the sides with black bars, while along the top of the back from the thorax to the tail runs a broad blue-grey stripe: on the top of the thorax is a very large patch, of a most singular appearance, exactly resembling the usual aspect of a skull, or death's head; it is of a pale grey, varied with dull ochre colour and black. This peculiar appearance has given to the insect the name of the Death's-head moth, a figure of which may be seen by referring to *Saturday Magazine*, Vol. I., p. 69, with some ingenious remarks thereon by the author of the *Journal of a Naturalist*.

When in the least disturbed or irritated, this insect emits a stridulous sound, something like the squeaking of a bat or mouse, and from this circumstance, as well as the symbol of mortality which is impressed upon it, it is held in much dread by uneducated persons in several parts of Europe, its appearance being regarded as a kind of ill omen, or harbinger of approaching fate. We are informed by the celebrated Reaumur, that the members of a female convent in France were thrown into great consternation by the appearance of one of these insects, which happened to fly in during the evening at the door of the dormitory. A number of these insects appeared some years ago in the province of Bretagne to the great terror of the peasants, who believed them to be the cause of certain epidemic maladies, which then prevailed in that country. In the Isle of France the natives believe that the dust cast from the wings of this insect in flying through an apartment, is productive of blindness to the visual organs on which it falls.

The caterpillar from which this curious sphinx proceeds, is in the highest degree beautiful, and far surpasses in size every other European insect of the kind. It sometimes measures nearly five inches in length, and is of considerable thickness: its colour is bright yellow; the sides are marked by a row of seven most elegant broad stripes or bands of a mixed violet and sky-blue colour; the tops of these bands meet on the back in so many angles, and are varied on that part with jet-black spots: it is furnished with the usual horny appendage on the last joint.

This caterpillar is principally found on the potato and the jasmine, these plants being its favourite food. It usually changes into a chrysalis at the latter end of the month of August, and the complete insect emerges in the following month: but some individuals have been observed to remain unchanged till the following summer.

S. hippophaes is an inhabitant of Dauphiny: the larva, either to avoid the glare of light, or the attacks of enemies, conceals itself during the day beneath the dead leaves at the roots of trees, and emerges only at night for the purpose of seeking food.

The sphinx affords a striking emblem of the change which we ourselves shall undergo, when our present life has terminated. When the first period of the insect's life has passed, it retires to the earth, and there remains buried during several months; it then rises to the surface, and bursting from the confinement of its tomb, commences a being of powers comparatively so exalted,

and of beauty so superior, as not to be beheld without the highest admiration.

The plan of nature, in creating these sylph-like inhabitants of air is wonderful indeed. Who could ever pre-suppose that so lively, delicate, and brilliant an insect as a butterfly, so airy in its habits, and so fastidious in its food, should be derived from a crawling, voracious worm! The butterfly, on issuing from its cocoon, is entirely formed. Nothing of its prior state remains. Its figure, its habits, all, in a word, is so changed, that it can no longer be recognised. The butterfly is agility itself, and grace personified. It appears to disdain the earth, and in its magnificent robe to seek the skies, while it is sustained with nectar like the fabled divinities of old. Issuing from its dark cradle, it seems to rejoice in its new-born existence, to court the sun-beam, or delight in recognising the groves or fields where its laborious infancy had been passed. Its life is now a scene of perpetual enjoyment. It wanders from flower to flower, continually in pursuit of the pleasures of novelty and change.—GRIFFITH'S CURVER.

In March last, as I was repairing to the native village of Bustem, to survey a bridge which was thrown across the road, on my route from the station of Jellawore, on crossing the Soubunreeka river, my attention was attracted to a number of human skeletons, which lay scattered in various directions upon the white sands adjacent to the course of the stream. Upon inquiry I learned that these unfortunate relics were the remains of pilgrims who were on their road to the great pagoda of Juggernaut, and had been drowned two evenings before by means of a ferry-boat sinking with them during a violent north-wester. On my approaching several of these sad vestiges of mortality, I perceived that the flesh had been completely devoured from the bones by Pariah dogs, vultures, and other obscene animals. The only portion of the several corpses I noticed that remained entire and untouched were the bottoms of the feet and the insides of the hands, and this extraordinary circumstance immediately brought to mind that remarkable passage recorded in the Second Book of Kings, relating to the death and ultimate fate of Jezebel, who was, as to her body, eaten of dogs, and nothing remained of her but the "palms of her hands and the soles of her feet." The former narrative may afford us corroborative proof of the rooted antipathy that the dog has to prey upon the human hands and feet. Why such should be the case remains a mystery.—From an Indian Correspondent of the Times.

On all sides, are we not driven to the conclusion that, of the things which man can do or make here below, by far the most momentous, wonderful, and worthy are the things that we call Books! These poor bits of rag-paper, with black ink on them, from the daily newspaper to the sacred Hebrew Book, what have they not done! what are they not doing! For, indeed, whatever be the outward form of the thing, (bits of paper, as we say, and black ink) is it not verily, at bottom, the highest act of man's faculty that produces a book? It is the Thought of man,—the true thaumaturgic virtue, by which man works all things whatsoever. All that he does, and brings to pass, is the vesture of a Thought. This London City, with all its houses, palaces, steam-engines, cathedrals, and huge immeasurable traffic and tumult, what is it but a thought,—but millions of thoughts made into one,—a huge immeasurable spirit of a Nation, embodied in brick, in iron, in stone, in dust, in palaces, in parliaments, in Hackney coaches, in Katherine Docks, and the rest of it! Not a brick was made but some man had to think of the making of that brick. The thing we called "bits of paper with traces of black ink" is the purest embodiment a thought of man can have. No wonder it is, in all ways, the active and noblest.—CARLILE.

DURING the preceding year Tweedie had spent a fortnight in and near the great plain of K. S. A. near the Mount Serbal, pasturing his camels, without a drop of water for himself or them. He drank the milk of the camels; and they, as well as sheep and goats, whom they have fresh pasture, need no water. In such a case they will sometimes go for three or four months without it. Others had told us that the camel needs water once in every three days in summer, and every five days in winter, but this is probably when the pastures are dry, or when they are fed on provender.—ROBINSON'S Palestine.

MAPS AND MAPPING. I.

PROGRESS OF MAP-MAKING.—ANCIENT MAPS,—
MAPS OF THE MIDDLE AGES.

O'er the map my finger taught to stray,
Cross many a region marks the winding way;
From sea to sea, from realm to realm I rove,
And grow a wiser geographer by love.

AMONG the many concerns which engage the intellectual attention both of those who tarry at home and those who travel abroad, whether for business or pleasure, MAPS are of essential importance. As the latter travel in reality, so the former may accompany them in imagination, and picture up the scenes which they describe. We propose, therefore, to furnish in this paper, for the general benefit of our readers, a concise detail of the history of maps, and, in two succeeding articles, a brief account of the principles on which they are usually constructed.

The word "Map" seems to have been derived from the Latin *mappa*, a table-napkin, which, in the public games of the Roman circus was hung out at the prætor's, or other great magistrate's seat, as a signal for the race, or other diversions, to begin. The *mappa* was received for this purpose by the *mapparius*, from the consul, prætor, or other great officer. Notice was anciently given by sound of trumpet, but Nero is said to have introduced the *mappa*, by throwing his napkin out of the window, to satisfy the people, who grew noisy at the delay of the sports while he was at dinner.

Without entering at present into a scientific definition of our subject, we may just state that maps have been ordinarily understood to be plane drawings, meant to represent the form, extent, position, and other particulars of the various countries of the earth. Such maps as have been intended to delineate more particularly the ocean, or any part of it, have commonly borne the name of "Charts."

It seems natural for man, even in the earliest stages of society, to endeavour to express, with more or less of proportion, the principal features of the countries in and about which he dwells. An intimation of this branch of the geographical art being in use among the Israelites is given at the beginning of the 18th chapter of the Book of Joshua: the description of the land of Canaan there spoken of was enjoined in the year 1444 B.C., and was made in order that the Jewish leader might apportion to the several tribes their respective inheritances. The Israelites must have derived their knowledge in this way from the Egyptians, as the Greeks drew their information from the Phœnicians, the great traders of antiquity, who, in the furtherance of their mercantile pursuits, had probably visited every spot of the then known earth.

The first person, however, who is spoken of as having constructed anything like a regular map of the world was Anaximander, the Milesian philosopher, who flourished in the sixth century before Christ. He also made Globes: he taught that the earth was of a cylindrical form; that men were born of earth and water mixed together, and heated by the beams of the sun; that the earth moved, and that the moon received light from the sun, which he considered as a circle of fire, like a wheel, about twenty-eight times bigger than the earth. He also made some of the earliest sun-dials.

Herodotus relates that certain Persians, commissioned by Darius the First, sailed from Sidon, in Phœnicia, to the coasts of Greece, which they examined, and transcribed, until they arrived as far as Tarentum, in Italy. They seem to have produced a sort of outline map: this took place about 500 B.C. Not long after, as we are told by the same writer, Aristagoras, visiting Cleomenes, king of Sparta, in order to solicit his assistance against the Persians, exhibited to the king a brazen plate or tablet, whereon the round earth was engraved, together

with the sea and all the rivers. The object in view was of course to explain to the Lacedæmonians the situation of Persia,—the probable route of the invading army,—and the nature and object of the desired assistance.

Itinerary maps of the places of encampment were almost indispensable to the commanders of armies. Diognetus and Beton are mentioned by Pliny, as the surveyors of the marches of Alexander, who was very careful in examining the measures of his surveyors, and in obtaining his descriptions from the most skilful persons.

The progress of map-making was very considerably advanced by Eratosthenes, who flourished in the third century prior to the Christian era. He was keeper or president of the Library at Alexandria. He has been called a second Plato, the cosmographer and the geometer of the world. He is supposed to be the inventor of the armillary sphere. With the instruments with which the munificence of the Ptolemies, kings of Egypt, supplied the Library of Alexandria, he was enabled to measure the obliquity of the ecliptic, which he called $20\frac{1}{4}^{\circ}$, it being in fact nearly $23\frac{1}{4}^{\circ}$. He also measured a degree of the meridian, and determined the extent and circumference of the earth with great exactness, by means adopted by the moderns. He introduced into his map a regular parallel of latitude, which he accomplished by tracing a line over certain places whose longest day was observed to be of the same length. This parallel extended from the Straits of Gibraltar to the mountains of India, passing through the island of Rhodes, and, from its central position with respect to the principal ancient nations, it became a standard of reference in the maps of this period. Succeeding geographers made many attempts to determine the longitude of places by measurements of this line, but with no great success. He also drew a meridian from Meroë, in Western Ethiopia, through Syene, to Alexandria, in Lower Egypt. At this time a connexion was made to subsist between astronomy and geography, so that the advancement of the former tended to the improvement of the latter. Hence it was that Hipparchus, who flourished about 150 B.C. by fixing the construction of maps on something like a mathematical basis, enabled the geographer to lay down his latitudes and longitudes upon certain principles.

The celebrated geographer Strabo, who died A.D. 25, furnishes us with the state of geography in the age of Augustus Cæsar. But the extent of the earth's surface known to this writer does not much exceed that which was known four or five centuries earlier. His map of the world exhibits some remarkable errors. He supposed the Pyrenees to run north and south; he cuts off the projecting province of Brittany from France,—places Ireland, not to the west, but to the north of Britain,—and makes the Caspian communicate with the Northern Ocean, though Herodotus had accurately described it as a lake. A very good illustration of the geography of the ancients may be seen in the frontispiece to No. 379 of this work.

A sort of map, or road-book, called an *Itinerary*, was much in use among the Romans at about the commencement of the Christian era. It resulted from the necessity for furnishing the leaders of armies with information of their destined route; and though these itineraries, or surveys, were made with considerable care, there are no traces of mathematical geography in those which have been handed down to us, the chief object in view being clear directions for the march of their armies.

All the provinces of the Roman empire had been surveyed when Ptolemy composed his system of geography, in the middle of the second century of the Christian era. This production is valuable; because he has therein carried into full practice, and to greater perfection, the system of latitudes and longitudes, published by the celebrated Hipparchus, about three hundred years before.

As Ptolemy derived his information respecting the

distances of places chiefly from itinerary measurements, which usually exceeded the truth, it is not surprising that his map of the world should exhibit enormous errors, more especially in places beyond the ordinary range of the Roman empire. He represents, for instance, the northern coast of Africa nearly as a straight line! He places Carthage 313 English miles to the south of its true place, and Constantinople 276 miles too far to the north. He also makes the Mediterranean sea about 1000 English miles longer than it really is! Some of the most distinguished and best known places in Europe have been set down 500 or 600 miles too far apart:—and, strange to say, many such gross inaccuracies continued in the maps till the beginning of the eighteenth century! But we have already noticed this subject in our second article on ANCIENT NAVIGATION: Vol. XIII., p. 208.

It seems not improbable that the maps found in the MSS. of Ptolemy, are really copies of, or derived from, original maps constructed by him, or under his care. So great an influence had this writer on the minds of most modern geographers until within 150 years ago, that many instances might be adduced, in which the authority of Ptolemy, who was but slightly acquainted with one half of the globe, was blindly submitted to in an age when Europeans wandered over its entire surface.

The itineraries of the Romans were of two kinds,—*Picta*, and the *Annotata*, the drawn and written: the latter contained the names of the stations and chief places from one another, without any detail; whereas, the former have all the graphic finish of a modern map. Of the former kind of itinerary, the most remarkable that remain to us, are the Itinerary of Antonine, the age of which it is difficult to ascertain; and the Itinerary of Jerusalem, a fragment which points out the whole route from Bordeaux to that city.

Of the painted itineraries, a fine specimen is still preserved in the Imperial Library of Vienna; and it has been engraved and published under the name of the *Peutingerian Table*. It was probably originally made about the time of the Emperor Severus, or in the year 230 A.D. The copy which at present exists, is thought to be the work of a monk of the thirteenth century; it owes its name to Conrad Peutinger, a citizen of Augsburg, to whom it formerly belonged, and by whom it was illustrated in a learned commentary. The countries marked on this map are not placed in it according to their geographical position, their respective limits, and their real size; they are ranged arbitrarily, one after the other from west to east, without any regard to figure, or latitude and longitude. This table, or picture, is about twenty-two feet long, and one foot broad.

Some curious particulars have come down to us illustrative of the geographical ignorance of the MIDDLE AGES. The maps of these times may be generally classed, first,—into those in which the notions of the ancients were adhered to; and secondly,—those which exhibited new discoveries or countries popularly believed to exist. Many maps, of the *first* class are extant, in which the old world is represented as one great island; Africa terminating to the north of the equator. Among maps of the *second* class are those which seem to show some important discoveries in the west of Europe and of Africa in the twelfth and thirteenth centuries.

The geography of the Arabians is but imperfectly known. Their most eminent geographer, Al Edrissi, who lived about the middle of the twelfth century, divided the world into seven climates, from the equator northward; and each climate was again divided into eleven equal parts, from the western coast of Africa to the eastern coast of Asia; the inconvenience of which arrangement is very obvious.

In the year 1383, two noble Venetians, named Zeni, having entered into the service of a prince of the Faroe Islands, which lie to the north of Scotland, drew up a

map to illustrate the account of their navigations in these seas.

In some of the old British maps, which are rude in design and execution, Scotland is represented as an island separated from England by an arm of the sea. Ireland is also divided in two by the river Boyne, which is represented as a canal connecting the Irish Channel with the Atlantic. The towns are drawn in these maps of a disproportionate size; and the abbeys, with their walls, gates, and belfries, occupy so great a space, as to leave little room for the rivers, boundary-lines, or places of less seeming importance.

We have elsewhere noticed the famous silver map of Charlemagne*; but one of the most curious geographical monuments of those times is a map preserved in the Library of Turin, attached to a manuscript copy of the Apocalypse, which was written in the year A.D. 787. It represents the earth as a plane bounded by a circular line, and divided into three unequal parts. To the south, Africa is separated by the ocean from a land called the *fourth division of the world*, where the antipodes dwell, and which the excessive heat of the torrid zone had hitherto prevented from being visited. At the four sides of the world are represented the figures of the four winds, each astride upon a pair of bellows, which he works, and at the same time, with a conch-shell applied to his mouth, he blows hurricanes, as may be conjectured from his distended cheeks. At the top of the map, which is the east, are Adam and Eve, the serpent, and the tree of forbidden fruit: at their right hand is Asia.

The maps of the middle ages erred as often from the love of mere systematical arrangement, as from want of information. This is shown in the map of Martino Sanudo, which was published at the beginning of the fourteenth century, and has *Jerusalem* as its centre.

Passing by many other old maps, which were executed before the discovery of America, by Columbus at the end of the fifteenth century, one remains to be noticed, which, if its reality were fully proved, would reduce the merit of that great navigator to the mere re-discovery of countries which were known, perhaps, a century before his time. This supposed discovery is indicated in a map constructed by Andrea Bianco in 1436, and preserved in the Public Library of Venice. In this map, in addition to much correct, false, and imaginative information, is represented, to the west of the Canary Islands, a country of great length, and of a quadrilateral form, to which is given the name of *Antilla*. This country, in the same situation and with the same name, is also found on the globe made by Martin Behaim, at the close of the fifteenth century. Many persons believe that the *Antilla* of Bianco was the continent of South America; while others maintain that it owed its existence wholly to the author's imagination. The maps of Bianco, however, contain much to interest us, independent of their intrinsic merit: in the first sheet of his collection is represented the mariner's compass, together with some nautical tables.

With the discovery of America, and consequent extension and improvement of geographical information, maps became more clear and correct, and began, at length, to be constructed on principles more in accordance with the precision of science, as we shall show in our next paper.

* See *Saturday Magazine*, Vol. XIII., p. 108.

A CERTAIN petulant Greek, objecting to Anacharis that he was a Scythian; "True," said Anacharis, "my country disgraces me, but you disgrace your country."

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SKETCHES OF CAIRO. III.



BEYN-EL-KASREYN, WITH THE MINARET OF THE TOMB OF SULTAN KALAOON.

SKETCHES OF CAIRO.

III.

THE mosques of Cairo are numerous, and some of them so large as to occupy spaces three or four hundred feet square. They are mostly built of stone, the alternate courses of which are generally coloured externally red and white. A large mosque commonly consists of porticoes surrounding a square open court, in the centre of which is a tank or fountain for ablution. One side of the building faces the direction of Mekkeh, and the portico on this side, being the principal place of prayer, is more spacious than those on the three other sides of the court. It has generally two or more rows of columns, forming so many aisles parallel with the exterior wall. Sometimes this portico like the other three is open to the court; in some cases it is separated from the court by partitions of wood, connecting the front row of columns. In the centre of its exterior wall is a niche, which marks the direction of Mekkeh; and to the right of this is the pulpit. Opposite the niche there is generally a platform surrounded by a parapet and supported by two small columns; and by it, or before it, are one or two seats, having a kind of desk to bear a volume of the Ckooan, from which a chapter is read to the congregation. The walls are generally quite plain, being simply white-washed; but in some mosques the lower part of the wall of the place of prayer is lined with coloured marbles, and the other part ornamented with various devices executed in stucco, but mostly with texts of the Ckooan (which form long friezes, having a pleasing effect), and never with the representation of anything that has life. The pavement is covered with matting, and the rich and poor pray side by side, without any distinction as to rank; unless, (as is sometimes the case,) the rich man is attended by his servant, who brings a prayer-carpet and spreads it for his master. The prayer-carpet is about the size of our hearth-rugs, and has a niche represented upon it, the point of which is turned towards Mekkeh.

The Mooslim prepares himself for prayer by ablution. In every mosque there is a tank or reservoir for the supply of water; the person, therefore, having tucked up his sleeves a little higher than his elbows, says, in a low voice, "I purpose performing the woodoo (ablution) for prayer." He then washes his hands three times; and this, as well as every after ceremony, is accompanied by its peculiar prayer or ejaculation. He then rinses his mouth thrice, throwing the water into it with his right hand. Next, with his right hand, he throws water up his nostrils (snuffing it up at the same time), and then blows it out, compressing his nostrils with the thumb and finger of the left hand; and this also is done three times. He then washes his face three times, throwing up the water with both hands. His right hand and arm, as high as the elbow, he next washes three times, and as many times causes some water to run along his arm from the palm of the hand to the elbow; he then repeats the same ceremony with the left hand and arm. He next draws his wetted right hand over the upper part of his head, raising his turban or cap with his left. If he have a beard, he then combs it with the wetted fingers of the right hand; holding his hand with the palm forwards, and passing the fingers through the hair from the throat upwards. He then puts the tips of his fore-fingers into his ears, and twists them round, passing his thumbs at the same time round the back of the ears from the bottom upwards. Next he wipes his neck with the back of the fingers of both hands, making the ends of his fingers meet behind his neck, and then drawing them forward. Lastly, he washes his feet as high as the ankles, and passes his fingers between the toes.

The woodoo, (says Mr. Lane), is generally performed in less than two minutes; most persons hurrying through the

act, as well as omitting almost all the prayers, &c., which should accompany and follow the actions. It is not required before each of the five daily prayers, when the person is conscious of having avoided every kind of impurity since the last performance of this ablution. When water cannot be easily procured, or would be injurious to the health of the individual, he may perform the ablution with dust or sand. This ceremony is called *tey emmoom*. The person, in this case, strikes the palms of his hands upon any dry dust or sand (it will suffice to do so upon his cloth robe, as it must contain some dust), and, with both hands, wipes his face; then, having struck his hands again upon the dust, he wipes his right hand and arm as high as the elbow; and then, the left hand and arm, in the same manner. This completes the ceremony.

Not only is cleanliness required in the worshipper, but also in the ground, mat, carpet, robe, or whatever else it be, upon which he prays. Persons of the lower orders often pray upon the bare ground, which is considered clean if it be dry; and they are in no hurry to wipe off the dust which adheres to the nose and forehead in prostration, for it is regarded as ornamental to the face; but when a person has a cloak or any other garment that he can conveniently take off, he spreads it upon the ground to serve as a prayer-carpet.

Prayer is required of the Mooslim five times in the course of every day. First, about four minutes after sun-set; secondly, when the evening has closed and it is quite dark; thirdly, at day-break; fourthly, at noon or a little later; and lastly, between noon and night. The Prophet would not allow his followers to pray at sun-rise, nor exactly at noon or sun-set, because, he said, infidels worshipped the sun at such times. The several times of prayer are announced by the moeoddin of each mosque from the minaret. Mr. Lane says, "Most of the moeoddins of Cairo have harmonious and sonorous voices, which they strain to the utmost pitch; yet there is a simple and solemn melody in their chants which is very striking, particularly in the stillness of night."

The devotions of the Mooslims, consisting as they do for the most part of a heartless repetition of words and idle ceremonies, have no permanent influence on the people generally; and are, indeed, felt to be a burdensome task, so that "there are comparatively few persons in Egypt who do not sometimes, or often, neglect this duty [of prayer]; and many who scarcely ever pray."

For the forms of prayer, and a minute description of the ceremonies, positions of the body, &c., which accompany their utterance, we refer to Mr. Lane's work. In the course of these ceremonies many ejaculations are repeated thirty-three times. These repetitions are counted on a string of beads ninety-nine in number, with a mark between each thirty-three. The beads are formed of aloes or other odoriferous or precious wood, or of coral, or of certain fruit-stones, or seeds, &c. In the "vain repetitions," varied ablutions, and other ceremonials of the Mooslim faith, we have an exact counterpart of the practice of the Pharisees of old so expressly condemned by our blessed Lord, as being the cleansing of the outside merely, while within was extortion and excess.

The Mooslim says the five daily prayers in his house or shop, or in the mosque, according as may be most convenient to him: it is seldom that a person goes from his house to the mosque to pray, except to join the congregation on Friday. Men of the lower orders often pray in the mosques than those who have a comfortable home, and a mat or carpet upon which to pray.

The same prayers are said by the congregation in the mosque on the noon of Friday, but there are additional rites performed by the Imam and other ministers on that occasion. The chief reasons for selecting Friday as the Mohammedan sabbath, were, it is said, because Adam was created on that day, and died on the same day of the week, and because the general resurrection was prophesied to happen on that day; whence Friday was named the day of El-Gom'ah, or the assembly. The

Mooslim does not abstain from worldly business on Friday except during the time of prayer.

The large mosques are open from day-break till nearly two hours after sun-set. The others are closed between the hours of morning and noon prayers; and most mosques are also closed in rainy weather (except at the times of prayer) lest persons who have no shoes should enter and soil the pavement and matting. Such persons always enter by the door nearest the tank or fountain that they may wash before they pass into the place of prayer; and generally this door is left open in dirty weather. The great mosque El-Azhar remains open all night, with the exception of the principal place of prayer, which is partitioned off from the rest of the building. In many of the larger mosques, particularly in the afternoon, persons are seen lounging, chatting together, eating, sleeping and sometimes spinning, or sewing, or engaged in some other simple craft; but Mr. Lane says that, notwithstanding such practices, the Mooslims very highly respect their mosques.

The other religious practices of the Mooslims consist in *alms-giving*, *fasting*, and *pilgrimage*. We will quote Mr. Lane's account of this last duty of the Mooslim.

It is incumbent on every Mooslim, to perform ones in his life, the pilgrimage to Mekkeh and Mount Arafat, unless poverty or ill health prevent him; or, if a Hhanafee, he may send a deputy whose expenses he must pay. Many, however, neglect the duty of pilgrimage who cannot plead a lawful excuse, nor are they reproached for so doing. It is not by the visit to Mekkeh, and the performance of the ceremonies of circuiting the Kaabeh seven times, and kissing the "black stone" in each round, and other rites in the holy city, that the Mooslim acquires the title of *el-hagg* or the pilgrim; the final object of the pilgrimage is Mount Arafat, six hours journey distant from Mekkeh. During his performance of the required ceremonies in Mekkeh, and also during his journey to Arafat and until his completion of the pilgrimage, the Mooslim wears a peculiar dress, called *ehhram*, generally consisting of two simple pieces of cotton, or linen, or woollen cloth, without seam or ornament, one of which is wrapped round the loins, and the other thrown over the shoulders; the instep and heel of each foot, and the head, must be bare; but umbrellas are now used by many of the pilgrims. It is necessary that the pilgrim be present on the occasion of a khoodbeh which is recited on Mount Arafat in the afternoon of the 9th of the month of Zool-Hheggah. In the ensuing evening, after sunset, the pilgrims commence their return to Mekkeh. Halting the following day in the valley of Mina (or, as it is more commonly called, Moona), they complete the ceremonies of the pilgrimage by a sacrifice (of one or more male sheep, he-goats, cows, or she-camels, part of the flesh of which they eat, and part give to the poor,) and by shaving the head and clipping the nails. Every one after this resumes his usual dress, or puts on a new one, if provided with such. The sacrifice is called *el-fida* (or the ransom), as it is performed in commemoration of the ransom of Ismael (or Ishmael) by the sacrifice of the ram when he was himself about to have been offered up by his father: for it is the general opinion of the Mooslims that it was this son, not Isaac, who was to have been sacrificed by his father.

Our frontispiece (selected from one of the views in Mr. Hay's admirable work) represents the collegiate and sepulchral mosque adjoining the Muristan. Over its entrance is the following inscription:—

In the name of God, the compassionate, the merciful, the Sultan El-Adil es Salehee, Mohammed, the son of the deceased Sultan Kalaoon (may God sanctify his soul!) founded this honoured Kubbeh (or dome-crowned building) in the months of the year 695 A.H. (A. D. 1295-6).

The Minaret (says Mr. Hay) is partly coloured with broad alternate stripes of red and white, so commonly adopted in Cairo, pleasing in the relief it gives to the eye from the glare of an ardent sun, and the monotony of colours in so arid a climate.

The Sultan Kalaoon is said to have been a skilful physician, and superstition preserves in the mosque several talismanic mementoes of his reputation: amongst them are two columns, the touch of one of which is believed to be a sure cure of jaundice.

The celebrated charitable foundation which adjoins this mosque is destined to receive weak and insane patients. It was founded by the Sultan Kalaoon, and bears the following inscription:—

Our Lord the most great Sultan, el-Melik el-Mansoor Seyf-ed-Deen Kalaoon, es-Salehee, commanded to found this noble venerated Kubbeh and blessed college and blessed Beemaristan; and the commencement of the construction thereof was in Rabee-el-Akhir, in the year 683 (A. D. 1284); and the completion thereof in Gumada'l-oola, in the year 684.

Part of the minaret of the Barkrookeveh is also represented. Three musicians with the zembr and tabl (haut-boy and drum) precede a marriage procession; the female friends and relations of the bride follow, amongst whom the virgins are distinguished by their white dresses. The bride, supported by four others of her relations, is beneath the canopy; the corners of which, on the top of the poles, are adorned by embroidered handkerchiefs.

MAPS AND MAPPING. II.

MODERN MAPS.—PROJECTION OF THE SPHERE.—GNOMONIC.—ORTHOGRAPHIC.

MODERN MAPPING is particularly distinguished by the accuracy with which the relative positions on the surface of the earth are marked, in consequence of the aid afforded to the subject by astronomical discovery. Attempts were at first made to determine the longitude of places, by observing the eclipses of the sun and moon; but this method proved, on experience, so likely to be attended with error, that astronomers were constrained to abandon it. Galileo, by the discovery of the satellites of Jupiter, in 1610, introduced a more certain method, which was rendered available by means of the simultaneous observations of Picard and Cassini, at the observatories of Uraniburg (in Denmark) and Paris.

These experiments were made in the latter part of the seventeenth century; and, in consequence of their success, MM. Picard and De la Hire were employed to examine and to correct the map of France by astronomical observations. In executing this task, they were obliged to contract France within much narrower boundaries than it was supposed, according to the maps of that time, to occupy. They reduced it above one degree of longitude along the western coast from Brittany to the Bay of Biscay; and, in the same manner, they cut away about half a degree from the shores of Languedoc and Provence. These changes gave rise to a jest of Louis the Fourteenth, who, when complimenting the astronomers at the completion of their task, told them "he was sorry to observe that their journey had cost him a large portion of his kingdom."

But the map-makers of the times, with an inveterate attachment to the notions and methods of their predecessors, were tardy in taking to their service the astronomical observations which were multiplied round them every day. The map of the Mediterranean was not adjusted until the year 1720; and it was then done in consequence of Chazelles being sent to the Levant, to ascertain the difference in longitude between the shores of Palestine and the meridian of Paris.

William Delisle and J. B. d'Anville, by eschewing the errors of the ancients and adopting the light of modern science, brought the state of mapping to a greater perfection than it had heretofore obtained. While the French were thus engaged, at the beginning of the eighteenth century, the English laboured to the same end by means of Halley and Newton. As the process of map-making now began to attain the comparative completeness of recent times, we need not dwell further on this part of our subject, than to observe that, notwithstanding the advanced state of our astronomical and geographical knowledge, and the science and skill displayed in our great national and other surveys, we

must still regard maps as works in progress,—always unfinished, and still waiting the corrections to be supplied by the science and enterprise of succeeding ages.

We shall endeavour now to describe in a clear, but concise, manner, the fundamental principles which have been employed at various times and on various occasions for the production of maps, or scientific pictures of the earth's surface. The reader, being doubtless acquainted with the form of the earth, will see at once that the main object to be achieved is, to represent on a plane, or flat, surface that which is actually round, or spherical. The smaller the portion of the earth's surface to be represented, the more easily may this be done; but the nearer we approach to a hemisphere of the earth, the more difficult is this object to be accomplished, without distortion of some of the parts. All the methods used with this view are but approximations to correctness, as we shall presently explain.

From the spherical form of the earth, the divisions and varieties of its surface may be most simply and most accurately represented by means of a globe; and, in order to obtain a correct notion of its general geographical features, there is no mode of representation so satisfactory. Large globes are, however, expensive and inconvenient instruments; and small ones, by not admitting sufficient detail, are, for most geographic purposes, entirely useless. For instance,—with a scale which would make the map of England extend only about six inches from north to south,—thus giving one degree of latitude to an inch,—the diameter of a globe, on which the whole surface of the earth should be delineated, would be upwards of $9\frac{1}{2}$ feet! In this representation we must also omit all the minute divisions of the countries of the earth, together with a vast body of geographical and statistical distinctions, invaluable to geography as a science.

We not only have *terrestrial* maps, which aim at representing the convex surface of the earth, but *celestial* or astronomical maps, are made to represent the (apparent) concave surface of the heavens.

Of terrestrial maps there are two sorts,—*geographic*, or land-maps; and *hydrographic*, or sea-maps: the former are specially styled "MAPS,"—the latter are usually denominated "Charts."

Geographical maps are *universal* or *particular*; the former representing the two hemispheres of the world,—the latter containing only particular portions of the globe. When maps give the nature of the ground, the roads, buildings, &c., in detail, they become *topographic* maps, which, necessarily embracing a very small extent of country, are not usually referred to any spherical projection, but are represented as geometric planes, the objects in them occupying the positions severally assigned to them by the trigonometrical operations of the survey. The same distinction is made in charts of small bays and harbours. In either of these cases they are often called "Plans." Maps which are intended merely to illustrate some of the sciences, bear their own peculiar names; as geological, mineralogical, or botanical maps.

The various methods adopted by geographers in the construction of maps, may be referred to two principles,—PROJECTION and DEVELOPMENT.

The term "Projection," implies a *throwing forward*, or *laying down in front*: it is used to express generally the representation of the surface of a sphere according to the rules of perspective.

I. Of projection as referring to the first principle, there are four sorts in common use;—the Gnomonic or Central,—the Orthographic,—the Stereographic,—and the Globular: all these are distinguished from each other by the different positions of the projecting point in which the eye is supposed to be placed.

1. In the Gnomonic or CENTRAL Projection, the eye

is supposed to be placed in the *centre* of the sphere, as at C; and the various objects to be delineated are transferred from the sphere to the plane A B, which is a tangent to its surface at D, where the rays are direct. It

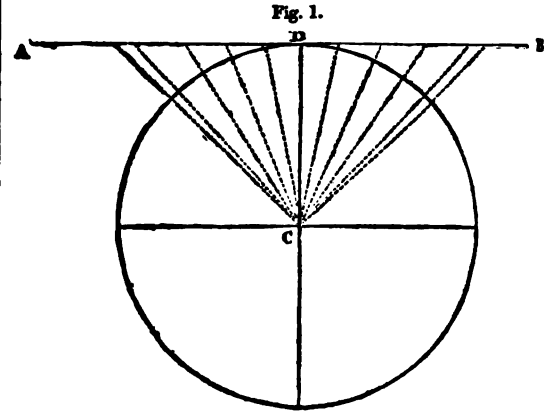


Fig. 1.

is termed *gnomonic*, because of the connexion between the methods of laying down this projection and those for the construction of a *gnomon*, or sun-dial. The *gnomon*, or style of a dial, is the plate which projects from the surface of the dial-plate, the edge of its shadow determining the hour-line.

A slight consideration of this sort of projection makes it manifest to us that it is most profitably employed in astronomical maps; portions only of the concave sphere of the heavens being afforded at one view, as may be observed by reference to the preceding diagram; where it is evident that five or six *plane*-maps would be required to lay down the concave surface of the sphere whose centre is C. It will be observed also that an entire hemisphere cannot be thrown upon the plane A B.

In this projection, all the *great circles* of the sphere,—that is, all such as have their centres coinciding with the centre of the earth,—appear as straight lines; which property belongs to no other projection.

Though this projection may be advantageously applied to any maps of a limited extent, yet it is more particularly useful in maps of the polar regions of the globe. In this case, the meridians will be straight lines radiating from the centre, and the parallels of latitude concentric circles. Other cases of this projection, in respect of terrestrial maps, are seldom brought into use, because the construction is rendered troublesome, on account of the parallels of latitude becoming curves of difficult delineation.

2. The ORTHOGRAPHIC projection is so named, because the *delineation* is completed, as it were, by *right lines*. In this projection the eye is supposed to be at an infinite distance off; so that the visual rays leave the sphere in parallel lines. The perspective plane, on which a hemisphere is supposed to be delineated, is, therefore, at right angles to the visual rays;—hence, every point of the hemisphere is transferred to this plane by perpendiculars let fall upon it. It will be seen at once from the annexed figure, that the representation will decrease in accuracy with the increase of distance from the centre; the parts near the circumference being much foreshortened and distorted. For instance,—although the points A B C D are equidistant, their representatives a b c d are very unequally disposed.

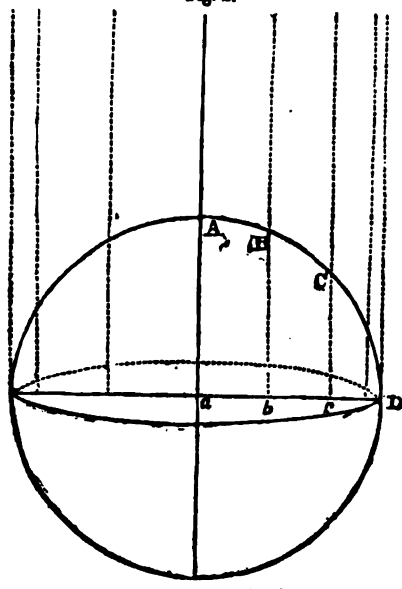
By this projection the surface of a hemisphere is reduced to that of a great circle of the sphere, or only half its hemispherical area; and, consequently, all parts of that surface are contracted, while equal parts of the spherical surface are not reduced to equal spaces on the map. On account, therefore, of the excessive contraction on approaching the extremities, this projection, though it is occasionally used for astronomical purposes, is almost exploded in the construction of geographical maps.

The orthographic projection of any object,—the terrestrial globe for example,—with all its circles, and the continents and islands on its surface, is *nearly* the representation or picture which an artist would delineate on a plane surface, if he meant to represent the globe at a considerable distance from the eye; and it is *exactly* the appearance which the globe would have, supposing an eye could view it at an infinite distance off.

In a polar map of this projection,—that is, a map which has one of the poles for its centre,—the meridians, as in the polar gnomonic maps, will be radii, and the parallels concentric circles. In an equatorial map, or one in which the equatorial regions of the globe are made to occupy the centre of the map, the plane of projection coincides with the plane of one of the meridians. In this case, the latitude-circles will form straight lines parallel with the equator, which will be also a straight line: the meridians will form portions of ellipses.

We shall notice the principles employed in the other modes of projection, in our next and concluding paper.

Fig. 2.



CHINA. XII.

THE ISLAND OF CHUSAN—MILITARY OCCUPATION —HOUSES AND OFFICES OF THE CHINESE.

THE extreme jealousy with which the authorities of the *Celestial Empire* are accustomed to regard all foreigners, enhances the value of any authentic information which may be obtained respecting a people, of whom the little we know only adds to our desire of a more thorough knowledge. Valuable, indeed, to the political economist would be an authentic statement of the statistics of an empire which in many things differs so widely from all the kingdoms of Europe; a country where civilization and literature seem to have advanced to a certain extent, and then for ages to have remained stationary; a country more densely peopled than any other part of the world, and yet where all emigration is so much discouraged, that, to use an expression of their own, "when a Chinaman leaves the flowery land to wander in countries beyond the sea, he rarely, if ever, is permitted to return to his native land;" a country which, notwithstanding its vast extent of territory and immense population, has for so many centuries been the seat of a permanent government more exempt from revolution than any other in the world. Various writers, indeed, have presented us with their accounts of China, but those which enter most into detail seem obnoxious to the remark of Lord Jocelyn, that their "lengthened labours require an appetite for the marvellous to digest. Dates and exact statements of finance, &c.," continues he, "are difficult to be correctly

obtained in any country, but more particularly in these far eastern lands; and it is not probable that a jealous race like the Chinese would permit a stranger to become very intimately acquainted with their internal policy. Errors may have arisen not from any intentional mis-statement, but from a guileless disposition, giving too easy a credence to the natives of the country."

We have been careful in the information with which, from time to time, we have furnished our readers, to confine ourselves to such subjects as might fall under the observation of Europeans, and to draw from none but authentic sources; we now proceed to make a few extracts from the *Personal Narrative* lately published by Lord Jocelyn, who acted for some months in the capacity of Military Secretary to the China mission, but was compelled by severe illness to return home. Passing over the capture of the island of Chusan, we will accompany the conquerors into the city of Tinghai:—

"A few of the staff entered the town, accompanied by an interpreter, to quiet the fears of the inhabitants, whilst the troops remained in position on the outer side of the fosse. The main street was nearly deserted, except here and there, where the frightened people were performing the kow-tow* as we passed. On most of the houses was placarded 'Spare our lives;' and on entering the jos-houses were seen men, women, and children, upon their knees, burning incense to the gods; and although protection was promised them, their dread appeared in no manner relieved. Many were posting down the back lanes into the country with their spoil, for we afterwards found the goods principally carried away were taken by plundering natives, not by the legitimate owners.

"At last we came to the house of the Chumpin (Admiral): the gates leading to the entrance-yard were painted with huge ungainly figures, denoting, they said, Justice and Punishment. On one side was the Room of Justice, and thumb-screws and rattans were seen lying about. The path to the inner apartment, called the Hall of Ancestors, lay through an open court, round which were the offices of the government clerks. Some letters and papers half-finished showed the haste with which the town had been evacuated. Passing through the court we entered a guard-house, which led again to a trelliced walk, at the south end of which was the hall. Here on the couches were the pipes half-smoked, and the little cups filled with the untasted tea; cloaks, mandarin's caps, and swords lay about in confusion. Following up our research we at last came to the apartments of the ladies: these rooms were curiously furnished, and strewed with clothes of all descriptions and for all purposes. Silks, fans, china, little shoes, crutches, and paint-pots—the articles of a Chinese lady's toilette—lay tossed in a sad and tell-tale *mélée*, and many of these fairy shoes were appropriated by us as lawful *loot* †.

"The town of Tinghai, or Tinghai-eeen, covers a large space of ground at the mouth of a valley or rather gorge; the neighbouring hills are clothed with wild shrubs, of which the tea-plant is the most predominant. The city lies embosomed in luxuriant paddy, except towards the rear, where a beautiful hill commands the whole town, dotted with clumps of fine trees, part of it being included within the wall and the fortifications that encircle the town. Two paved roads lead down to the suburbs on the shore, a distance of about three-quarters of a mile, flanked on the left by the Jos-house hill. The buildings in and near seem to consist of large warehouses belonging to the merchants of the town, and are very convenient for shipping and landing their cargoes. Tinghai is surrounded by a wall, about sixteen feet in thickness and twenty in height: there are four gates, agreeing with the cardinal points of the compass, traversed much in the

* A salute practised by an inferior to his superior, kneeling and striking the head upon the ground.

† A Bengalee word for plunder—at which, by the bye, they are peculiar adepts.

form of Marhattah forts, the principal one being on the southern point facing the sea. The wall is surrounded by a canal, which acts as a ditch to the fortification, except at the north-west angle. Two powder-magazines were found neatly packed and filled with ammunition, and with implements for the manufacture of powder: on the walls were mounted gingalls and cannon of various calibres, but none exceeding a nine-pounder; and wall-pieces with shifting breeches, each having eight or nine spare breeches attached to it, ready loaded. The streets are narrow, and many of the houses dry-rubbed, and polished outside; but the roofs are the most picturesque part of the buildings. Many of the respectable houses have pretty gardens attached to them, with a high wall shutting them out entirely from the town. The interiors of some of the houses were found beautifully furnished and carved: one that is now inhabited by the Governor, and believed to have been the property of a literary character, was, when first opened, the wonder and admiration of all. The different apartments open round the centre court, which is neatly tiled; the doors, window-frames, and pillars that support the pent roof, are carved in the most chaste and delicate style, and the interior of the ceiling and wainscot lined with fretwork, which it must have required the greatest nicety and care to have executed. The furniture was in the same keeping, denoting a degree of taste the Chinese have not in general credit for with us. The bed places in the sleeping apartments of the ladies were large dormitories, for they can hardly be called beds: at one corner of the room is a separate chamber, about eight feet square, and the same in height; the exterior of this is usually painted red, carved, and gilt; the entrance is through a circular aperture, three feet in diameter, with sliding pannels; in the interior is a couch of large proportions, covered with a soft mat and thick curtains of mandarin silk: the inside of the bed is polished and painted, and a little chair and table are the remaining furniture of this dormitory.

"Many of the public buildings excited great astonishment among those who fancied they were in a half barbarous country. The public arsenals were found stocked with weapons of every description, placed with the greatest neatness and regularity in their different compartments: the clothes for the soldiers were likewise ticketed, labelled, and packed in large presses, and the arrows, which from their size and strength drew particular attention, were carefully and separately arranged. To each arsenal is attached a fire-engine, similar to those used in our own country.

"The government pawnbroker's shop was also a source of interest: in it were found dresses and articles of every kind, evidently things belonging to the upper as well as the lower classes, for many of the furs here taken were of valuable descriptions: each article had the owner's name attached, and the date of its being pawned: this is one of the plans of the local government for raising their supplies. In the treasury there was a sad deficit for the prize-agents, no bullion being discovered in the chests: this, however, had been evidently cleared out by the government servants.

"The town is intersected with canals, which run at the back of many of the principal streets, thereby enabling the inhabitants to take their goods without trouble from their own doors to any part of the city, and thus communicate with the suburbs and port with the greatest facility, by the water-gate.

"Some of the jos houses, in this place, from what we have seen and heard from others, are to be surpassed by none in China. In Lord Macartney's mission, the one at Macao is mentioned as the finest specimen they saw in the whole tour, but all those who have visited the principal ones at Tinghai agree in their great superiority over it. In the great temple some of the figures in the principal hall are upwards of fifteen feet high, handsomely wrought, standing in the centre on a lofty pedes-

tal, while around the walls are small images of the same description in all sorts of grotesque attitudes. We were particularly struck by one, the figure of a woman, with a child apparently issuing from her breast, and a glory round her head. It seems difficult to say from what this has arisen, unless from the pictures of the Virgin, which the Chinese formerly obtained from the Jesuit missionaries, and have thus distorted. A white elephant was likewise a great subject of discussion, being hitherto known only as a figure of worship in Birmah and Siam.

"Very few women were found in any of the houses, although, as it afterwards appeared, whole families of Chinese were then residing in the town, locked up in their dwellings, and were not discovered until the ulterior occupation of the city by the troops for winter quarters. All the women we saw here had the little feet which to the south is generally the appendage of the higher orders, and made use of a crutch when walking. Many of the silks taken in the houses of mandarins and people of wealth were of the finest textures, and covered with magnificent embroideries.

"Since I have seen many of the houses and temples of the Chinese, the paintings on the old china imported into England have struck me as the best delineation of the buildings and figures of these extraordinary people, and it is wonderful how correct they are in the main features."

HE who contends for truths which he has himself been permitted to discover, may well sustain the conflict in which presumption and error are destined to fall. The public tribunal may neither be sufficiently pure nor enlightened to decide upon the issue, but he can appeal to posterity, and reckon with confidence on "its sure decree."—SIR DAVID BREWSTER.

ON CHESS. No. XVII.

THE AUTOMATON CHESS-PLAYER. 5.

THE explanation which has been given of the Chess Automaton is admitted to be correct in all its details, except as regards the means employed by the concealed player to gain a knowledge of the moves of his antagonist and to make his own. This information belongs, however, to those minor details which could only be obtained by actual inspection of the interior arrangements of the machine:—we can scarcely admire too highly the sagacity of Mr. Willis, who, enjoying no advantages of inspection beyond those given to the spectators in general, succeeded, nevertheless, in discovering the secret of this famous machine, and demonstrating, by means of drawings and clear descriptions, the presence and position of the *animal power* which worked the automaton.

Mr. Willis imagined that the concealed player obtained a view of the chess-board by looking through the waistcoat of the figure, so that his head was separated from the spectators only by a thin veil. The objections to this theory are numerous: among the many eyes and ears, sharpened as they were by anxious curiosity, something would surely be seen or heard to lead to discovery,—the smallest motion or sound,—even the simple act of respiration in that confined situation, might detect the confederate. It is evident that de Kempelen foresaw all this, and was thus led to provide the ingenious means we are about to describe, as being the more secret and effectual for carrying on the game.

It is proper to state that M. Meuret himself, so long the secret colleague of M. Maelzel, furnished an account of the mysteries of the automaton, from which M. de Tournay, a member of the Paris Chess Club, has published his account in the first volume of *Le Palamède*, a French periodical, devoted chiefly to Chess. It is from this source that we have derived the following information, which may, therefore, in every respect, be considered authentic.

We stated in a former article, that, during the exposure of the interior mechanism, the exhibitor held a lighted candle to several parts of the machinery, and that he left his candle burning on an adjoining slab: the reason for this was to prevent any notice being taken of a wax taper in the interior of the machine, should its rays chance to flash out during the exhibition. The wax taper furnished the concealed player with light; and he was supplied with air by certain openings which did not appear, and by others which appeared necessary to the construction of the outer chest, or to the trunk of the Turk.

Within reach of the concealed player were, *first*, a handle by which he could guide the arm of the automaton; *secondly*, an elastic spring for moving its fingers; and, *thirdly*, a cord in communication with bellows for producing a sound to imitate "Check*." The principal contrivance requiring explanation is, that by which the player was made acquainted with the moves on the automaton chess-board, and thus enabled to repeat them on a smaller chess-board of his own. The concealed player is seated in that part of the chest immediately under the automaton's chess-board, and may be supposed to be looking up to the roof of his narrow cell. There, on what may be called his ceiling, he sees a representation of that chess-board, each square painted to correspond with the square above; the only difference being, that, in the automaton's board, some of the squares are occupied by chess-men and the rest are empty, while, in the board beneath, every one of the squares is numbered and furnished with a small metallic knob. Every chess-man on the automaton's board contains a small magnet, and each move made with any one sets in motion the metallic knob belonging to the squares from and to which such piece is played.

To illustrate this action more clearly, let the reader suppose himself placed under a table both surfaces of which are respectively divided into sixty-four corresponding squares: to each square of the under-side of the table is suspended by means of a very short thread a little iron ball. Now, as a magnet exerts its attractive force for unmagnetised iron and steel through any known substance, (except, of course, through iron and steel,) it is quite clear that the wood of the table will not prevent the magnets contained within the chessmen from attracting the little balls, and holding them, as it were, fixed to the under surface of the table: but, as there are only thirty-two chessmen actually on the board at the commencement of the game, it follows that thirty-two balls are attached to the wood of the table, while the other thirty-two remain suspended by their threads. As soon as one particular piece is taken up for the purpose of making a move it is obvious that the metallic knob immediately below it, being no longer subject to the magnetic attraction, falls as far as it is permitted by the length of the thread which supports it, and thus intimates to the person below that the square just occupied by a piece is now vacant;—but the piece being placed on another square, the knob below that square starts up and thus indicates the precise square to which the piece was played. The concealed player repeats the move on a little board, with which he is furnished, and which is numbered to correspond with the board on the underside of the table; this board is constructed in the manner of the chess-boards used in travelling, so as to be safe from the danger of having the pieces upset. On this board he also makes his own move, and takes note of the numbers of the squares from and to which his piece is played;—he then sets the arm of the automaton in motion,—takes up the piece he designs to play,—the little knob falls down;—he plays the piece to the square intended, and the little knob rises up;—and thus the game proceeds.

* This last addition was made by M. de Kempelen, previous to his second tour.

This illustration will afford the reader a more perfect notion than has yet been given of the mode of working the automaton. We have nothing more to say respecting the mechanical part of this strange deception, and therefore beg to conclude our notice with a translation of the latter half of M. de Tournay's very amusing article.

M. Maelzel having entered into an agreement with M. Mouret, a very eminent chess-player, to conduct the internal arrangements of the automaton, the two confederates set out on a tour for the purpose of spreading the fame of the automaton, and reaping the benefit of the deception in many towns of England, Scotland, and Holland, where it was yet only known by report. The most complete success attended this journey. Wherever they went, spectators crowded to the exhibition to witness the triumphs of the automaton, who always kept his ground against his antagonists, and came off victorious, in spite of the advantage which he permitted to his opponent in giving him the pawn and move.

The exhibitor and his assistant went on for some time in perfect harmony: accounts were settled between them at every halting-place, and each was perfectly satisfied. It happened, however, on one of these occasions that M. Maelzel remained debtor to his assistant for a considerable sum, and as weeks and months passed by he still had some pretext for omitting its payment. At length a year had passed, without producing the desired settlement, and M. Mouret, weary of this delay, found the means of frightening his companion into his proper duty.

The automaton was then at Amsterdam: the king of Holland sent one morning to engage the exhibition-room, at the same time ordering a sum equal to three thousand francs, to be paid to M. Maelzel. The latter went joyfully to announce the good news to his associate—they breakfasted together, and were delighted at the thought of entering the lists with a crowned head. M. Maelzel then hastened to make such preparations as should make the exhibition as brilliant as possible. The performance was to commence at half-past twelve at noon. Twelve o'clock arrives, and it is time for M. Mouret to take his station in the chest. But he has not yet arrived, and M. Maelzel hastens to find out the cause of the delay. What is his surprise to find Mouret in bed, and seized with a convulsive trembling. "What do I see? what is the matter?" exclaimed Maelzel. "I have a fever," said his artful assistant.—"Why, you were very well just now!"—"Yes, but this is a sudden attack."—"The king will be here presently."—"He must go back again."—"But what can I say to him?"—"Tell him the automaton has got the fever."—"No more of this folly."—"I don't wish to joke with you."—"Then pray get up."—"Impossible."—"Let me call a physician."—"It is of no use."—"Is there no means of subduing this fever?"—"Yes, one only."—"What is it?"—"To pay me the 1500 francs you owe me."—"You shall have them . . . this evening?"—"No, no, this moment."—M. Maelzel saw too plainly that there was no alternative, and went to fetch the money. The cure was wonderful; the automaton was never so attractive before. The King did not actually play, but he advised his Minister of War, who played for him. The pair were completely beaten by the automaton, but all the blame of the defeat was, of course, thrown upon the Minister.

Another anecdote is related of the automaton to the following effect. In one of the towns of Germany a conjuror had been exhibiting his various tricks, to the delight and amazement of the inhabitants, when the arrival of the automaton presented a still more powerful object of attraction, and left the poor fellow without an audience. Annoyed and jealous of the reputation of his rival, he went to be himself a witness of the new performance, and from his own experience in the art of deception he felt convinced that the chest contained a hidden player.

He therefore began all at once to raise a cry of "Fire," in which he was seconded by one or two companions. The spectators were seized with the greatest alarm, in which, strange to say, the automaton participated, and in his fright upset his adversary and tottered about as if he were mad. Happily, M. Maelzel, who preserved his presence of mind, was able to push him behind a curtain, where he soon became quiet, and recovered his usual dignified bearing. The alarm of fire was soon discovered to be false, and the conjuror did not gain anything by his attempt to undeceive the company. After this event M. Maelzel, in giving directions to a candidate for the office of concealed player, was accustomed to say, "If you hear a cry of fire, don't stir; I will come to your help."

The automaton was afterwards taken to North America, where it was exhibited, during several years, in the principal towns of the United States and Canada. South America then received a visit from this wonder of the age, and after a due exhibition of its powers the automaton finally sank into oblivion, and was deposited in a lumber-room at New York, where we believe it still remains, never again perhaps to be the means of exciting curiosity or interest.

THE WATER SCORPION.

(*Nepa linearis*.)

THE genus *Nepa* includes a family of aquatic hemipterous insects inhabiting stagnant waters, and preying on the smaller water insects, &c. The largest species yet known is *Nepa grandis*, a native of Surinam and other parts of South America. This species far exceeds all the European animals of that genus in size. It measures three inches in length. It lives in the water, in the larva and pupa state, and attacks not only other water insects but some animals much larger than itself. Madame Merian represents this species, among her Surinam insects, as preying upon tadpoles and young frogs. Its colour is a dull yellowish brown, with a few darker shades or variegations: the under wings are of a semitransparent white colour, and the abdomen is terminated by a short tubular process.

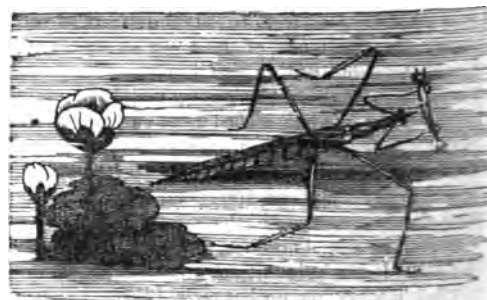
The term *Nepa* is supposed by some to have been originally a misprint from *Hepa*, a Latin word applied to the scorpion. The structure of the individuals of this family shows their rapacious character: they seize their prey by the assistance of their fore-legs and convey it to the mouth, which consists of a short, but acute and strongly articulated proboscis, with which they are enabled to inflict a sharp wound.

The common water scorpion (*Nepa cinerea*) is a very frequent inhabitant of stagnant waters in our own country. It measures about an inch in length, and appears when the wings are closed entirely of a dull brown colour; but when the wings are expanded, the body appears of bright red colour above, with a black longitudinal band down the middle: the lower wings, which are of a fine transparent white, are decorated with red veins: from the tail proceeds a tubular bifid process or style nearly of the length of the body, and which appears single on a general view, the two valves of which it consists being generally applied close to each other throughout their whole length. The animal is of slow motion, and is often found creeping about the shallow parts of ponds, &c. In the month of May it deposits its eggs on the soft surface of the mud at the bottom of the water: they are of a singular shape, resembling some of the crowned seeds, with a coronet of seven bristles; and before they are deposited, these bristles closely embrace the egg next to them in the ovary like a sort of sheath, as if a chain of thistle seeds were formed by placing each in succession in the bosom of the down of the one next to it. As the mother insect deposits these eggs in the

stems of aquatic plants, the bristles, which are partly left on the outside, are probably intended to prevent the aperture from being closed up, by the rapid growth of the plant. When the young are hatched, they are not more than an eighth of an inch in length. The larva and pupa differ in appearance from the complete insect in having only the rudiments of wings, and being of a paler or yellower colour. The perfect insect breathes by means of a single pair of spiracles placed behind, the lateral spiracles being obsolete or rudimental. This insect flies only by night, when it wanders about the fields in the neighbourhood of its native waters in quest of prey.

Nepa linearis is an insect of a highly singular aspect, bearing a distant resemblance to some of the smaller insects of the genus Mantis and Phasma. It measures about an inch and a half from the tip of the snout to the beginning of the abdominal style or process, which is itself of equal length to the former part, and the whole animal is extremely slender in proportion to its length: the legs also are long and slender, and the fore-legs much longer in proportion than those of the second species, *N. cinerea*: the colour of the animal is dull yellowish brown, the back, when the wings are expanded, appearing of a brownish red, and the under wings white and transparent. It inhabits the larger stagnant waters, frequenting the shallower parts during the middle of the day, when it may be observed preying upon the smaller water insects, &c. Its motions are singular; it often strikes out all its legs at intervals with a kind of starting motion, and continues the exercise for a considerable time. Its eggs are smaller than those of *N. cinerea* of an oval shape, and furnished with two processes or bristles divaricating from the top of each.

According to Rösel the red eggs of a water-mite are deposited upon the bodies of the water scorpions; and what is very remarkable, these eggs appear to increase in size during the process of hatching. De Geer remarked, that the water scorpions, when much infested with them, became gradually weakened as the eggs increased in size.



THERE'S not a leaf within the bower;
There's not a bird upon the tree;
There's not a dew-drop on the flower;
But bears the impress, Lord! of Thee.

Thy hand the varied leaf designed,
And gave the bird its thrilling tone;
Thy power the dew-drop's tints combined,
Till like the diamond's blaze they shone.

Yes, dew-drops, leaves, and buds, and all,
The smallest, like the greatest things;
The sea's vast space, the earth's wide ball,
Alike proclaim Thee King of kings.—

MRS. OPIE.

LONDON:

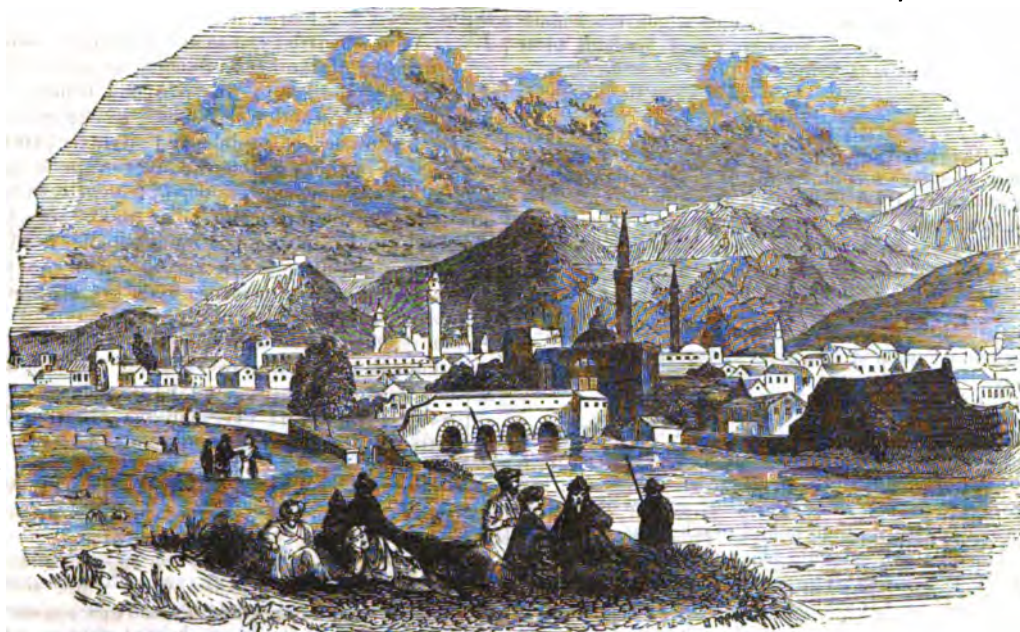
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TURKEY AND THE TURKISH PROVINCES.



ANTIOCH.

ANTIOCH AND ITS VICINITY.

IN the present series of articles we do not profess to adopt a strictly geographical arrangement of our subject, but to give *Sketches*, each of which will, to a certain degree, be complete in itself, while the whole collectively will illustrate the landscapes, the commerce, the buildings, the religion, the manners and customs, &c., of that widely-spread and highly-diversified empire over which the Grand Seigneur reigns. In the last two papers we selected Moldavia and Wallachia as the subjects of our notice. In the next two or three we shall visit some of the Asiatic towns of the empire, such as Antioch, Mecca, and Medina.

After having passed through Asia Minor, that remarkable peninsula which separates the Mediterranean from the Black Sea, we arrive at Syria, the eastern boundary of the Mediterranean. The manner in which this country is now governed was partly explained in the series of articles on the Syrian Coast, in our last volume, and we therefore shall here content ourselves with observing that Antioch is in the northern part of this region, within the pachalic of Aleppo or Haleb. This once splendid city, known as Antiocheia to the ancients, was the capital of the Syro-Macedonian empire, and being situated about midway between the cities of Constantinople and Alexandria, has since then been the centre of an extensive caravan trade. Its position, too, on the beautiful river Orontes, has placed it in favourable proximity to the Mediterranean.

With the exception of Jerusalem there is not perhaps another city of which the records present so sad a catalogue of revolutions and direful calamities as Antioch. Besides the usual plagues of Eastern cities, pestilence, famine, fire, and sword, it has been peculiarly subject to the most dreadful earthquakes. The city was founded

by Seleucus Nicanor, 300 years before Christ, and was held under much tyranny and civil contest by the family of the Seleucidæ, until near the time of Pompey's conquest, and the reduction of the city and country beneath the Roman yoke, B. C. 65. It was in the reign of Trajan, in the year of our Lord 115, that we first find mention of those terrible earthquakes with which Antioch more than any other city has been visited. It is said that on that occasion Trajan, being at Antioch, narrowly escaped with his life, and the city was almost entirely destroyed; but the munificence of the emperor was employed to repair the misfortune, as far as it lay in his power, and the city soon resumed its ancient splendour and commercial aspect. It would be wearisome to our readers to go through the long list of disasters which befel this city,—sometimes a prey to famine and the plague; frequently overturned by earthquakes; now plundered by the Persians; then retaken by the Romans; at one time devastated by fire; at another time pillaged by the Turks; afterwards captured under circumstances of treachery, cruelty, and fanaticism by the Crusaders; and then soon after taken away from them, with great slaughter of the inhabitants, by the Sultan of Egypt, and thus remaining in a deserted and ruinous condition, till, with the rest of Syria, it passed into the hands of the Ottoman Turks, to whose empire it has ever since appertained.

We have the testimony of many travellers to the fertility of soil and richness of landscape which mark the vicinity of Antioch, even in its present neglected and degraded state, and we can therefore the better imagine what were its sources of wealth and delight in former days, when emperors were attracted by its pleasures, and Roman veterans were allured from their duties by the luxuries of this splendid city. The foi-

lowing is the description of the scenery on the banks of the Orontes, as given by Captains Irby and Mangles.

We now began to follow the banks of the river, and were astonished by the beauty of the scenery, far surpassing anything we expected to see in Syria, and, indeed, anything we had witnessed, even in Switzerland, though we walked nine hundred miles in that country, and saw most of its beauty. The river, from the time we began to trace its banks, ran continually between two high hills, winding and turning incessantly: at times the road led along precipices in the rocks, looking down perpendicularly on the river. The luxuriant variety of foliage was prodigious, and the rich green myrtle, which was very plentiful, contrasted with the colour of the road, the soil of which was a dark red gravel, made us imagine we were riding through pleasure-grounds. The laurel, laurustinus, bay-tree, fig-tree, wild vine, plane tree, English sycamore, arbutus, both common and andrachne, dwarf oak, &c., were scattered in all directions. At times the road was overhung with rocks, covered with ivy; the mouths of caverns also presented themselves, and gave a wildness to the scene; and the perpendicular cliffs jutted into the river, upwards of three hundred feet high, forming corners round which the waters ran in a most romantic manner. We descended at times into plains cultivated with mulberry plantations and vines, and prettily studded with picturesque cottages. The occasional shallows of the river, keeping up a perpetual roaring, completed the beauty of the scene, which lasted about two hours, when we entered the plain of Suadeah (Seleucia,) where the river becomes of a greater breadth, and runs in as straight a line as a canal."

Under the Macedonian kings of Syria the worship of the goddess Daphne was conducted in a grove near Antioch, which had been planted by Seleucus, the founder of the city. This beautiful grove of laurels and cypresses, with its temple and oracle, was long the most fashionable and splendid place of resort for Pagan worship in the East. The conduct of the people of Antioch seems to have closely corresponded with the instructions they received from the debasing rites of Pagan worship, for they are described to us as luxurious in life and licentious in manners. In such a soil as this we should scarcely have hoped to find Christianity taking root; but, nevertheless, we find on the arrival from Cyprus and Cyrene of certain converts who had fled from persecution to take refuge in Antioch, great numbers of the people of that city listened to the tidings they brought, believed the Gospel message, and embraced the religion of Christ. The name of *Christian*, first bestowed on the disciples in that city, was not applied to them in honour of their Lord, or simply to mark the distinction between them and others who adhered to paganism, but it was applied to them as a term of contempt and of the bitterest reproach; yet, notwithstanding the opprobrium attached to that name, many were found willing to bear it, and to separate themselves from the vices and proficiencies of their city, that they might tread in the steps of their self-denying Lord. To this they were encouraged by the examples of Paul and Barnabas, who laboured during a whole year, by preaching and exhortations, to establish the new converts in the knowledge and belief of the truth. Thus was formed out of a luxurious and idolatrous people a community of true believers, at first comparatively few in number, but after a while increasing to a great extent, and becoming an illustrious and influential body, eminent for charity of spirit and consistency of conduct. It would detain us too long, to speak of the prosperity and increase of this church in the time of Chrysostom, at the latter part of the fourth century after Christ. It was a *worldly* prosperity, that was too great for the *spiritual* welfare of the Christians, and which appears to have prepared the way for succeeding apostasy.

We must now proceed to describe the remaining traces of former greatness, which were visible in this place, before the earthquake of 1822 laid it entirely in ruins. At that period a large part of the immense walls which formed the boundary of the ancient city

were still standing. They were from thirty to fifty feet high, fifteen feet thick, and flanked by numerous square towers, and though much ruined, they distinctly marked the ancient boundary. There are different accounts as to the space inclosed by them. Mr. Buckingham says that they have a circuit of nearly four miles, but his statement is far below that of the more ancient authorities. The buildings at Antioch, at the period alluded to, were of a mean description, and no traces remained of architecture worthy of the "Queen of the East," as this city was once proudly named. The language spoken there was chiefly Turkish, though there were a few Christian families remaining, and some Jews. The Christians were accustomed to assemble for prayer in one of the caves or excavations in the rock, which are numerous in Antioch, and which appear to have been the ancient Necropolis*, or cemetery.

Great numbers of medals and engraved stones have been found in the neighbourhood of Antioch, especially during the winter season, when the ground has been laid bare by heavy rains. The most interesting are those of the Seleucids, the founders and beautifiers of the ancient city: there are also many of the period of Julius Cæsar and Augustus, with great quantities of Phœnician coins.

The modern name of Antioch is *Antakia*: it is very little known to the western nations: the attacks of its ancient *subterranean* enemy have reduced it almost entirely to ruins, and everything connected with that once proud and stately city must now be reckoned with the past.

* This word, translated *literally*, means "the city of the dead."

IN TIMES OF DISTRESS AND DANGER.

Oh God, that madest earth and sky, the darkness and the day,
Give ear to this Thy family, and help us when we pray!
For wide the waves of bitterness around our vessel roar,
And heavy grows the pilot's heart to view the rocky shore!
The cross our Master bore for us, for Him we fain would bear,
But mortal strength to weakness turns, and courage to despair!
Then mercy on our failings, Lord! our sinking faith renew!
And when Thy sorrows visit us, oh! send Thy patience too.—
BISHOP HEBEL.

On the whole, we make too much of faults; the details of the business hide the real centre of it. Faults! The greatest of faults, I should say, is to be conscious of none. Readers of the Bible, above all, one would think, might know better. Who is called there the man according to God's own heart? David, the Hebrew King, had fallen into sins enough; blackest crimes; there was no want of sins. And, thereupon, the unbelievers sneer and ask, Is this your man according to God's heart? The sneer, I must say, seems to me but a shallow one. What are faults, what are the outward details of a life, if the inner secret of it, the remorse, temptation, true, often baffled, never-ended struggle of it, be forgotten? 'It is not in man that walketh to direct his steps.' Of all acts is not, for a man, *repentance* the most divine? The deadliest sin, I say, were that same supercilious consciousness of no sin;—that is, death; the heart, so conscious, is divorced from sincerity, humility, and fact; is dead: it is 'pure' as dead dry sand is pure. David's life and history, as written for us in those Psalms of his, I consider to be the truest emblem ever given of a man's moral progress and warfare here below. All earnest souls will ever discern in it the faithful struggle of an earnest human soul towards what is good and best. Struggle often baffled, sore baffled, down as into entire wreck; yet a struggle never ended; ever, with tears, repentance, true unconquerable purpose, begun anew. Poor human nature! Is not a man's walking, in truth, always that: 'a succession of falls?' Man can do no other. In this wild element of a life, he has to struggle onwards; now fallen, deep abased; and ever, with tears, repentance, with bleeding heart, he has to rise again, struggle again still onwards. That his struggle be a faithful, unconquerable one: that is the question of questions. We will put up with many sad details, if the soul of it were true,—CARLYLE.

ON CHESS. No. XVIII.

ON THE POWERS OF THE PIECES AND PAWNS.

We have hitherto supposed the reader to be acquainted with, at least, the alphabet of chess; and have not hesitated to employ many of the technical terms used in the game. In the concluding articles of this course we hope to furnish some curious and useful information on subjects which are scarcely noticed in books devoted to the elements of chess-play.

We quite agree with the suggestion of a recent writer that the best method of learning the names of the pieces with their moves, and the manner of placing them at the beginning of the game, is to take an hour's lesson from a friend. Supposing this to have been done, and the student to be engaged in actual play, he will soon perceive that the various pieces have different degrees of power; that a rook is of more value than a bishop or a knight, and that a pawn is of far less value than a minor piece. He will find the queen to be a match for several pieces, and may be willing to part with a rook, a bishop, and a knight, in order to capture his antagonist's queen. The different values of the pieces and pawns are soon appreciated by the player, and he endeavours to regulate his exchanges accordingly; nevertheless, few persons have attended to the circumstances which decide these values, and although they are numerically expressed in most elementary works yet the computations which have led to them are always omitted.

If a general had two bodies of troops similar in most respects, but one of which, from any cause whatever, could occupy only a particular part of any hostile district; while the other was capable of occupying different posts at distant points by a series of rapid movements; the first body would, generally speaking, be far less valuable than the second. Now something analogous to this occurs at chess: those pieces which are capable of taking the greatest range over the board, and of making the most rapid movements, are the most valuable. For the hills and valleys of a contested country, we have nothing but black and white squares on the chess-board: therefore the test of strength which we are now considering is this,—how many squares of the chess-board can each piece or pawn command at one time?

In the first place, let us suppose the board to be cleared of its pieces and pawns, and one of each to be placed on it in succession. Choose a central square, such as the king's 4th, and ascertain how many squares a pawn or a piece can command from that position. A pawn placed on that square commands two others, being those to which it would move if it made a capture. The knight could move to any of 8 squares; the bishop to any one of 13 squares; the rook to 14; the queen to 27; and the king to 8.—We refrain from demonstrating these numbers, because the reader can easily satisfy himself on this point, by placing the pieces, one after another, on the king's 4th square, all the other squares being unoccupied. So far, then, as this mode of comparison is concerned, the power of the pieces to move on to other squares is

Pawn ...	= 2
Knight...	= 8
Bishop ...	= 13
Rook ...	= 14
Queen ...	= 27
King ...	= 8

But we have now to inquire whether this proportion exists for all the squares equally. A very little experience will show that it does not: every piece is diminished in value as it approaches the edges of the board; but this diminution is not the same for all. Let us select the king's rook's square, and notice the change in the powers of the pieces. Testing them one by one, we shall find that the number of squares to which each can move is—

Pawn ...	= 1
Knight...	= 2
Bishop ...	= 7
Rook ...	= 14
Queen ...	= 21
King ...	= 3

Here it will be seen, that while the rook has not changed in value, the others have done so considerably, but in different ratios. If we select any other square intermediate between the centre and the corner, we shall find the numbers to be higher than the one, and lower than the other of our two lists. The knight, for instance, commands 2, 3, 4, 6, or 8 squares, according to where he may be situated; the bishop commands 7, 9, 11, 13 squares; and so on. The correct way, therefore, of comparing the powers of the pieces in moving over the open board is to suppose a piece to be placed on every one of the sixty-four squares in succession—to add up the respective powers in all these positions,—and to divide the result by 64. This is a process analogous to that employed in every department of science for the obtaining of an *average* or *mean*, whereby small errors, variations, and discrepancies, become absorbed, or expunged by mutual correction in the general result; and it is perfectly applicable in the present case. This being done, it is found that the *average* power of each piece to move over the open board is nearly as follows:—

Pawn ...	= 1½
Knight...	= 5½
Bishop ...	= 8½
Rook ...	= 14
Queen ...	= 22½
King ...	= 6½

Here the bishop is said to be = 8½, which means that in consequence of his sometimes commanding as many as 13 squares, and at other times as few as 7, the average of the whole is 8½; and so of the others—the rook being of constant value in any position on the open board.

We have now something like a test of the respective powers of the pieces, by which we begin to see the advantage of making exchanges of one for another. But still this is nothing more than a groundwork on which to found subsequent calculations, for we have proceeded on a supposition which never occurs in practice,—viz., an open or cleared board. The intermixture of pieces among each other over the field of contest, gives rise to variations so complicated and so remarkable that it has required great analytical research from distinguished men, to trace them to their sources. We strongly doubt whether this has yet been done correctly; but still an approximation to correctness has been made, and we will briefly notice the manner in which the inquiry has been conducted.

We have hitherto considered the board to be cleared, and have ascertained the relative values of the pieces on that supposition. Let us now suppose the pieces and pawns to be arranged for the commencement of a game, and view their positions before the game begins. Here we are struck with the remarkable fact that the pieces are almost powerless; it is true they act as defenders of the pawns which front them; but as to the power of moving, none of them possess it except the knight. The king, the queen, the bishop and the rook cannot move a step until some of the pawns are moved, and the knight owes his power of moving to his singular privilege of leaping over other pieces or pawns. So far, then, as the power of moving is concerned, a pawn is actually more powerful than even a queen at the commencement of the game.

Now in actual play, the relative powers of moving are *always* intermediate between the two extremes which we have mentioned, from the time of the first move being made, the constrained limits of the pieces begin to be broken, and their natural powers to be developed; but

on the other hand, these powers never attain the rank given to them by our first supposition, for the two kings—even if nothing else—are always on the board. The power of moving from square to square varies as the game proceeds, but not with equal rapidity: for instance;—the knight is powerful from the very beginning of the game, because whatever be near him he can leap over the intervening piece; while the rook is seldom of much use till several of the pieces and pawns are off the board. The rook increases his value by the *thinning* of the combatants more rapidly than any other piece, and therefore the ratio of his value is continually increasing.

It thus appears that the degree of openness of the board changes the proportionate value of the pieces, and it is difficult to fix a point where the power may be deemed an average between the highest and lowest. It is assumed, however, that we may suppose each party to have lost three pieces and four pawns, leaving four pieces and four pawns to defend the king. This is a fraction more than half the original forces, and may therefore be taken as an average or medium between the powers possessed by the respective pieces when the board is quite open, and when all the pieces are arranged for the commencement of a game.

If during the progress of a game, when about half the pieces and pawns have been removed by mutual exchanges, one of the players estimate the various powers of his remaining pieces, he may sometimes observe that a whole rank, or file of squares is blocked up by the intervention of one single piece or pawn, and moreover, that the intervening piece or pawn may be of his own party. In such a case his own troops actually stand in each other's way; and the less skilful player, the more likely is this self-imposed blockade to occur. It may, and sometimes does happen in practice, that every square to which the knight's peculiar leap allows him to move, is occupied by one of his own forces; and the queen, after making a capture, is frequently found to be so hemmed in by inferior pieces and pawns,—some of her own party, and others belonging to the antagonist, but well supported—that she becomes almost useless. If a piece be blocked up by one of the same party, the moving power in that direction is temporarily suspended, until the obstructing piece is removed; and if the obstructing piece be of the opposite party, but of inferior value, and *supported*, to capture that piece would be a loss, so that a passage in that direction may be deemed practically blocked out. From all this it will be seen, that the comparative values of the pieces, at and about the middle of the game, are greatly modified by the *liability of obstruction*, arising from the intervention of a piece belonging to the same party, or of a supported inferior piece of the opposite party.

Other variations in value will be noted in our next article on this subject.

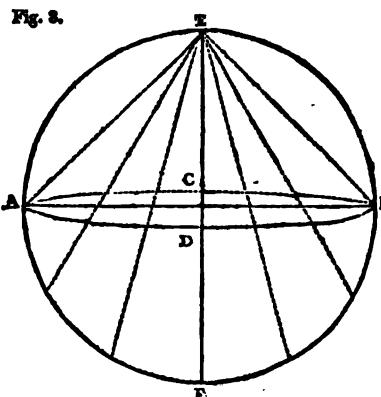
FRUITS OF SINGAPORE.—The boats are seen entering the harbour before sun-rise, laden with pine-apples and other fruits: the former, although not equal to those of the English hot-house, bear no comparison, from their superior flavour, with the same fruit of either East or West Indian growth. Here they are in such abundance that captains of ships frequently purchase them by boat-loads to scour their decks, which from the acidity they possess, they have the property of whitening. But here, and here only in its prime, is found the most delicious of all fruits, the mangosteen, which, once tasted, is never forgotten; and often, on a sultry Eastern morning, the traveller recollects the baskets of these cool and luscious fruits that were here his morning meal.—*Six Months with the Chinese Expedition.*

THE only difference between the camel and the dromedary is, that the latter is trained for riding, and the former for burdens. The distinction, at the most, is the same as between a riding-horse and a pack-horse; but, among the Bedawin, so far as our experience went, it seemed to amount to little more, than that the one had a riding-saddle, and the other a pack-saddle.—*ROBINSON'S Palestine.*

MAPS AND MAPPING: III.

THE STEREOGRAPHIC AND THE GLOBULAR PROJECTIONS.—DEVELOPMENT—CONICAL—CYLINDRICAL.—MERCATOR'S PROJECTION.—CONCLUSION.

3. THE STEREOGRAPHIC Projection of the sphere is so named, because the *delineation* is supposed to be made by taking a view through the *solid* sphere. In this projection, the eye is considered to be placed at the surface of the sphere, as at *E*; hence, it views the concave of the opposite hemisphere *A F B*, through the plane of that circle *A C B D*, in the pole of which the eye is placed



This projection is therefore the reverse of the orthographic: in the latter the hemisphere was thrown down upon the plane of a great circle; but, in the stereographic method, the hemisphere (*A F B*) is brought up to this plane, (*A C B D*), which is the plane of projection.

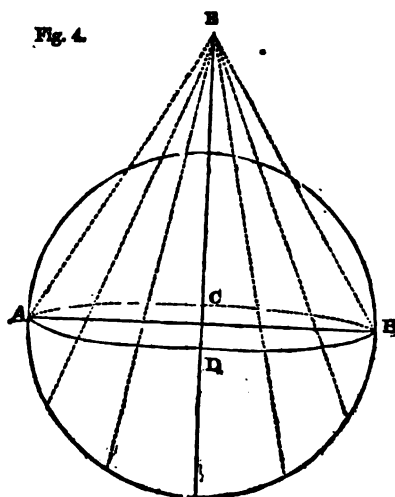
Although, as is evident from the foregoing figure, all the various places on the concave hemisphere *A F B* suffer considerable contraction in being represented on the plane of projection *A C B D*, yet the advantages offered by this method of projection have brought it more into use than the methods before mentioned. It is especially calculated for maps of the world, as usually made in two hemispheres, from the circumstance of the representation being so little distorted at the extremities; as may be seen, in the figure, by tracking up the several parts of the concave circumference *A F B* to the plane of projection above.

This projection is also preferable, on account of the meridians and parallels intersecting each other at right angles, as they do on the globe. Its construction also is less difficult than that of others; since all the great circles of the sphere are either circles or straight lines in the projection. The meridian of 20° W. is the one usually selected by English geographers for the plane of projection in these maps for the world, because this meridian passes very nearly between the eastern and western continents, which therefore occupy their respective hemispheres.

4. THE GLOBULAR projection is a modification of the last, and is so named, because, like the stereographic, it is chiefly used for making maps of the world.

We have already shown that the stereographic projection insures a general similarity in all its parts, and enables us to project at least a hemisphere in a single map, without any violent distortion of the configurations on the surface from their real forms. But as in the orthographic projection the borders of the hemisphere are unduly crowded together, in the stereographic their projected dimensions are, on the contrary, somewhat enlarged in receding from the centre. This will be visible by inspecting the previous figure.

To meet this inconvenience, and to give a general equability to the perspective, the globular projection was originated by M. de la Hire, on the following principle:—He supposes the eye to be placed at a distance



from the sphere equal to the sine of 45° ; that is, if the diameter of the sphere be equal to two hundred, the distance of the eye from the nearest point of the circumference would be $70\frac{1}{2}$. Some further modification was subsequently deemed desirable, in order that the meridians might intersect the equator at equal distances. This condition is very nearly fulfilled when the distance of the eye is $59\frac{1}{2}$, the diameter being 200, as before.

In this projection, therefore, the arcs of the sphere, and their projections, are very nearly proportionate to each other; or, in other words, equal spaces on the spheric surface are represented by equal spaces on the map, by an approximation as near the truth as can be.

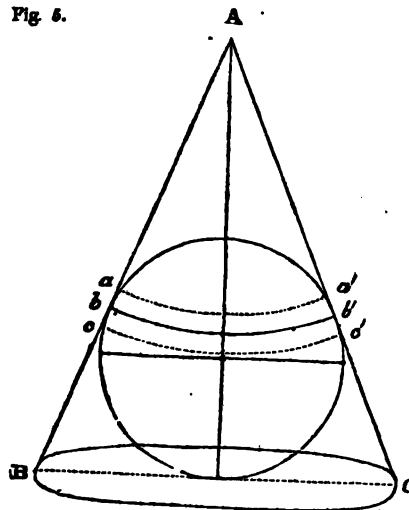
When the eye is placed at the surface of the sphere, as at *E*, (fig. 3.) all the meridians and parallels are represented on the plane of projection, as they really are on the surface of the globe itself; they are all circular: but, when the eye is placed out of the surface, as at *E*, (fig. 4,) the meridians and parallels lose the form of circles, and become ellipses, in proportion to the distance of the eye from the surface of the sphere. The meridians and parallels in the globular projection are, therefore, in reality, ellipses. They are not, however, usually drawn so; geographers contenting themselves with circular, in place of elliptical curves; and, as the deviations are excessively small in this projection, the practical utility of the map is not affected.

II. Projection, when referred to the principle of DEVELOPMENT, is understood to be the unfolding, or spreading out, of the spherical surface on a plane. This, however, first supposes the sphere to be converted into a cone or a cylinder;—these being the forms, portions of which most resemble portions of a sphere, and which, at the same time, are susceptible of the required development.

The methods of projection before explained, are usually employed in the representation of a hemisphere; but are seldom used in delineating the geographical features of a single country: for these the method of development is commonly employed, which is of two sorts,—the Conical and the Cylindrical.

1. It is a known property of a cone, that its curve surface can be expanded into a plane; hence, any figure delineated on it, can always be exhibited exactly in all its dimensions on a plane surface. Now, a part of the surface of a sphere contained between two parallels of latitude, not very remote, will not differ much from the surface of a frustrum of a cone, that touches the sphere at the parallel midway between them. Hence, it will be seen that, in the conical projection, the sphere is supposed to be circumscribed by a cone *A B C*, which touches the sphere at the circle intended to represent the middle parallel of the map,—*bb'*. If the points on the sphere are now projected on the cone by lines drawn from the

Fig. 5.



centre, it is evident that, in a zone extending but a short distance on each side of the middle parallel, as the zone included between *aa'* and *cc'*, the points on the cone will very nearly coincide in position with the corresponding ones on the sphere. All the delineations having been thus made, the cone is then conceived to be unrolled, or developed, on a plane surface.

If the map be made to extend much above or below the middle parallel, the distant parts will be very much distorted. To remedy the defects of this projection, various modifications have been suggested and used; but into these our limits will not allow us to enter.

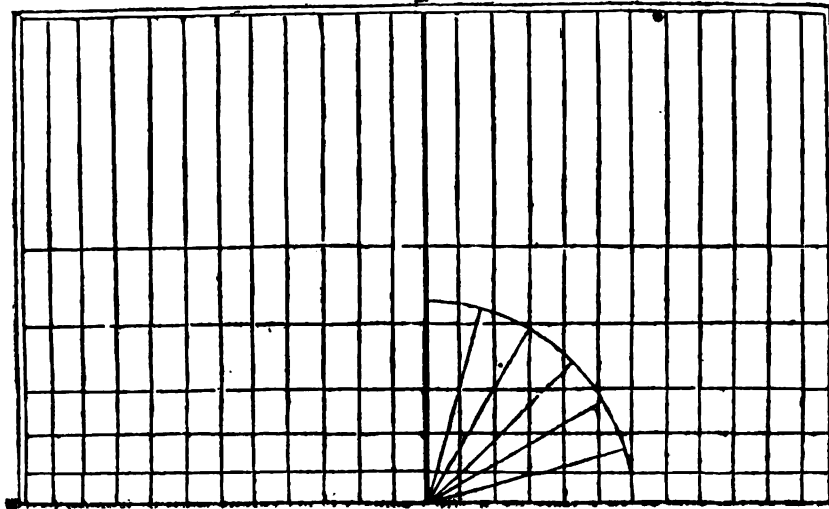
We cannot help observing, therefore, that the conic method of development is best adapted to represent countries to any extent in the difference of longitude, or round the whole circumference of the earth, if required to only a certain extent in difference of latitude. This projection is simple and easy of construction, owing to the facility of describing the parallels of latitude in concentric circles, and the meridians in straight lines.

At the first view of the case it might be difficult to conceive that the surface of the globe could be represented by a part of the surface of a cone; yet we may easily produce the surface of a cone from a piece of paper cut into a circular form or base; and we could as easily conclude that, if a cone, about twice the height of the semi-diameter of the globe, were to be conceived as standing on the same base with the hemisphere, namely on the equator, the surface of such a cone would in part lie within the surface of the globe, and then that the surface of the globe, at so small a distance from the surface of the cone, might be very easily projected or delineated on it; and in such a case, the projection of the countries and their bearings, distances, &c., will be very nearly the same on the surface of the included part of the cone, as on that of the globe itself.

2. From what has been said of the cone, it will be easily seen that a cylinder may be applied to the sphere in a similar manner, and that a zone of very limited extent in latitude may, without very material error, be developed on a cylinder. The peculiarity of this method is, that the meridians, as well as the latitude-circles, are projected in parallel straight lines; which circumstance makes it very applicable to nautical purposes, and from which originates the ingenious method, called *Mercator's projection*, which is now so universally adopted in our charts, and to which, in the last place, we must briefly allude.

The line on which a ship sails, when directing her course obliquely to the meridian, is on the globe a spiral; since it cuts all the meridians through which it passes, at equal angles. Owing to this and other causes, a map constructed on the principles of the spherical projections,

Fig. 6.



was found to be very inadequate to the wants of the navigator. Mercator justly considered, that mariners do not employ maps to know the true figures of countries, so much as to determine the course they shall steer, and the bearing and distance of those points or places which lie near their track; and this projection is the result of his efforts to secure to the seaman these desirable ends. The merit of this work is thought by many to be more justly due to Wright; for, although Mercator published his first chart in 1556, he omitted to explain the principles of it; and his degrees of latitude did not preserve a just proportion in their increase towards the poles. Wright, in 1599, corrected these errors, and explained the principles of his improved construction, in which the degrees of latitude on the chart were made to increase towards the poles, in the same ratio as the degrees of longitude decrease on the globe; by which means, the course which a ship steers by the compass, becomes on the chart a straight line; yet, the various regions of the map, however distorted, preserve their true relative bearing, and the distances between them can be accurately measured.

The modes of projection which we treated of, before entering upon those of Development, may be considered natural ones; inasmuch as they are really perspective representations of the surface of half the globe on a plane. Mercator's is entirely an artificial one, representing the sphere as it cannot be seen from any one point, but as it might be seen by an eye carried successively over every part of it. In it, the degrees of latitude and longitude bear always to each other their just proportion; the equator is conceived to be extended out into a straight line, and the meridians are straight lines at right angles to it, as in the figure. Altogether, therefore, the general character of maps on this projection is not very dissimilar to what would be produced by referring every point in the globe to a circumscribing cylinder, by lines drawn from the centre, and then unrolling the cylinder into a plane. Like the stereographic projection, it gives a true representation, as to form, of all the parts, but it varies greatly in scale, in its different regions; the polar portions in particular being of necessity extravagantly enlarged, as the upper part of the figure shows; and the whole map, even of a single hemisphere,—that is, from pole to pole, or 180°,—not being comprisable within any finite limits.

Mercator's chart may be produced by development in the following manner:—Conceive that a sphere, with the meridians and parallels and countries delineated on it, is inclosed in a hollow cylinder, and that the axis of the sphere coincides with that of the cylinder. Imagine now

that the sphere is expanded in its dimensions, just as a soap-bubble is produced by blowing air into it, or as a bladder would swell in all directions by inflation, the parts always stretching uniformly;—the meridians will then lengthen in the same proportion as the parallels, till every point of the expanding spherical surface comes into contact with the concave surface of the cylinder: the meridians will at last become straight lines, and the parallels circles on that surface; the former in the direction of its length, and the latter parallel to its base, which is the equator, *w. m.* Suppose now the cylinder to be cut open along one of the meridians, and spread into a plane, the surface thus produced will be Mercator's chart.

In works on navigation are to be found tables of "Meridional parts," by means of which the meridians of these maps may be duly divided for drawing the parallels of latitude and the positions of places accurately laid down.

Thus we have endeavoured to lay before our readers the fundamental principles on which the art of map-making has for several centuries been built up. If he should be pleased with the subject, he may now advantageously have recourse to such treatises of this sort as show up, in all its details, the entire process of constructing maps and charts of all kinds.

In the infancy of a science there is no speculation as absurd as not to merit examination. The most remote and fanciful explanations of facts have often been found the true ones; and opinions, which have in one century been objects of ridicule, have, in the next, been admitted among the elements of our knowledge. The physical world teems with wonders, and the various forms of matter exhibit to us properties and relations far more extraordinary than the wildest fancy could have conceived. Human reason stands appalled before this magnificent display of creative power, and they who have drunk deepest of its wisdom will be the least disposed to limit the excursions of physical speculation.

The influence of the imagination as an instrument of research, has, we think, been much overlooked by those who have ventured to give laws to philosophy. This faculty is of the greatest value in physical inquiries: if we use it as a guide, and confide in its indications, it will infallibly deceive us; but, if we employ it as an auxiliary, it will afford us the most invaluable aid. Its operation is like that of the light troops which are sent out to ascertain the strength and position of an enemy. When the struggle commences, their services terminate; and it is by the solid phalanx of the judgment that the battle must be fought and won.—*Sir DAVID BREWSTER.*

RURAL SPORTS FOR THE MONTHS. SEPTEMBER.

Nor on the surges of the boundless air,
Though borne triumphant, are they safe; the gun,
Glanced just, and sudden, from the fowler's eye,
Overtakes their sounding pinions: and again
Immediate brings them from the towering wing,
Dead to the ground: or drives them wide dispersed,
Wounded and wheeling various, down the wind.
These are not subjects for the peaceful Muse,
Nor will she stain with such her spotless song;
Then most delighted when she social sees
The whole mixed animal-creation round
Alive and happy.

THOMSON.

On the first day of the present month, the shooting of Partridges becomes lawful, and is joyfully entered on by a vast number of persons throughout the country. It generally forms the young shooter's first lesson at game, and in order to be successful he carefully notes the habits of the bird at different seasons, and under different sorts of weather, &c.

In the zeal for destruction which seems to pervade all ranks and classes of society at this particular period, it may seem out of place to speak of the usefulness of the animals which form the especial object of pursuit, or to offer a recommendation in their behalf, that the war against the species may be regulated, and kept within due bounds, so that man may not reduce their numbers to his own injury. In the case of the partridge, as well as in that of many other birds, it is fully believed that if we understood their habits aright, we should often be disposed to cherish that which we are now zealous to destroy.

The common partridge seems in an especial manner to belong to an agricultural country. Wherever the soil is extensively cultivated, there it thrives and multiplies, and with all the persecutions to which it is subjected, we never find these birds driven to make their permanent home in wild and solitary places. Their pertinacious adherence to the same turnip-field, or to the same clover-tatted stubble, has aptly been compared to that of a mountain-tribe of human beings clinging to their fastnesses in a war of extirpation.

Now it cannot be supposed by any reflecting mind that the habits with which these birds are endued, their attachment to a cultivated soil, and the rapid multiplication of their species, are without their particular use and end in the economy of Nature. There must be good design in it, and one in which the welfare of the human race is concerned. It has been well said that that which invariably accompanies improvement, is, we may rely on it, necessary to improvement; and it is not difficult to see that it is so in the present case. All birds that feed upon the ground live almost exclusively upon insects, under which general name we include many small living creatures, to whom the application of the term, in its strict sense, does not belong. And although the partridge also feeds on grain, seeds, bulbous plants, &c., and thus partakes of the produce of the cultivated soil with man, yet the service it renders in consuming the overplus of insects may be set against this; and if it could be fairly estimated would, we doubt not, be found more considerable than the injury sustained.

The time of the year, the weather, and many other circumstances influence the practice of the partridge-shooter. The usual way of proceeding in search of these birds in September is to try the stubbles first, and then the potato and turnip-field, where the birds frequently bask when such fields lie contiguous to the stubble. When the shooter breaks a covey, he proceeds without loss of time to search after the dispersed birds, for the parents begin to call almost immediately on their alighting, the young ones answer, and in less than half an hour, if not prevented by the presence of the shooter and his dogs,

the whole of the covey will be re-assembled, probably in security in some snug corner, where the shooter least thinks of looking for them. Dispersed birds afford what is called the "best sport" to the shooter, for while under the protection of the old ones they are guided by the superior sagacity and watchfulness of their parents, but when deprived of them, they are truly discomfited, and do not know whither to run for safety: as the season advances, birds are longer in re-assembling. In this respect much also depends on the weather and the time of the day. The habits of partridges at the early part of the season, are somewhat as follows.—Just before sunrise they run to a brook, spring, or marsh, to drink; from which place they almost immediately fly to a field where they can find plenty of insects, or to the nearest corn or stubble field, when they will remain, according to the state of the weather, and other circumstances, until nine or ten o'clock, where they go to bask. The basking-place is frequently on a sandy bank-side, facing the sun, where the whole covey remains huddled together for several hours. About four or five o'clock they return to the stubbles to feed, and about six or seven they go to their *jucking-places*, a place of rest for the night, where they remain closely packed together until the morning. Their times of feeding and basking vary according to the length of the days. While the corn is standing, partridges will often remain in it the whole day. The uncertainty as to where partridges may be found increases after the middle of October. At this time if much disturbed they will occasionally take shelter in the woods, where they may be flushed one by one.

The number of birds in a covey varies much, but is considered to average from ten to fifteen. The length of flight of a covey also differs according to the nature of the ground. In a fertile farm in a corn country, the sportsman has not any great distance to travel before he comes again upon his covey, sometimes the mere passing of a hedge will enable him to reach them, but in a very open country, where the birds have been used to a much more extensive range, a mile, or even more, has been traversed in following their flight.

The partridge of Britain (*Tetrao Perdix*, Linn.) is of two kinds, the common, or ash-coloured (*cinerea*) and the Guernsey or red-legged (*rufa*); but the latter is almost entirely confined to the Channel Islands.

The common partridge is so well known that it is almost unnecessary to describe it. The weight of a full-grown male bird in good condition is about fifteen or sixteen ounces, that of the female, about two ounces less; the length of the entire bird is about thirteen inches, the breadth twenty. The bill, and naked parts, are of a bluish-gray colour, with the exception of a red spot behind the eye. The general colour of the plumage is brown ash, elegantly mixed with black, and each feather is streaked down the middle with buff-colour. The feathers of the throat, cheeks, and over the eyes are reddish-orange. The legs of the male are furnished with a blunt spur, or knob behind, and the breast with a crescent of a deep chesnut colour. The feathers of the female are in general of a duller hue than those of the male, but it is only the experienced sportsman that can distinguish the difference of sex when the birds are on the wing. Those who are able to do this always aim at the male bird, as there is a greater number of male partridges, than of females.

The age of partridges is discovered by the bill and legs, which are yellowish when young, but become of a dark bluish-white as they increase in age. Another method is, by examining the appearance of the last feather of the wing, which is pointed after the first moult, but in the following year is quite round. The size, and plumage of the partridge, however, is much affected by local circumstances: the finest birds are found in those situations where cultivation has been the most successful, while in districts that are comparatively unproductive

and sterile, the appearance of the bird has occasionally led to the opinion of its being a distinct species, or at least a variety.

Partridges are the most prolific of the wild gallinidæ, the eggs being seldom fewer than twelve in number, while they are often as many as twenty, and have on several occasions greatly exceeded that number, as the following instances will show. In the year 1793 a partridge nest was found in a fallow field on the farm of Mr. Pratt, near Ferling, in Essex, with thirty-three eggs; twenty-three of the eggs were hatched, and the birds went off; the number of the eggs was ascertained before hatching to decide a bet laid by a person who refused to credit so unusual a production. In order to cover the whole of the eggs, the female had piled up seven in a curious manner in the centre. A nest was also found in 1798, at Elborough, Somersetshire, in a wheat-field, with twenty-eight eggs. Mr. Daniel tells us that upon the farm of Lion Hall, in Essex, belonging to Colonel Hawker, 1788, the following incident was known to many persons. A partridge, instead of forming her nest as usual, on the ground, chose the top of an oak pollard, and this tree, too, had one end of the bars of a stile fastened to it, so that the passengers along the footway, in getting over the stile, disturbed and uncovered the bird before she began to sit close. The farmer, whose name was Bell, apprised Mr. Daniel of the circumstance, which he laughed at as being the report of the work-people, and said it was only a wood pigeon they had mistaken for a partridge; but the former, who had killed some hundreds of partridges, so positively affirmed his having beheld the bird upon the nest on the tree, and also having told the eggs to the number of sixteen, that Mr. Daniel was persuaded to ride to the spot, where the partridge was seen sitting: in a few days she hatched sixteen eggs; and her brood, scrambling down the short and rough boughs which grew around the trunk of the tree, reached the ground in safety.

The nest usually made by the partridge is merely a hole scratched in dry mould, or a few bents and decayed leaves strewed roughly in the hollow made by an ox or horse's hoof. Sometimes it is formed on hedge-banks, sometimes in corn or grass, frequently in clover. It is often found beneath the shelter of some low bush or tuft of grass. The eggs are generally laid about the latter end of May; they are of a greenish-gray colour, and the female sits so remarkably close, that not only does she not rise when her nest is approached, but it is difficult to drive her from it. She is at this time very bold in driving off her winged foes; and magpies, cranes, and other plunderers of nests, are valiantly opposed in their depredations. The male partridge does not share the labour of incubation, but is attentive to his mate, and joins her in defending the brood, and uses many arts to decoy visitors away from the nest. Frequent and heavy rains during the time of laying and incubation are very unfavourable; many of the eggs are chilled or drowned, and if the weather is wet when the young first leave the shell the cold benumbs the little strength they have in their legs, and they soon fall and die, even while their mother is leading them forth in search of food.

The affection shown by the partridge for its young is peculiarly strong and lively. Both parents seem equally assiduous, after the birds are hatched, in leading them out, and directing them to their proper food, and in protecting them by every means in their power from their enemies. Insects, larvæ, and eggs, are the food of young partridges; ant-eggs, in particular, seem necessary to their existence. At this period the male and female frequently sit close together and cover the young with their wings, exhibiting such evident marks of parental tenderness, that few persons would willingly disturb or injure them in such a situation. When they are accidentally discovered, or alarmed by a dog, they act in a manner thus described by an eye-witness:—

The male first gives the signal of alarm by a peculiar distressful cry, throwing himself at the same moment more immediately in the way of danger, in order to mislead the enemy; he flies, or rather runs along the ground, hanging his wings and exhibiting every symptom of debility, whereby the dog is decoyed by a too eager expectation of an easy prey, to run further from the covey. The female flies off in a contrary direction, and to a greater distance, but soon after secretly returning she finds her scattered brood closely squatted among the grass, and collecting them with haste by her jucking she leads them from the danger before the dog has had time to return from the pursuit.

Partridges are easily tamed, but do not breed in confinement. An instance is given of one of these birds becoming so familiar in a clergyman's family where it was reared, that it would attend the parlour at breakfast and other times, and would afterwards stretch itself before the fire, seeming to enjoy the warmth as if it were its natural bask on a sunny bank. The dogs of the house never molested it, but at last it fell under the paws of a strange cat and was killed. The eggs of partridges are frequently collected, and hatched under domestic hens, the broods being afterwards turned into preserves for the purpose of stocking them. In this case, the food of the young birds should at first consist of the eggs of the small ant; afterwards they should be fed with fresh curds mixed with lettuce, chickweed, or groundsel. It will be some time before they can eat grain readily.

In Franklin's *Constantinople* we meet with an account of the method practised by the Arabs of Mount Lebanon in taking the partridge, so that "to hunt the partridge upon the mountains" is still, as in Scripture times a custom of that country. The Arabs make a slight square frame of wood, of about five feet in height, over which they stretch an ox-hide perforated in three or four places. The ox-hide is moved quietly in an upright position, and the Arab concealing himself behind it, is hidden from the view of the game, which unsuspectingly allow the sportsman to come within shot of them. The Arab, seeing through one of the apertures, quietly protrudes the muzzle of his long musket through another hole, and firing upon the birds, as they feed in coveys upon the ground, kills a great many of them.



PARTRIDGES.

In all these, (the articles of faith comprised in the creed) the sky of my belief is serene, unclouded by doubt. Would to God that my faith, that faith which works on the whole man, confirming and conforming, were but in just proportion to my belief, to the full acquiescence of my intellect, and the deep consent of my conscience! The very difficulties argue the truth of the whole scheme and system for my understanding, since I see plainly that so must the truth appear, if it be the truth.—COLERIDGE.

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SUPPLEMENT,



SEPTEMBER, 1841.

{ PRICE
ONE PENNY.



THE GODDESS OF FORTUNE.

Found by Mr. Gavin Hamilton, near Rome, and now in the British Museum.

A BRIEF HISTORY OF THE FINE ARTS. No. II.

SECTION IV. ROMAN SCULPTURE.

WE have already stated that the decline of Grecian sculpture commenced at the period of the dismemberment of the Macedonian empire, and extended through nearly two hundred years. The fatal blow to its existence was given by the success of the Roman arms. In the year 146 B.C. the celebrated city of Corinth was sacked by the conquerors, and deprived of the treasures of art which had been accumulating for ages. Athens was subdued in the year 88 B.C., and other cities sharing the same fate, the glory of Greece was extinguished, and her splendid works of art were left to the mercy of a people little qualified to appreciate their merit.

The character of the Romans as the conquerors of the world is so little in accordance with the cultivation of the milder arts of peace that we are not surprised to find sculpture, in all ages of their history, existing rather as a plant of foreign growth, partially cultivated in their soil, than as an indigenous production of their own clime. The passion for conquest was too prevailing to allow of enthusiasm for art. The works of Greece and Etruria were valued and admired as the fruits and trophies of their victories, but were not viewed in the light of instruments by which their own moral condition might be improved, and the barbarism of their nation in some measure removed. At the conquest of Syracuse, indeed, we find some appearance of the true feeling of admiration for the arts in the reply of Marcellus, who was accused of unjustly robbing the devoted city of its marble treasures. He declared that he had done so for the good of Rome, that the public edifices might be embellished, and that his own countrymen might acquire a taste for the arts and elegance of the Greeks. But although each victory was followed by the accession of new specimens of art to Rome, and although among these specimens, some of the most exquisite examples of Grecian performances were brought before their eyes, we do not perceive a taste for sculpture to have been awakened, in any measure corresponding with the advantages thus offered to them in the study of the best models of the art. The passion for forming collections, which is stated to have been extremely prevalent at the period to which we now allude, doubtless evinces considerable interest in works of art, and to that source do we probably owe the preservation of numerous specimens which would otherwise have been destroyed. But in the hands of the Romans sculpture soon degenerated, for they had inherited the works of Greece without any portion of the genius of their authors.

During the latter period of the Commonwealth, various sculptors of distinguished name were resident in different parts of Italy, and attempts were successively made by Sylla, Pompey, and Cæsar, to elevate the arts in Rome. They collected statues, gems, &c., and invited to the capital the yet remaining sculptors of Greece, by whose labours not only Rome itself, but many of the cities of Asia Minor, Spain, and Gaul were embellished.

But the chief impulse was given to sculpture as practised in Rome, during the sway of Augustus. The patronage of a monarch who could wield for his purposes the energies of the whole enlightened world, was necessarily of high advantage to the art. He carefully collected the finest works that could be procured, and fixed them in prominent situations in the city: no expense was spared to enrich the different collections of statues and paintings, but of all the sculptors, whose names have reached us as having flourished in this, the best age of the arts in Rome, every one is Greek, and chiefly Athenian. Pasiteles, Arcesilaus, Tropirus, and Evander, were some of the most eminent. "The arts, indeed, were revived, but the creative spirit which infuses life and soul into their productions, which stamps them with originality and thought, could not be recalled. The character of design and of execution is evidently the same as that by which the last era of sculpture in Greece is distinguished, or rather it is superior; for settled government, ample reward, and certain honour, not only drew to Rome every man of talent, but also awakened new powers. But in the finest specimens, there is no evidence of new energies, aided by the union of two separate modifications of talent; nor in the inferior, any exhibition of the more original, though it might be ruder, efforts of an aspiring and distinct national taste. Either or both of these effects would have been ap-

parent, had there been native, prior to this importation of Greek, artists. On the contrary, everything in the sculpture of this era discovers a descent from a state of higher excellence; every touch exhibits rather what has been, than presages the eminence for which we are to draw upon futurity. From Augustus to Trajan, during a period of a hundred and forty years, the principles and practice of the Greeks continued to be observed, with such difference only as political causes can easily reconcile, but with a progressive decay. The most favourable periods during this space were the reigns of Vespasian, Titus, and Trajan; for the reign of Nero, whose taste, like his morals, was corrupt, which Pliny has assumed as an epoch in the Roman school, was propitious to practice, not to improvement." (MUMF.) The taste and energy displayed by Trajan gave new animation to the arts in Greece and Italy, and his reign, together with those of Hadrian and the Antonines, has been accounted the golden age of sculpture in Rome. The distinguishing characteristic of the art as it existed in Hadrian's time, was extreme minuteness of finish, indicating the labour more of the hand than of the mind. Mechanical dexterity was displayed in careful working with the file, the chisel, and the drill, and an air of studied and affected refinement pervaded the whole, to the utter extinction of all characteristic and natural expression. "For the sublime is substituted the difficult, the florid for the elegant; and in every remaining specimen, we can readily detect the taste which preferred a poetaster to Homer, or the laboured inanities of the Sophists, to the vigorous and manly eloquence of Demosthenes and Cicero." The style thus adopted has been considered sufficiently distinct from preceding methods to be called the Roman style of sculpture; and as exhibiting the national taste for display and ornament, it is, perhaps, rightly so denominated, although it appears tolerably certain that even during the flourishing period of the art, Greek, and not native, artists were employed on all the chief works of sculpture that were produced at Rome.

To the munificence of Hadrian, the arts were indebted for much of the prosperity which they enjoyed at the commencement of the second century. Several of the ancient temples which had fallen into decay, were, by his orders, restored, and others were erected in a style not unworthy of the best days of art. He completed the temple of the Olympian Jupiter at Athens, and enriched it with a statue of the god in gold and ivory, and with several other works of art, among which was a colossal statue of Hadrian himself. This prince had a splendid villa eighteen miles from Rome, the celebrated villa of Tivoli, where he collected together such a vast number of specimens of ancient art, that even up to the present time, every fresh excavation has led to the discovery of some object of interest. In 1771, Mr. Gavin Hamilton discovered the head, of which a drawing is given at p. 125. It was found in that part of Hadrian's villa called the Pantanella, and near it a similar head, but of inferior execution, which was deposited in the Vatican. The first-named head is thus spoken of by Mr. Taylor:—

"We cannot too strongly express our admiration of this very spirited and masterly piece of sculpture: its general character evidently shows that it represents a head of one of the Homeric heroes. Many attempts have been made to ascertain the particular person whom it was intended to represent, but hitherto without success. It is considerably inclined to the right, and is looking upward with a countenance expressive of the deepest anguish both of mind and body. The hair of the head, though not long, is in bold and distinct masses, and the beard is very short and close to the face.

"We may remark a great similarity between the character of this head and that of Menelaus in the French collection, supposed to have belonged to a group representing Menelaus supporting the dead body of Patroclus. We are not, however, inclined to think that the head now before us was intended to represent Menelaus, as the head of that hero is in the instance just mentioned, as well as in every other instance which we are acquainted with, covered with a helmet, and the beard is much more ample."

The nose in this statue, and a small portion of each eye, are modern, as are also part of the lobe on the left ear, and a tuft of hair on the top of the head. The bust on which the head is placed is not antique: the line of separation is

marked in the wood-cut. The height is one foot, nine inches and a half.

In the reign of Hadrian some of the superstitions of Egypt were introduced into Italy, and became so mixed up with the worship of the Romans, that the gods of the Nile were publicly honoured, and their statues admitted as objects of adoration. This enlargement of the catalogus of their deities caused a great demand throughout the empire, for statues and other representations connected with the Egyptian ceremonies. Accordingly we find that the villa of Tivoli was decorated with imitations of Egyptian figures and subjects, and that remains of this nature have been found in considerable number, both there and in other parts of Italy.

After the death of Hadrian sculpture rapidly declined, though during the time of the Antonines some attention was paid to the art, and busts of some merit were executed.

The best and most characteristic sculpture of Rome was that which adorned their public monuments, and which recorded the history of their emperors' triumphs; as in the Trajan column, where the exploits of the emperor are represented in one continued winding relief from the base to the summit, and are crowned by the statue of the emperor himself. In the difference of style and execution in the two columns of Trajan and Antoninus, may be distinctly traced the rapid decay of the art during the period which elapsed between their erection, while still later, in the arch of Septimus Severus the low condition of the art is fully manifested. The arches raised to Titus, Trajan, Severus, and Constantine are among the principal compositions of Roman sculpture. "They breathe," says Flaxman, "the spirit of the people they commemorate, which was conquest and universal dominion; they owe no inspiration to the muses, urge no claim to the epic, or dramatic; they are the mere paragraphs of military gazettes, vulgar in conception, ferocious in sentiment; on the columns and arches, the principal objects are mobs of Romans cased in armour, bearing down unarmed, scattered Germans, Dacians or Sarmatians, soldiers felling timber, driving piles, carrying rubbish, shouldering battering rams, killing without mercy, or dragging or binding captives."

The efforts of Constantine, on his ascending to the imperial dignity, were directed to restore that feeling for the arts which seemed almost to have departed from Rome. He established schools of architecture, and distributed rewards and privileges among the most distinguished students, endeavouring thus to excite an honourable emulation among the youths of the capital. By these means he succeeded in raising several considerable buildings, but in adorning them he was obliged to have recourse to the sculptors of a former age, and to seek afresh in the cities of Greece and Asia Minor for such remains of ancient art as had been left by former collectors. He also gave employment to artists of his own time, but their works, chiefly in metal, showed but too plainly that the spirit of ancient art was irrecoverably lost. To give the reader some idea of the profusion of plundered specimens of art which were eventually collected together at Rome, we may state that no less than eleven thousand exquisite works of Greek and Etruscan sculpture adorned the imperial city in the time of its splendour; so that Petronius, alluding to the taste for these ornaments and the profusion of them, observes, that it was easier to meet a god in Rome than a man.

The establishment of a seat of imperial government at Constantinople was a fatal blow to the greatness of Rome, and another cause for the continued decline of the arts in the latter city; yet it is from the reign of Constantine, when Christianity was established in the empire, that the dawning of modern art is recognised. It will be seen from the foregoing sketch that Roman sculpture is so inferior as to bear no comparison with that of Greece. The best works were produced by Greek artists, and the attempts of the Romans are for the most part characterized by poverty of invention, meanness of design, and unskillful execution. The art seems seldom to have met with efficient patronage, except where busts or portrait statues were required to please the vanity of individuals; accordingly we find the excellence of these latter works conspicuous above that of the other departments of art; indeed, the collection of busts of successive emperors reaching through a period of three centuries, constitutes an invaluable series, as it regards the history of art.

In the illustrations which accompany our notice of Roman sculpture our readers will observe that though each of the specimens we have represented was found near Rome, there

is reason to believe that in each case the work was either in part or wholly the work of Greek artists. The statue of the Goddess of Fortune was found by Mr. Gavin Hamilton near the *Via Latina*, a short distance from Rome. The description runs thus: "The statue of the Goddess of Fortune with a modius on her head; her right hand holds a rudder, the lower part of which rests upon a globe, and her left hand supports a cornucopia filled with corn and fruits of different kinds. The modius and the cornucopia allude to the abundance supposed to be conferred by this goddess upon her votaries. From a passage in Horace, in which Fortuna is styled the mistress of the sea, it has been conjectured that the rudder is a symbol of her particular influence over that element. But it is more probable that the rudder is a metaphorical symbol of her general dominion over the affairs of the world, and this latter supposition seems to be very fully confirmed by the circumstance of the rudder being placed upon the globe."

"Fortune was worshipped in very early times by the Greeks; but her image does not appear on any of the more ancient Greek medals, and indeed of the numerous figures of her now extant both in marble and bronze, not one appears to be of high antiquity. It was not till the time of the Roman emperors that the worship of this goddess was universally established. After this period one of the most common figures on the Greek and Roman coins was that of Fortune; and as a proof of the great ascendancy which she was believed by the Romans to hold over the interests of mankind, no less than twenty-five temples were erected to her at Rome."

Of this statue, the neck and nearly the whole of the modius are modern, and the head, though ancient, has belonged to another figure. The right hand and the whole of the rudder, except a small portion attached to the globe, are also modern, as is the left hand and the lower part of the cornucopia. The height, including the pedestal, is three feet, one inch.

The terminal head of the bearded Bacchus, of which we give a representation at p. 128, was found near the *Porta Latina*, at Rome. It is crowned with vine-leaves, which descend on each side of the face, and with a broad ample diadem, hanging loosely over the forehead in the form of a festoon. Most of the ancient marble termini have a square cavity on each side of them, rather below the shoulders, but in the present example, these cavities are filled up by two square projections on which the ends of the diadem rest. These projections show the ancient mode of joining a number of these termini together by rails or bars, in allusion to the use to which termini were originally applied, namely as fences, and boundaries.

In concluding these remarks on Roman sculpture we may naturally be led to inquire, what is the reason that a people so distinguished as this, for manly and persevering talent, should, of all the nations that have held supremacy in the earth, be the least remarkable for any bold peculiarities, or successful darings of their own genius? especially in an art where the practice is laborious, the principles grave and simple, and therefore, apparently well adapted to suit the nature of Roman talent? We have already anticipated the most evident answer to this inquiry, in alluding to the warlike and impetuous spirit of the conquerors of the world, which led them rather to action and business than to elegant acquirements. But we must also remember that the art or sculpture was the peculiar eminence of the people they had conquered, and having no respect for its professors, and considering them as little better than slaves, they were the less likely to admire and successfully to practise the art itself. Then the amazing profusion of the beautiful works of Greece, presented them with such abundant means of decorating their buildings and palaces, that there was the less inducement to employ native artists in the execution of works which could not fail of being greatly inferior to these which came ready prepared to their hand.

SECTION V. MODERN SCULPTURE IN ITALY.

Flaxman is of opinion that we may justly date the beginning of modern art, from that period when painting and sculpture ceased to be employed, as heretofore, on the pagan gods, but were engaged to illustrate subjects connected with Christian worship. Thus from the time of Constantine the arts slowly and gradually revived, and an original character made itself apparent, even in the rude and almost frightful attempts of the early Christians. While inspired, perhaps, with a taste for sculpture by means of the scattered remains of Grecian art, they

drew, at the same time from their own resources, and were by no means servile copyists of the artists of a former age. In those early days many of the artists united the three professions of painting, sculpture, and architecture, and sculpture can scarcely be said to have assumed a distinct and appropriate character until the time of Nicolo Pisano, who commenced his profession early in 1200, and exhibited a surprising degree of skill and talent in his art. His works, with those of his son Giovanni and his scholars, still adorn many of the cities of Italy. In the cathedrals of Pisa, Pistoja, Siena, and Orvieto, are magnificent marble pulpits enriched with bassi relievi and statues. These are the works of the Pisani, and give a high idea of their taste and feeling. The façade of the cathedral of Orvieto is decorated with relievi in white marble by the same artists, illustrating some of the principal facts recorded in the Sacred Writings. These performances have attracted much admiration on account of the simplicity and grace manifested in the arrangement of the several groups, and in the form of the individual figures. Nicolo Pisano lived to an advanced age, and though several excellent works were performed by his scholars, it was not till the succeeding century that a worthy successor appeared. This was his grandson, Andrea Pisano, who in the year 1330 executed a work of great beauty at Florence, illustrating the life of St. John. It is in bronze, and forms one of the gates of the Baptistery in that city. His marble statues were considered by Flaxman to be inferior to those of Nicolo and Giovanni, his predecessors.

The first academy of design was established at Florence, in 1350, and at the close of the same century sculpture was once more firmly established throughout Italy, and itinerant sculptors, not unskilful in their art, wandered from thence over Germany, France, and even England, where their works have been traced in the sculptured ornaments of Gothic edifices. Thus did the mild genius of Christianity prove favourable and mainly instrumental in the revival of the arts. "Upon the age now passing in review," says Memes, "when Freedom again rises, we behold genius also revive, as if the sweeter sensibilities and the manlier virtues had altogether slumbered through the long long night of ignorance and despotism. It is thus that spring, breathing on bank and wild wood, unchains the bud and the blossom from the tenderest floweret to the hardy oak."

The labours of the fifteenth century in all the elegant arts will ever hold a distinguished place in history. In the first year of that century no less than six great masters were competitors for the same public work, the bronze doors of the baptistery of Florence, and each of these competitors afterwards became the head of a flourishing school. Their names are, Brunelleschi, Ghiberti, Jacomo della Quercia, Nicolo Lambertini, Francisco di Valdambriano, and Simon dei Colle. Ghiberti, then a youth of twenty-three, was the successful candidate, and the work thus assigned to him occupied forty years of his life, and is one of the proudest triumphs of modern art. The southern door of this edifice had previously displayed the talents of Andrea Pisano: the northern and eastern doors were to carry to future generations the fame of Lorenzo Ghiberti. The northern door represents the life of our Saviour,—the eastern door the most striking events of the Old Testament history. Michel Angelo is said to have admired them so highly that he declared them fit to be "the gates of Paradise."

* "Among the illustrious names for which this period was remarkable, that of Donatello stands deservedly conspicuous. The works of this artist are exceedingly numerous, and are scattered all over Italy: they are executed in every variety of material, and in various degrees of magnitude. His marble statue of St. George was greatly admired by Michel Angelo, as was also the statue of St. Mark, decorating the same building, the church of Or San Michele at Florence. Respecting the latter statue it is said that, after surveying it for some time, Michel Angelo exclaimed, 'Mark, why dost thou not speak to me?' The scholars of Donatello have been divided into two classes,—those who were fellow-labourers with him, and whose celebrity is chiefly owing to the assistance they lent him in his great works, and those more legitimate disciples who, without following servilely in the track of their master, derived their knowledge in the first place from his precepts, and subsequently added to, and even improved on the principles with which they set out.

Respecting this age it has been justly said that modern sculpture attained its manhood. A character of truth and simplicity, faithful imitation of nature, and just expression, visibly begin from the time of Nicolo Pisano, whose own

style was remarkable for sweetness and absence of pretension. A degree of meagreness and restraint long pervaded the early school, yet even in the works of the fourteenth century, the art being chiefly dedicated to devotional purposes, and to the memory of departed worth, "an air of dignified sincerity, a touching portraiture of the gentler affections, diffuse over the mind of the spectator a melancholy yet pleasing serenity, to be felt rather than described." In the succeeding century the style becomes more elevated yet not less true: the execution at the same time is bold and felicitous, and the imitation is faithful to nature. One department of sculpture attained an eminence in the fifteenth century which has not been surpassed. This is the high and the low relief practised by Donatello and Ghiberti, where the sacred subjects represented appear to have imparted to the genius of the sculptors a portion of their own sacred dignity and holy feeling.

It would be foreign to our purpose to describe the works, or even to record the names of the meritorious artists who filled Italy during the fifteenth century: suffice it to say that so great was the advancement in sculpture, so numerous the schools of art, that the age in its bright prospects has been compared to that of Pericles: "it wanted but a Phidias to crown its prosperity, and in Michel Angelo the genius of Greece seemed to be supplied." This extraordinary man united the professions of sculptor, painter, and architect, and was illustrious in each. The opinions respecting him may differ in many respects, but all must agree that his works have a strongly marked character of their own, and possess wondrous power and dignity. His vast and almost superhuman conceptions were executed in a most astonishing manner, and with a perfect knowledge of the true principles of his art. Michel Angelo Buonarroti was born in 1474, and living to the advanced age of ninety, was the means of influencing the efforts of art during the greater part of the sixteenth century. "Anatomy," says Flaxman, "motion and perspective of figure, the complication, harmony, and grandeur of his grouping, with the advantage and facility of execution in painting and sculpture, besides his mathematical and mechanical attainments, in architecture and building, which, together with the many and prodigious works he accomplished, demonstrate how greatly he contributed towards the restoration of art." Some of the most renowned works in sculpture by Michel Angelo are the colossal statue of Moses, a grand, but not altogether pleasing performance; the statues of Lorenzo and Giuliano di Medici; the David; the Virgin and dead Saviour, &c. Several of his works are left in an unfinished state. Impatient of slow progressive toil, yet full of activity and industry, his power of performance could not keep pace with his rapidity of conceiving and designing magnificent undertakings. In the course of his history, which we shall hereafter lay before our readers, in a separate form, it will be also apparent that he had many difficulties to contend with in the execution of his works, arising from the jealousies or ignorance of those by whom he was surrounded. The following opinion on the most celebrated work of this artist may be taken, with some little modification, as giving a good idea of the general character of his performances. "The Moses, on the tomb of Julius the Second, amid the creations of genius rises a solitary and matchless monument. Without model among the productions of antiquity, it has remained inimitable and unimitated in modern times. Neither in Nature do we find its prototype: it is the extraordinary conception of an extraordinary mind. Thus isolated by its own peculiar sublimity of character, this statue exhibits a striking resemblance of the imagination whence it derived existence. We behold a being who awes, who subdues, yet who fails to interest, for with such humanity entertains no communion of feeling. Here the sublime is too exclusively sought in the vehement and the marvellous; every effort is forced; every trait exaggerated, and the whole shows a daring originality, verging on the extravagant and the false." Notwithstanding the faults which the manner of Michel Angelo threw more or less into all his productions, the majesty and grandeur of his statues compensated in a great measure for minor defects. In the numerous imitators of this great man we find that for the most part the manner of the artist, including the faults, is carefully retained, while the stamp of originality and genius is wanting to atone for the latter.

Michel Angelo died in 1564, and was buried in the church of Santa Croce, in Florence, and a monument is raised to him, in which is a basso relievo, by himself, of a Madonna and Child. This monument is the work of his pupils, and

consists of a bust of Michel Angelo over a sarcophagus, with statues, supposed to represent Painting, Sculpture, and Architecture.

Jacopo Tatti, better known as Sansovino, had studied with Michel Angelo, and after his death became the founder of a numerous and respectable school. He presided over the Venetian works of sculpture and architecture, and enjoyed a considerable reputation. Sansovino was more deserving of praise as an architect than as a sculptor. His statues in the Palace of the Doge at Venice are elaborately executed, but very deficient in the true principles of art. At the time at which we have now arrived a profusion of ornament began to be employed in works of sculpture, and artists bestowed that time and attention on minutiae of mouldings, scrolls, flowers, and other merely ornamental works, which should have been given to the higher objects connected with their profession. There are fine specimens of this elaborate style at Venice, but the richness of the effect makes but poor amends for the loss of simplicity and purity.

One of the most distinguished contemporaries of Michel Angelo and of Sansovino, was Baccio Bandinelli, born in 1497. He was extremely unpopular with his brother artists, and is said to have contended with Michel Angelo with less generous weapons than those of talent. To him is attributed the unworthy act of secretly destroying that great artist's celebrated cartoon of the Battle of Pisa, which was considered at the time the most excellent design that had ever been executed, so that all the most celebrated painters of the day attended to make studies from it. We find the works of Bandinelli unsparingly condemned by contemporary writers; but from the specimens of his performances which still remain he seems entitled to a high place among the sculptors of his day. The bassi relievi round the screen of the high altar in the Duomo of Florence are deserving of much praise for their breadth and fine treatment, but they are liable to the charge which attaches to all the other performances of this artist, *i.e.*, a too great appearance of the picturesque, leading to an affected style of attitude and arrangement. In the church of the Annunziata at Florence, is a marble group the size of life, where he introduced his own portrait in the form of Nicodemus supporting Christ. This was intended for his own monument. To this artist was intrusted the restoration of the right arm of the celebrated group of the Laocoon. The next artist to whom we shall refer is Benvenuto Cellini, born at Florence in 1500. He was distinguished as a sculptor, founder, and chaser. His larger works are preserved at Florence, and are all executed in bronze; his smaller works abound in foreign collections, and consist of tasteful ornaments, medals, bucklers, daggers, hilts, &c. Guglielmo della Porta was one of the most skilful of the Lombard sculptors. His most remarkable work is the monument of Paul III. in St. Peter's at Rome. The eumbent figures in this monument representing Prudence and Justice, the one a female of advanced years, the other young and beautiful woman, are exceedingly fine. We have already noticed the taste for fine and curious execution which had become prevalent among artists, to the exclusion of graceful simplicity and repose. This destructive taste was ill illustrated in the works of Giovanni di Bologna, otherwise an artist of talent, and endued with bold and elegant conceptions. Baldinucci, who wrote the life of this artist, records an interview between Giovanni and Michel Angelo, when the former was quite in the commencement of his career, and was anxious for the opinion of the great master on a figure which he had executed with great care and inuteness of finish. After examining the work, "Young man," said Michel Angelo, "learn to compose your figure before you try to finish it." In 1598, Bernini was born at Naples, and though greatly inferior to the mighty master of the last century, he proved himself to be possessed of endowments by which he might have reached a high standard of excellence. He had genius, fertility of fancy, wonderful powers of execution, with unceasing industry and ambition excel. But he had neither a well-regulated judgment, nor a manly taste. To him the simplicity of the ancients seemed meagreness and poverty of style, while the grandeur Michel Angelo was deemed more forcible but too severe. He therefore tried to erect a third style possessing greater strength and energy than the former, and more suavity and grace than the latter. In this futile attempt he was, notwithstanding his great talents, the undoubted instrument hastening the decline of sculpture, by introducing a more and flattering taste, and confirming the tendency to an overloaded and elaborate style. Bernini was master of the

works to several popes in succession, and means were thus afforded him of diffusing his peculiar views. Some of his most remarkable works may be briefly noticed. The monuments of Urban VIII. and Alexander VII. are splendid examples of his talents, though exhibiting fully the influence of the false taste we have alluded to. That of Alexander, in particular, is beautifully executed, but strangely composed. The figure of the pope appears seated in the centre of a deep niche, and all around him is distributed, as a ground-work to the whole, a mass of cloud and curtain, in the four corners of which are plunged allegorical groups of figures. Those in the background are inconspicuous, but the front corners are occupied by Truth and Charity: the latter with her infants is a remarkable instance of the power of the artist to give an unyielding material the semblance of elasticity, the softness and roundness of human flesh. The Apollo and Daphne by Bernini in the Villa Borghese is a very meritorious performance, displaying great skill in execution. A statue of David preparing to throw the stone is full of energy and fine expression; it was an early performance, and forms a portrait of the artist himself. Four colossal statues representing Four Doctors of the Church supporting the chair of St. Peter, in the church of that apostle, are finely imagined, but injured by want of simple expression and attitude.



ANTIQUE HEAD; IN THE BRITISH MUSEUM.

Contemporary with Bernini were Algardi and Flaminio. They were to a certain degree copyists of Bernini, yet both have some claim to originality. The former is celebrated for having produced the largest, though not the best relievo of modern art. It represents the discomfiture of Attila by the miraculous appearance of St. Peter and St. Paul. The work is executed in marble, in five pieces, and measures about thirty feet in height, and eighteen in width. Flaminio at first contented himself with imitations of the style of Bernini; but subsequently copied from nature, and became eminent for his skill in representing the round and healthful forms of very young children. Of some of these representations Rubens is reported to have said, "Nature rather than art appears to have sculptured; the marble seems softened into life."

After Bernini, who died in 1680, Camilla Rusconi, a Milanese, was esteemed the master sculptor of Italy. He

followed the same principles as his predecessor, but his talents were much inferior, and the deterioration of taste became yet more rapid in his hands, while external circumstances also contributed to the fall of sculpture.

It would be superfluous to name the artists, who being either contemporaries with or successors to Rusconi continued with more or less of ability to carry out the same views, in this declining period of the art. Through nearly a century, from the death of Bernini to the appearance of Canova, there is not occasion to pause over the works of a single artist, except to mourn the bad taste by which his talent was warped and misapplied.

"Art has never been reformed," says Memeo, "after a lapse from high eminence, by mere imitations of example however excellent, nor by only following rules for the correction of error. Some mind of uncommon firmness and good sense is required, who beginning with nature brings to the work of reformation original powers and severe judgment; fancy and feeling, with correctness and cultivated taste: one, in short, of those rare minds whose merits, great in themselves, become incomparably greater viewed with the times in which they commenced their career; whose exertions, wonderful in their own accomplishments, are yet more admirable from the progress which others have thereby been able to effect. Such a genius was that possessed by Canova, a name venerable alike for virtue and for talents." For a description of the most celebrated works of this great artist we beg to refer our readers to three articles, entitled *Canova and his Works*, in Vol. XVIII. pp. 18, 50, and 66 of this Magazine. Whether we consider the multiplicity of his labours, the elegance and purity of his taste, the fertility of his genius, or the correctness of his judgment, we must acknowledge Canova to have been a most extraordinary artist, eminently calculated to be the restorer of Italian sculpture from the state of degradation into which it had fallen, and to establish improvement upon genuine and universal principles of art.

The genius of Canova gave a new and general impulse to sculpture. Thorwaldsen, born at Copenhagen, in 1772, is classed among Italian artists, and considered the head of the modern school. The genius of this sculptor is forcible, but its energy is rather owing to peculiar views, than arising from real excellence. His principal works are the *Triumph of Alexander*, two exquisite pieces of *Night and Aurora*, and his *Mercury*—an example of the beauties and defects of the artist's style. His reliefs are remarkably fine. That of *Alexander's Triumph* has been called, notwithstanding some minor defects, one of the grandest compositions in the world. The character of Thorwaldsen as a sculptor has been thus summed up: "Thorwaldsen possesses singular, but in some respects, erratic genius. His ideas of composition are irregular; his powers of fancy surpass those of execution: his conceptions seem to lose a portion of their value and freshness in the act of realization. As an individual artist he will command deservedly a high rank among the names that shall go down to posterity. As a sculptor, who will influence or has extended the principles of art, his pretensions are not great; or should this influence and these claims not be thus limited, the standard of genuine and universal excellence must be depreciated in a like degree." There are other names which might be worthily associated with that of Thorwaldsen, but as it is not requisite to dwell on the history of living artists in a brief sketch like this, we close our history of Italian art, and proceed to that of other countries.

SECTION VI. BRITISH SCULPTURE.

The knowledge of sculpture introduced into England by the Romans at the time of their subjugation of this country appears to have been very rude and imperfect, and the specimens which can be referred to that early date, are so badly executed, as to lead to the supposition that they were the work of the common soldiers, rather than of the artists of Rome. During their sway in Britain, however, some taste for works of art was excited among the conquered people. Flaxman, quoting the language of Speed, says that King Cadwallo being buried in St. Martin's Church, near Ludgate, his image, great and terrible, triumphantly riding on horseback, artificially cast in brass, was placed on the western gate of the city, &c. The death of Cadwallo is placed at A.D. 677. After the final evacuation of the country by the Romans, the attempt to imitate the human form was little practised, and throughout the dominion of their successors, the Saxons, we find the art in a feeble state, and rudely displayed. From the time of the Norman invasion,

we trace the introduction of a better style of art, still further improved and modified in the time of the Crusades, when foreign travel had enlightened the minds of multitudes in matters of taste, and spread abroad a knowledge and appreciation of Grecian statuary, which soon began to show itself in the improvement of English sculpture. Before the end of the eleventh century, there is no evidence of sepulchral statuary having been executed in England. This practice we may therefore conclude to have been introduced at the time of the Norman invasion. In the cloisters of Westminster Abbey are sculptured effigies carved in very low relief on coffin-shaped slabs, supposed to represent two abbots, Vitalis who died in 1067, and Crispinus who died in 1117. After the return of the Crusaders good sense and simple grace began to be apparent in works of art, and to redeem the imperfections which were still to be found in the workmanship. The number of ancient monuments executed during the early period of our history, and still adorning our old cathedrals and abbeys, is considerable; yet very little is known of their authors. It is probable that very many of our most beautiful architectural and sculptural works were performed by foreigners, members of those fraternities of itinerant artists of whom we have spoken in our Supplements on ARCHITECTURE, and whose societies were composed of architects, sculptors, workers in mosaic, builders, designers; each strictly attending to his particular department, but under the common guidance of the general overseer. That this was really the case seems nearly proved by the fact that the very improvements introduced by Giovanni da Pisa, son of Nicolo Pisano, are decidedly apparent in English works of that period. It is true that English names are recorded as the masters of the works in our most celebrated erections, but there is much reason to believe that many of these persons, whose names have been handed down to posterity in connection with particular undertakings, were the ecclesiastics, who laid their plans and communicated their wishes to the foreign artists, and by whose direction the buildings were commenced.

This state of things, far from being prejudicial to the development of native talent, was the means of fostering and assisting it, and we have every reason to conclude that in the very works we have been speaking of, numerous assistants must have been needed, and selected from among the English, to carry out the grand designs of those who had the principal charge of the work. It is little doubted but that some fine monuments of our Henry and Edwards during the fifteenth century, are the works of home-bred talent. It was the opinion of Flaxman that the greater part of the sculpture of Wells Cathedral, built by Bishop Joceline during the early part of the thirteenth century, was the work of native artists. Some of the statues exhibit much grace and simplicity. But the sculpture of the reign of Edward the First, and the statues of that monarch and his queen in Westminster Abbey, bear proof of their being the work of Italian artists. Under Edward the Third the art appears to have been much cultivated by Englishmen, and various interesting works exhibit their skill. The name of William Austin is honourably recorded as the author of Beauchamp, Earl of Warwick's monument in the Warwick chapel. It is well known that two Italian sculptors were much employed in England during the sixteenth century, i.e., Cavallini and the celebrated Torregiano, who executed the monument in Henry the Seventh's Chapel, at the price of one thousand pounds. John of Padua, a pupil of Michel Angelo, was master of works to Henry the Eighth. The monuments of this period to which English names are attached, do not exhibit even a tolerable degree of skill. Indeed, from the time of Henry the Eighth to Charles the First, the art of sculpture fell into much neglect: during the eventful period, and amidst the struggles which preceded the establishment of the Reformed religion, it frequently happened that party feeling and mistaken zeal led to the mutilation or total destruction of the choicest specimens of art. Under these circumstances, there was little encouragement to the sculptor to continue his vocation. Charles the First was much inclined to encourage the art. It was by his order that the cartoons of Raphael, and other splendid works, were made the property of this country. English sculptors flourished in that reign, and though the style and composition of their works are of a very low order, there is occasionally a boldness of conception which renders them worthy of notice.

All the sculptors of talent who flourished in England during the last century were foreigners, though some of them by long residence among us earned a British name.

The principal works were executed by Gibbon, Cibber, Stevens, De Vere, Bertocini, Sheemacker, Roubiliac. This variety of sculptors, from different countries, brought a variety of taste and style, but very little of sound principle in art.

The school of British sculpture, properly so called, may be considered as commencing with Banks, who was born in 1738, and died in 1805. "He was the first of our native sculptors," says Cunningham, "whose aims were uniformly lofty and heroic, and who desired to bring poetry to the aid of his compositions." His finest work was his Mourning Achilles, and the anecdotes which accompany the notice of it by the memorialist above named, is too characteristic to be withheld. When the statue was completed, praise was poured upon the artist from all quarters; some loved it because it was classic, others because it was natural, and more because the sentiment of sorrow was largely diffused from the face over the figure. He was justly proud of this noble work, and proceeded to remove it to the exhibition rooms in Somerset House. The packing and removing of sculpture is at all times attended with danger, and so it proved in this instance, for the wagon was overturned in the street, and the Mourning Achilles shivered into five hundred pieces. Banks, who accompanied the carriage, witnessed the destruction of his figure—the work of a whole twelvemonth was lost in one moment, and as he depended upon it for the establishment of his name, all hopes of future celebrity for the moment vanished. He returned home, and such was his command of temper,—his philosophic, or, more properly, devout resignation under this calamity,—that neither his wife nor daughter observed that anything unfortunate had happened. He returned to the exhibition room, collected the scattered fragments of his work, and assisted by his younger brother, pieced it patiently and skilfully together, and restored the Mourning Achilles to something like its original beauty. He then communicated what had happened to his wife.

Bacon, born in 1740, was in every respect an English artist, and almost self-taught. His statue of Samuel Johnson, in St. Paul's cathedral, is greatly admired for its fine and truthful expression. In the same building is another example of his talent, in the statue of the benevolent and philanthropic Howard. Contemporary with these two artists was Nollekens, "who," says Memees, "knew his art, but wanted science, dignity, and fancy."

We now come to the most eminent sculptor this country has yet produced,—the celebrated John Flaxman, born in 1755. This artist and his works have recently noticed to some length in the pages of the *Saturday Magazine*: we shall therefore content ourselves with adding the opinions of Sir Thomas Lawrence and of Count Cicognara respecting his merits. The former speaks thus: "The elements of his style were founded in Grecian art, on its noble principles—on its deeper intellectual power, and not on the mere surface of its skill. Though master of its purest lines, he was still more the sculptor of sentiment than of form; and whilst the philosopher, the statesman, and the hero were created by him with appropriate dignity, not even in Raphael have the gentler feelings and sorrows of human nature been treated with more touching pathos than in the various degrees and models of this inestimable man. Like the greatest of modern painters, he delighted to trace from the actions of familiar life the lines of sentiment and passion, and from the populous haunts and momentary carefulness of poverty and want, to form his immortal groups of childhood and maternal tenderness, with those noble compositions from Holy Writ, as beneficent in their motive as they were novel in their design." Count Cicognara thus testifies to the opinion the Italians entertained of our renowned countryman: "To Flaxman our obligations are very great, since, as far as our acquaintance with his works extends, they serve nobly to elevate from a certain monotonous lethargy, and to create afresh that taste for the severe and golden style of antiquity which he applied to his own inventions."

At the present day our country may boast of sculptors of superior talents, and from the beautiful specimens of art which have appeared during the last few years, we may confidently anticipate a high degree of excellence to be attained in this art. A just taste is every day becoming more widely diffused, and liberality of patronage is giving a powerful stimulus to the exertions of our sculptors. An important step towards this desirable state of things was taken at the early part of this century by the purchase of some of the most celebrated works of ancient art, and their

public exhibition in our National Museum. Since the works of the celebrated Phidias have been thus brought before us, every department of taste has been improved, sculpture in particular. And thus may it long continue to be with this most pleasing art. It has been well remarked that, "Sculpture seems especially calculated to flourish amongst us. The grave and manly character of the art agrees with the tone of national genius, harmonizes with our free institutions, and may find in our history sources of the brightest inspiration."

A few of the more striking proofs of British talent, as exhibited in our public monuments, may here receive a brief notice. The colossal equestrian statue in brass of George III. placed at the extremity of that noble avenue called the Long Walk in Windsor Park, presents an admirable likeness of the sovereign. It is twenty-six feet in height, and with its pedestal (which is a mass of stones intended to represent a rock), reaches an elevation of fifty feet. The eminent sculptor (Mr. Westmacott) to whom the public is indebted for this fine performance, has not escaped censure, as it respects the drapery of the figure; for those who so well remember their beloved Sovereign, attired in a plain English dress, are naturally surprised and offended at the Roman costume in which he is represented. It has been justly said that a false idea will be conveyed to future generations respecting the style of dress in England during the nineteenth century, for owing to the almost imperishable nature of the material, this statue will probably exist for thousands of years. The apparent height of this statue is greatly diminished by the lofty proportions of the trees by which it is immediately surrounded.

Foremost in the list of metropolitan monuments must be placed the statue of the Duke of York erected at the principal entrance to St. James's Park. The figure is thirteen feet nine inches in height, and stands on a beautiful Doric column, one hundred and twenty-four feet high. The duke is represented in modern costume, with a cuirass and military boots. His right hand rests upon a sword, eight feet in height, and across his left shoulder is thrown an ample mantle emblazoned with the order of the Garter.

The colossal statue in bronze, erected in Hanover Square to the memory of William Pitt, is, in many respects the finest in London. Mr. Chantry has represented the orator in the act of addressing an audience.

Another celebrated public testimony, of which the last named admirable sculptor was the author, is the marble statue of Watt, in Westminster Abbey. Nothing could more faithfully express the character of the philosopher than this exquisite composition, breathing in its simplicity and repose, the calm and reflecting mind of the extraordinary man it is designed to commemorate.

The commemoration of individual excellence and public worth seems the principal sphere at present for the statuary in England. "The features of the wise man," says Milman, "and the figure of the warrior, cannot be too distinct and determinate; and though more imaginary subjects fail him, the English sculptor cannot want matter for his skill, till the line of English heroes and English sages is extinct. Modern sculptors have often attempted to substitute allegory for mythology; but, besides the difficulty of distinguishing these beings by their attributes, there is this strong objection:—we cannot, by any effort, believe their actual existence, or forget that they cannot exist; that they are but philosophical symbols. The Grecian divinities required an abstract exercise of the imagination to credit their existence in their beauty and majesty; but there was no obtrusive impossibility, nothing that positively contradicted their reality of being. But though Minerva, and Mars, and Apollo, are obsolete to our feelings, and unenlivening to our imagination, yet for representations of embodied wisdom, and valour, and poetry, our memory would gladly cleave to particular images. The statue of Newton, with its deep concentration of thought and undisturbed retirement within itself, may stand a strong and vivid emblem of philosophy. Why should the dying figure of Wolfe or Nelson be confined to the canvas? The satisfied serenity of the expiring conqueror should be wrought in durable marble. And in Milton 'sleeping under the Italian shade,' in his youthful beauty, the calm and holy inspiration of poetry might be moulded and wrought in all its fulness and perfection."

SECTION VII.

FRENCH, GERMAN, AND SPANISH SCULPTURE.

We cannot close our remarks on sculpture without briefly adverting to that of the nations above mentioned,

although we find little to attract attention in the works of their native artists. As in the case of the early history of our own country, so many of the best works were executed by Italian sculptors, that the art can scarcely be said to have had an existence apart from their labours. Nevertheless French sculptors of some eminence are spoken of as early as the middle of the sixteenth century. Jean Gougon completed the celebrated Fountain of the Innocents in 1550. His contemporary, Jean Cousin, also possessed talent, but his works, though not without grace, are deficient in strength and correctness. German Pilon is spoken of as a master whose productions are full of energy, but wanting in simple and natural expression. Jacques d'Angouleme was contemporary with Michel Angelo, and the national vanity has shown itself in the statement that he once defeated that great master in a trial of skill. Giovanni di Bologna we have already named. He filled the whole of France with the principles of his former master, down to the time of Louis the Fourteenth. At this time excessive refinement of decoration prevailed, and the tendency to minuteness of execution, and flutter in composition and design, which had characterized French sculpture almost from the sixteenth century, was at its height. Girardon and Puget were the celebrated artists of this period; the former possessed great merit, though not sufficient to justify the language of Voltaire, "*il a égalé tout ce que l'antiquité a de plus beau.*" Puget, the favourite of his country, is energetic in composition, bold and full of movement in his method of handling, but is deficient in nobleness, grace, and science. Sarasin is spoken highly of as the author of the Caryatides at the Louvre. The succeeding artists followed the steps of Girardon and Puget, until the excesses of the unhappy period of the Revolution put an end, for the time, to the arts of peace, and proved destructive to the treasures of antiquity. One of the last statues executed previous to this dreadful outbreaking was that of Voltaire by Pignal, which called forth the following severely just epigram:

Pignal au naturel représente Voltaire—
Le squelette à la fois offre l'homme et l'auteur,
L'œil qui le voit sans parure étrangère
Est effrayé de sa maigreur !

Germany appears to have made little progress in sculpture prior to the seventeenth century. The bronze statues surrounding the tomb of the Emperor Maximilian at Innspruck are indeed attributed to Laffler or Loffler, who died in 1565; but they are more frequently assigned to two brothers of the name of Godi, probably Italians. Ranchmuller preceded Shluter of Hamburg, who visited Rome, and attached himself to the manner of Michel Angelo. Some finely executed pieces of sculpture in Vienna were the

work of Messerschmidt. In later times Ohnmacht, Sonneschein, Nahl, and the two Shadofs have highly distinguished themselves. The Spinning Girl of the younger Shadof is esteemed one of the most exquisite imitations of nature which modern art can show. Still Germany is more celebrated for writers on the philosophy of sculpture than for artists who have attained eminence in the practice of the art.

Spanish historians give a long list of native sculptors from the beginning of the sixteenth century. The greater part of them appear to have been employed in ornamenting the churches of Spain, and are little known beyond their own country. Berruguete, a pupil of Michel Angelo, appears to have founded the first regular school of sculpture. He adorned Madrid, Saragossa, and other towns, with works that exhibit much of the grandeur and expression of ancient art. Paul de Cespedes was celebrated as a sculptor of great merit, and in the eighteenth century Philip de Castro contributed greatly to raise the art and to diffuse true principles and correct taste, in Spain.

In conclusion we may quote the remarks of Mr. Gmitan on the advantages expected by the ancients from the well-directed exercise of sculpture. "The history of Greece might be studied in the street, as well as in the closet. The very ornaments of their houses were pregnant with utility, and while they entertained the eye, informed the judgment, and transmitted shining examples to the latest posterity. So prevalent and uniform were the effects expected from these sculptured monitors among the Romans, that their satirists and orators instanced the frequent neglect of them as a mark of aggravated degeneracy. Their bold figures and glowing descriptions represented the venerable statues as animated with shame and anger at the corruption of their race, painted them as domestic and ever-present accusers. With a stern and indignant silence they conjured them, by those precious monuments, no longer to let their excesses tarnish their hereditary honours, or wound the peace of those illustrious shades by whose sufferings and virtue those honours were purchased and acquired. Such great advantages did the ancients both expect and derive from a well-directed exercise of sculpture; nor have we reason, even in these days, to suspect that its operation should vary, or its influence on the genius of a people be sensibly diminished.

"Britain has ever warmly and abundantly discharged the debt of gratitude to her deceased benefactors: but let her now go farther: she should begin to reap, in the certain encouragement of public virtue, the fruits of that laborious perfection to which her patient ingenuity has raised the arts."

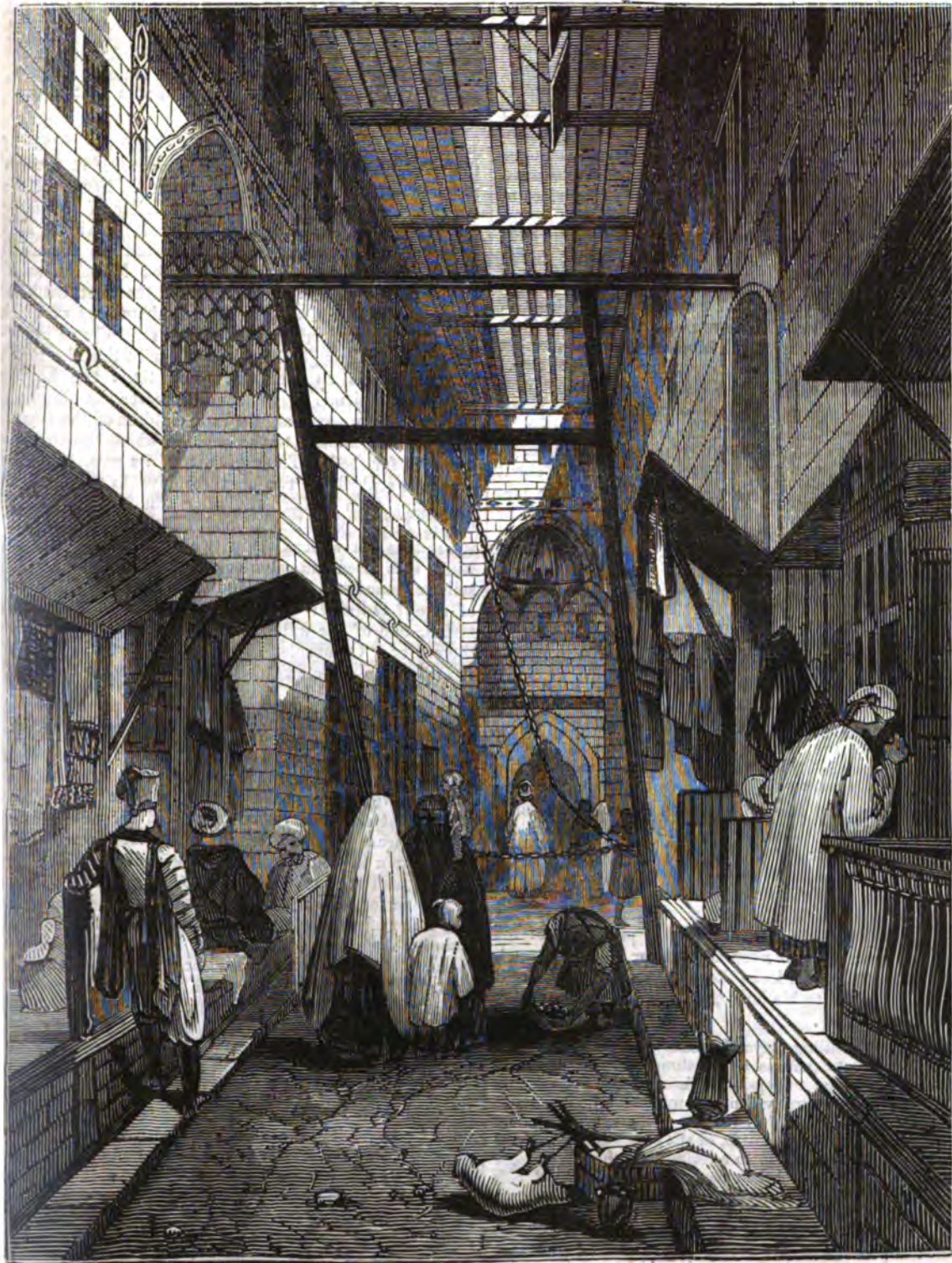


TERMINAL HEAD OF THE BEARDED BACCHUS.

(In the British Museum.)



SKETCHES OF CAIRO. IV.



KHAN-EL-KHALEELEE, CAIRO.

SKETCHES OF CAIRO. No. IV.

THE district commonly known as the Khan el-Khaleel comprehends within it several large khans, or wekalehs; but it is properly confined to a much smaller space within the immediate neighbourhood of the khan represented in our frontispiece. It was founded about A. H. 690. (A. D. 1291,) by a person named Khaleel. This wekaleh is a favourite resort of the Turks, and natives of the higher orders. Its shops are principally occupied by the dealers in silks, shawls, and ready-made clothes; and on public market days, it is nearly impassable from the busy throng. Mr. Hay has not represented it on such an occasion, and on that account this view exhibits the buildings to greater advantage. It is lofty and covered in, so as to exclude the ardent rays of the sun and yet admit sufficient light.

Mr. Lane describes a wekaleh as a building surrounding a square or oblong court. Its ground floor consists of vaulted magazines, for merchandise, which face the court; and these magazines are sometimes used as shops. Above them are generally lodgings, which are entered from a gallery extending along each of the four sides of the court; or, in the place of these lodgings, there are other magazines, and in many wekalehs which have apartments intended as lodgings, these apartments are used as magazines. In general, a wekaleh has only one common entrance, the door of which is closed at night, and kept by a porter. There are about two hundred of these buildings in Cairo, and three-fourths of that number are within that part which constituted the original city.

It is common in Cairo for a portion of a street or a whole street to contain shops appropriated to one particular trade; and this is called the soock or market of that trade, or is named after a neighbouring mosque.

The shop is a square recess or cell, generally about six or seven feet high, and between three and four feet wide. Its floor is even with the raised seat of stone or brick, built against the front. The shop is furnished with folding shutters, commonly consisting of three leaves, one above another; the uppermost of these is turned up in front, the other two leaves, sometimes folded together, are turned down upon the raised seat, upon which is spread a mat or carpet, and sometimes a cushion or two is added. There the shopkeeper generally sits, unless obliged to retire a little way within his shop, to make room for two or more customers, who mount up on the seat, taking off their shoes before they draw up their feet upon the mat or carpet. To a regular customer, or one who makes any considerable purchase, the shop-keeper generally presents a pipe, and sends to the nearest coffee-shop for coffee, which is served in small china cups placed within cups of brass. Not more than two persons can sit conveniently upon the raised seat of the shop, unless it be more than usually spacious. On this seat the shopman usually says his prayers, in sight of the passengers in the street. When he leaves his shop for a short time he relies for the protection of his property upon the next shop-keepers, or hangs up a net. He seldom closes and locks the shutters, except at night when he returns to his house, or when he goes to the mosque on Friday.

Buying and selling (says Mr. Lane), are here very tiresome processes to persons unaccustomed to such modes of bargaining. When a shop-keeper is asked the price of any of his goods, he generally demands more than he expects to receive; the customer declares the price exorbitant, and offers about half, or two-thirds, of the sum first named: the price thus bidden is of course rejected; but the shop-keeper lowers his demand; and then the customer, in his turn, bids somewhat higher than before: thus they usually go on until they meet about half-way between the sum first demanded and that first offered; and so the bargain is concluded. When a person would make any but a trifling purchase, having found the article that exactly suits him, he generally makes up his mind for a long altercation: he mounts upon the mustubah (raised seat) of the shop: seats himself at his ease; fills and lights his pipe; and then the contest of

words commences, and lasts often half an hour, or even more. Sometimes the shop-keeper or the customer interrupts the bargaining by introducing some irrelevant topic of conversation; as if the one had determined to abate his demand no further, or the other to bid no higher: then again the haggling is continued. The bargain being concluded, and the purchaser having taken his leave, his servant generally receives, from the tradesman, a small present of money, which if not given spontaneously, he scruples not to demand. Among the lower orders, a bargain of the most trifling nature is often made with a great deal of vehemence of voice and gesture: a person ignorant of their language would imagine that the parties engaged in it were quarrelling and highly enraged. The peasants will often say, when a person asks the price of any thing which they have for sale, "Receive it as a present*," this answer having become a common form of speech, they know that advantage will not be taken of it: and when desired again to name the price, they will do so: but generally name a sum that is exorbitant."

In addition to the numerous shops for the supply of the necessaries and luxuries of life a variety of articles are hawked about the streets for sale. Some of the street cries are very curious. The seller of *tirmis* or lupins sometimes cries, "Aid! O Imbabee! Aid!" This is understood in two ways: as an invocation for aid to the Sheykh El-Imbabee, a celebrated Mooslim saint, buried at the village of Imbabee, on the west bank of the Nile, opposite Cairo, in the neighbourhood of which village the best *tirmis* is grown; and secondly as implying that it is through the aid of the saint that the *tirmis* of Imbabee is so excellent. Sometimes the hawker cries, "The *tirmis* of Imbabee surpasses the almond." Also, "O how sweet are the little children of the river." This last cry alludes to the mode in which the *tirmis* is prepared for food. To deprive it of its natural bitterness it is soaked for two or three days in a vessel full of water; then boiled; and after this sewed up in a basket full of palm-leaves, and thrown into the Nile, where it is left to soak again two or three days; after which it is dried and eaten cold, with a little salt. The seller of sour limes cries, "God make them light [or easy of sale]! O limes!" The toasted pips of a kind of melon, and of the water melon, are often announced by the cry of "O consoler of the embarrassed! O pips." A seller of a sweetmeat composed of treacle fried with other ingredients is, "For a nail! O sweetmeat." Children and servants often exchange iron nails and other articles of iron for these sweetmeats, and hence the cry. The hawker of oranges cries, "Ilmey! O oranges! ilmey!" and similar cries are used by the vendors of other fruits and vegetables; so that it is sometimes impossible to guess what article is really announced for sale; except that the least excellent of the fruits mentioned in the cry is often the only fruit the man has to sell; thus when a man cries "Sycamore figs! O grapes!" he has figs alone for sale, and these are not so good as grapes. The seller of roses utters a singular cry; "The rose was a thorn: from the sweat of the Prophet it opened its flowers." This alludes to a miracle related of the Prophet. The fragrant flowers of the *hhenna* tree (or Egyptian privet), are thus announced for sale: "Odours of paradise! O flowers of the *hhenna*!" A kind of cotton cloth, made by machinery, which is set in motion by a bull, is announced as "The work of the bull! O maidens."

As the water of the wells in Cairo is somewhat brackish, numerous *sackchas* (water-carriers) obtain a livelihood by supplying the inhabitants with water from the Nile. During the season of the inundation, the *sackchas* draw their water from a canal which runs through the city; but at other times it is brought up from the river in skins by camels and asses, or by the water-carrier himself. The water-skins of the camel are a pair of wide bags of ox-hide. The ass bears a goat-skin: so also does the *sackcka*, if he have no ass. His cry is

* As Ephron did to Abraham, when the latter expressed his wish to purchase the cave and field of Machpelah." See Genesis xiii. 11.

"O! may God compensate me!" For a goat's skin of water brought from a distance of a mile and a half or two miles he obtains scarcely more than a penny. Many sackkas supply passengers in the streets with water. The water-skin of one of these carriers is provided with a long brass spout; and he pours the water into a brass cup, or an earthen vessel, for any one who would drink. Another set of water-carriers called hemalees carry on their backs a vessel of porous grey earth. This serves to cool the water. Sometimes the water is scented with orange flowers, and often a sprig of naring is stuck in the mouth of his water-vessel. Other persons perambulate the streets with infusions of liquorice, sherbet, and other drinks for sale.

We have purposely abstained from any notice of the political condition of the Mooslims, because many changes have already taken place or are still in progress, so that any details which we could give would apply rather to the past than to the present. We will therefore conclude these sketches with a few detached notices of the domestic manners of the Mooslim Egyptians.

The Mooslims are formal and regular in their social manners; though generally very easy in their demeanour and free in conversation. Many of their commonest usages are founded on the precepts of their religion, such as the common salutation of "Peace be on you!" the reply to which is, "On you be peace, and the mercy of God, and his blessings!" This salutation is never addressed by a Mooslim to a person of another religion, nor *vice versa*. Mr. Lane says that a European traveller not disguised by Turkish dress, often fancies that he is greeted with this salutation when it is really intended for his Mooslim attendant. When friends salute each other they join their right hands, and then each kisses his own hand, and puts it to his lips and forehead, or his forehead only, or his breast; or merely places it on his breast without kissing it. It is a customary mark of respect to conceal the hands in the sleeves of the kooftan in the presence of a person of high rank. In polite society, when a person asks his friend, "How is your health?" the reply is, "Praise be to God!" and it is only by the tone of a voice in which the answer is made that the inquirer can infer whether his friend be well or ill. The ordinary compliments in use in Egyptian society are extremely numerous.

When a person visits the house of another he never enters unawares; and particularly if he have to ascend to an upper apartment he calls out for permission, or claps his hands, in order that the females of the house being warned of his approach may retire or veil themselves. On entering the room where the master of the house is seated, he gives the salam, which the master returns, and welcomes his guest with affability. To his superiors or equals he rises; and to the former and often to the latter he yields the most honourable place, which is the corner of the *deewan*. The upper end of the room is called the *sudr*, and the seat extending along it is more honourable than those at the sides. Visitors of inferior rank to the master never seat themselves at the upper end unless invited to do so, and then they often decline the honour. During the visit smoking is nearly always carried, on and coffee introduced; for, say the Arabs, "tobacco without coffee is like meat without salt."

It was once common in the houses of the rich to sprinkle the guest before he rose to take his leave with rose or orange-flower water, and to perfume him with the smoke of some odoriferous substance; but of late years this custom has declined. The Egyptians are very fond of perfumes, and often fumigate their apartments. It is also common to fumigate the cups from which they drink their coffee with the smoke of mastic; and wealthy persons sometimes impregnate the coffee itself with the fragrance of ambergris.

Mr. Lane describes the Egyptians as being extremely courteous to each other, with a peculiar grace and dignity

in their manner of salutation and their general demeanour, combined with easiness of address, which seems natural to them; and is observable even in the peasants. The middle and higher classes of townspeople pride themselves upon their politeness and elegance of manners, and their wit and fluency of speech. Affability is a general characteristic of the Egyptians of all classes. It is common for strangers even in a shop, after mutual salutation, to enter into conversation with each other with as much freedom as if they were old acquaintances; and for one who has a pipe to offer it to another who has none; and it is not unusual, nor unpolite, for strangers to ask each other's names, professions and places of abode. They are generally very lively in their talk; but seldom noisy in their mirth; anything which pleases them being generally acknowledged by a smile or an exclamation.

But of the leading features of their character none is more remarkable than their religious pride. They regard persons of every other faith as the children of perdition; and such the Mooslim is early taught to despise. Falsehood was commended by their prophet, when it tended to obtain any advantage over the enemies of their faith; and hence, veracity is a virtue extremely rare in Modern Egypt; for, as Mr. Lane well observes, if people are allowed to lie in certain cases, they insensibly contract a habit of doing so in others. The Mooslims are also grossly superstitious; they have full faith in written charms and amulets, and in the influence of magic, and resort to the most absurd and ridiculous practices to protect themselves from enchantment, the evil eye, &c. They are moreover very indolent, obstinate, sensual, and often rapacious.

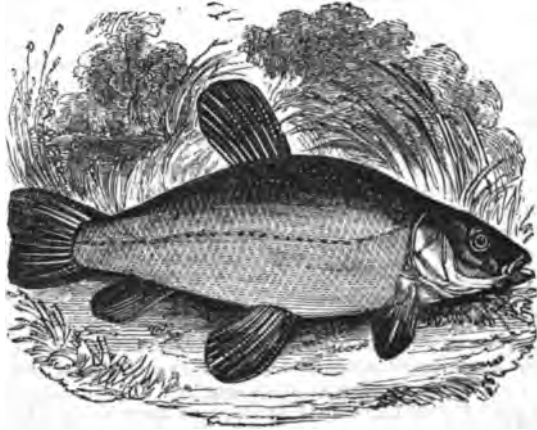
One pleasing feature in their characters is the humanity with which they treat the lower animals. Dogs are very numerous in Cairo, and although regarded as unclean, they are not only unmolested, but their wants are daily provided for. Small troughs are daily replenished with water for the dogs. In each street where there are shops, a sackka is paid a small sum monthly, for sprinkling the street and filling the dogs' trough in that street. The dogs are of use in removing the offal thrown out from the butchers' shops and from houses. They generally avoid coming in contact with the men; as if they had an instinctive feeling that the people of the city regarded them as unclean. It is curious, also, that houseless cats in Cairo are fed at the expense of the *ckadees*; every afternoon a quantity of offal is brought into the great court before the *Mahhakemeh*, and the cats are allowed to eat. Many persons, when they want to get rid of a cat, send it to the *ckadee's* house, and let it loose in the great court.

In conclusion, we may mention another prevailing characteristic of the modern Egyptians, which is, love of their country. In general they have a great dread of quitting their native land; and many who had determined to visit a foreign country for the sake of considerable prospective advantages, found their resolution give way as the time of their intended departure drew near.

It is an uncouth, a strange thing, and even unnatural, that neither a man's appetite, nor his health, nor the time of the day, nor his ordinary diet, shall be the reason or occasion of a man's drinking, or the rule whereby to try the convenient *when* or season of it; but whenever a man shall make such and such a bargain with me, or pay me for, or get payment from me of such and such thing, *that* must be the rule of my eating and drinking. What beast would be thus dealt with? There is a drinking of healths—by this means forcing, tempting, or occasioning drinking in others: this is one of the highest provocations to drunkenness. What can be the use of drinking healths? It was a notable saying of a great man, solicited to drink the king's health, "By your leave I will pray for the king's health and drink my own." This practice will probably be found to have arisen from heathen idolaters, who used libations to Jove, Bacchus, &c.; it is certain there is no vestige for it in Christianity, nor any reason for it.—DURHAM.

FRESH-WATER FISH.

VIII.

THE TENCH (*Cyprinus Tinca*.—LINN.)

The Pike, fell tyrant of the liquid plain,
With ravenous waste devours his fellow train;
Yet howsoever he be with famine pined
The Tench he spares, a medicinal kind;
For when by wounds distressed, or sore disease,
He courts the salutary fish for ease.
Close to his scales the kind physician glides,
And sweats a healing balsam from his sides.

THE above lines, extracted from the piscatory eclogues of Mr. Diaper, express an old and very remarkable superstition, which Walton relates with amusing simplicity. After introducing the Tench as the "physician of fishes," he says:—

In every tench's head there are two little stones, which foreign physicians make great use of, but he is not commended for wholesome meat, though there be very much use made of them for outward applications. Rondeletius says, that at his being at Rome, he saw a great cure done by applying a tench to the feet of a very sick man. This, he says, was done after an unusual manner by certain Jews. And it is observed that many of those people have many secrets yet unknown to Christians; secrets that have never yet been written, but have been, (since the days of their Solomon, who knew the nature of all things, even from the cedar to the shrub,) delivered by tradition, from the father to the son, and so from generation to generation, without writing; or (unless it were casually), without the least communicating them to any other nation or tribe; for to do that they account a profanation. And, yet, it is thought that they, or some spirit worse than they, first told us that certain insects swallowed alive were a certain cure for the yellow jaundice. This, and many other medicines, were discovered by them, or by revelation; for, doubtless, we attained them not by study.

Well, this fish, besides his eating, is very useful, both dead and alive, for the good of mankind. But I will meddle no more with that, my honest humble art teaches no such boldness: there are too many foolish meddlers in physic and divinity, that think themselves fit to meddle with hidden secrets, and so bring destruction to their followers. But I'll not meddle with *them*, any farther than to wish them wiser; and shall tell you next (for I hope I may be so bold) that the tench is the *physician of fishes*, for the pike especially; and that the pike, being either sick or hurt, is cured by the touch of the tench. And it is observed that the tyrant pike will not be a wolf to his physician, but forbears to devour him though he be never so hungry.

This fish, that carries a natural balsam in him to cure both himself and others, loves yet to feed in very foul water, and amongst weeds. And yet, I am sure, he eats pleasantly, and, doubtless, you will think so too, if you taste him.

The remarks of modern observers seem to show that while we must dismiss as fabulous the wonderful healing qualities of the tench towards their fellow fishes, yet the surprising fact seems well ascertained, that the tench, from whatever cause, is secure from the attacks of the pike, the eel, and all other predatory fresh-water

fish. Mr. Daniel and Mr. Salter state the fact in plain and unqualified terms:—

Whether the forbearance of the pike (says the latter gentleman) arises from respect to the healing qualities of the tench, or is to be attributed to a dislike of the alimy matter on its body, I know not; but I believe the tench is perfectly free from the persecution of the jack and pike, for I have never taken one that has been at all mutilated in its fins, tail, or any other part, or with any of those wounds or scars on the body which are so frequently met with by the angler among the small fish he takes: the eel also foregoes his voracity in regard to the tench, both by night and day. I have known several trimmers to be laid at night baited with live fish, roach, dace, bleak, and tench, each about six or seven inches long, and when those trimmers were examined in the morning, both eels and jack have been taken by the hooks baited with any other fish but the tench, which I found as lively as when put in the river the preceding night, without ever having been disturbed: this has been invariably the case during my experience; neither have I met with even one solitary instance to the contrary related by any of my acquaintance, who had numerous opportunities of noticing the singular circumstances of the perfect freedom from any hostile attack which the tench enjoys over every other inhabitant of the liquid element, arising from the continual conflicts among each other.

The tench seems to have been introduced into England and from the lakes of Southern Europe. It is also found in other parts of the world. It inhabits either stagnant waters or a loamy clayey soil which forms a soft muddy bottom; or the most tranquil rivers which flow over a muddy bed. Mr. Daniel has taken tench out of Munden Hall Fleet, in Essex, where the water was so foul, and the weeds so thick, that the fleys could hardly be sunk through them; the mud was also intolerably fetid, and had dyed the fish of an inky colour, and yet the tench were well grown, and of fine flavour; many that were taken weighed nine or ten pounds the brace. Sometimes the flesh of the tench is so tainted by the rank weeds or impurities of the water in which it constantly dwells, that it cannot be eaten; if, however, the fish be conveyed to other purer water it loses the offensive taint in a few days.

This fish is known as the *mucous blackish olive carp*. Its form varies with its age, but Mr. Blaine states as a general type, that it is thick in proportion to its length as three to one; when very full and well fed, it has been seen nearly as broad as it is long. The head is full, but proportionate to the bulky figure; the snout short, blunt, and bounded by a moderately sized and rounded mouth. It has two insignificant cirri, one at each angle of the mouth. As to its teeth, the remark of Walton on the carp applies here; for the tench is "to be reckoned amongst those leather-mouthed fish, which, I told you, have their teeth in their throat; and for that reason he is very seldom lost by breaking his hold, if your hook be once stuck in his chaps." The eyes are small and round; and the iris red. The gill-covers are of a bright yellow: the fins and tail large, and of a dark purplish hue. The general colour of the fish is a deep olive, with a golden tint shining through the scales. The scales are small and thin, and adhere closely to the skin; their number has been computed at not less than thirty thousand. The fins of the female are said to be much longer than those of the male. The viscid slime with which the surface of the scales is thickly covered, together with its reputed healing qualities, we have already noticed.

These fish spawn at the end of spring or the beginning of summer; they form a nidus about the roots and stems of aquatic plants. The young fry appear in a short time, and grow quickly, and are soon ready to add to the numbers of their race; for the tench is even more prolific than the carp: four hundred thousand ova have been counted in a single roe. Like the carp, the tench will live long out of water, and may be carried in wet moss to a considerable distance.

Mr. Daniel informs us of a most remarkable tench, the unusual form and size of which are not easily accounted for. A piece of water at Thornville Royal, Yorkshire, which had been ordered to be filled up, and wherein wood, rubbish, &c., had been thrown for years, was in November, 1801, directed to be cleared out. Persons were accordingly employed, and almost choked up by weeds and mud, so little water remained, that no one expected to find any fish, except a few eels; and yet nearly two hundred brace of tench of all sizes, and as many perch, were found. After the pond was supposed to be quite free, under some roots there seemed to be an animal, which was conjectured to be an otter: the place was surrounded, and on opening an entrance among the roots, a tench was found of a most singular form, having literally assumed the shape of the hole in which he had been confined. His length from fork to eye was two feet nine inches; the circumference, almost to the tail, was two feet three inches; the weight eleven pounds nine ounces and a quarter; the colour was also singular, the belly being of a char, or vermilion. This extraordinary fish after having been inspected by many gentlemen, was carefully put into a pond; but either from confinement, age, or bulk, it at first merely floated, and at last with difficulty swam gently away. At the time Mr. Daniel wrote it was alive and well.

The tench is in season from May to the end of September; one of about five pounds weight often costs as many shillings in the London market. It was once so little valued as to be eaten only by poor people.

There are many apparently well authenticated instances of fishes preserving their vitality, even in a frozen state; and it is even said that in northern latitudes advantage is taken of this circumstance to transport eels and perch from one locality to another. This vitality, however, does not exist in all species inhabiting the same latitudes. Mr. Swainson, from personal observation, says—

Upon the breaking up of the long and severe frost of this winter (1837—8), we have had the mortification of seeing the dead bodies of between thirty and forty fine tench floating on the surface of a pond in the garden, into which three or four pair had been put four years ago. The pond is of rain-water, with a soft muddy bottom, which has a depth of from two to four feet, and is fringed with many aquatic plants. Abundant shelter was thus afforded for the fish; and yet there can be no doubt, we think, that they have all been killed by cold. The people about the place assert that this mortality would not have happened, had holes been broken in the ice for the admission of air: but were this absolutely necessary in all cases, it would follow that the tench of all such ponds as had not been opened would have been likewise killed.

It forms a striking contrast to the power which some fish undoubtedly have of preserving their vitality through very low degrees of temperature, to find that many of them can not only exist, but actually breed, in hot springs of various countries at temperatures varying from 80° to 120° Fahr. But the most startling fact is that recorded by Humboldt; he says that during his researches in tropical America, he found fish thrown up alive from the bottom of an exploding volcano, along with water so hot as to raise the thermometer to 210°, being two degrees only below boiling. Mr. Swainson judiciously remarks:—

Considering this excessive heat, it is, we think, too much to suppose that the water in which these fish habitually resided was always of such a temperature. It is a well-known fact, that springs in the vicinity of volcanoes are very often considerably heated *before* an eruption takes place; and until we are in possession of further evidence on this point, we believe that such was the case in the present instance: the internal fires, in all probability, had greatly heated the water previous to its having been expelled from its natural basin, before the increased heat had killed the fishes; a supposition much more probable, than that the fishes would live and sport in a fluid whose temperature would be sufficient to prepare them for the table.

COMMERCE OF LEECHES.

ALL our leeches are imported from Hamburg. The Hamburg dealers draw their supplies from the Ukraïn. "Having exhausted all the lakes of Siberia, Bohemia, and other more frequented parts of Europe, the buyers are now rolling gradually and implacably eastward, carrying death and desolation among the leeches in their course, sweeping all before them, till now they have got as far as Pultava, the pools and swamps about which are yielding them great captures," (Brenner, *Excurs. in the Interior of Russia*.)

Leeches are sometimes imported in bags but more usually in small barrels, each holding about 2,000, the head being made of stout canvas, to admit the air. The best vessels for preserving these animals are unglazed brown pans or wooden tubs. The dealers have a notion (and possibly a correct one) that the leaden glazing is injurious. These pans should be very little more than half filled with soft water (pond, river, or rain water.) This does not require changing so often as is commonly supposed. In very hot weather, or when the water has become bloody, or otherwise much discoloured, it should be changed every day or so; otherwise, in summer every four or five days or a week, in winter once a month, is believed by large dealers to be sufficient.

The consumption of leeches must be enormous. Some years ago it was stated that four principal dealers in London imported on the average, 600,000 monthly, or 7,200,000 annually. (Price, *Treat. on Sanguisuct.*) *Fecé (Cours d'Hist. Nat.)* says, "It is estimated that 3,000,000 are annually consumed in Paris; and as the population of Paris is to that of the whole of France as one is to thirty-three, it follows that, independently of exportation, 100,000,000 are consumed annually, which is equivalent three leeches annually for each person. Now, if we estimate the average price at fifty francs per thousand, we shall have the enormous sum of five millions of francs paid for this one article of our *materia medica*."—PERRIRA.

THE ALPS AFTER SUNSET.

WHILE the eye is feasting on the rich tints which succeed to the bright light of day, and wishes they might last for ever, the rose colour gradually dies away, and its place is taken by a livid, dead white, resembling so fearfully that of a corpse, that I felt quite shocked as well as startled by the change,—nor have I ever met with any one whose nerves were not more or less disturbed by this painful transition from the blush of health, as it were, to the paleness of death! I have seen very wild deserts in Peru and else where, and many other scenes of desolation in the world, but none which has struck me with so deep a feeling of melancholy as the sight of Mont Blanc during the period, fortunately a brief one, in which this livid hue is spread over it. Before the shades of night finally settle over all, a very slight and scarcely perceptible return of the rose-tint is often visible on the snow, a sort of reanimation of the scene, which is most cheering and consolatory.—CAPTAIN BASIL HALL.

EVENTIDE.

THERE is an eventide in the day, and hour when the sun retires and the shadows fall, and when nature assumes the appearance of soberness and silence. It is an hour which in all ages the good have loved, as bringing with it sentiments and affections more valuable than all the splendour of the day. Its first impression is to still all the turbulence of thought or passion which the day may have brought forth. When all is silent around us, we feel a kindred stillness breathe upon our souls, and calm them from the agitations of society. In the day we live with men, in the eventide we begin to live with nature. We see the world withdrawn from us, the shades of night darken over the habitations of men, and we feel ourselves alone. It is an hour fitted to still, but with a gentle hand, the throb of every unruly passion, and to waken in our hearts those pure affections which the glare of day may have dissolved. While the shades of night darken upon our dwellings, the splendours of the firmament come forward to our view. Heaven opens to our eyes the radiance of a sublimer being; and while we forget for a time the obscurity of earthly concerns, we feel that there are "yet greater things than these."—ALISON.

NATIVES OF TIERRA DEL FUEGO.

THE Indians of Tierra del Fuego appear to be generally inferior to those of Patagonia, (see p. 99.) They are in person considerably shorter and smaller. Captain King gives the following account of a party who visited his ship, the *Adventure*, during his survey of the southern shores of South America, in 1827.

These natives conducted themselves quietly, and, except one of the women, who wished to keep a tin-pot in which some water had been given her, made no attempt to pilfer. Their canoes were paddled by the women, occasionally helped by the men. One or two of the former were young and well featured, but the rest were hideous; and all were filthy and most disagreeable, from the quantity of seal-oil and blubber with which they had covered their bodies. After we had obtained, by barter, all the articles they had to dispose of, I presented them with red caps and medals, of which they were very proud.

Their astonishment was much excited, and they were pleased by hearing a watch tick; but I believe I had very nearly, though unintentionally, given great offence, by cutting off a lock of hair, from the head of one of the men. Assuming a grave look, he very carefully wrapped the hair up, and handed it to a woman in the canoe, who, as carefully, stowed it away in a basket, in which is kept her beads and paint; the man then turned round, requesting me, very seriously, to put away the scissors, and my compliance restored him to good-humour.

They were ill-clothed, with mantles made of guanaco, or otter-skins, but not so neatly as those of the Patagonians. Their bodies were smeared over with a mixture of earth, charcoal, or red ochre, and seal-oil; which, combined with the filth of their persons, produced a most offensive smell. Their hair was bound by a fillet of plaited twine, made perhaps with strips of bark, and a few of them had it turned up; but to none did it appear to be an object of attention, except one of the young women, who repeatedly combed and arranged hers with the well-toothed jaw of a porpoise.

The next morning, seeing us under weigh, they came alongside, and tried to induce us to anchor again. One young man was very importunate, and his wife used all her fancied allurements to second his proposal. So highly did they esteem beads and buttons, that a few of each would have purchased the canoe, the wife, and children, their dogs, and all the furniture.

Captain Stokes says that the average height of those that he met with was five feet, five inches; their habit of body spare; the limbs badly turned, and deficient in muscle; the hair of their head black, straight, and coarse; their beards, whiskers, and eyebrows, naturally exceedingly scanty, are carefully plucked out; their forehead is low; the nose rather prominent, with dilated nostrils; their eyes are dark, and of a moderate size; the mouth is large, and the under lip thick; their teeth are small and regular, but of a bad colour. They are of a dirty copper colour; their countenance is dull, and devoid of expression. For protection against the rigours of these inclement regions, their clothing is miserably suited; being only the skin of a seal, or sea-otter, thrown over the shoulders, with the hairy side outward. The tracts they inhabit are altogether destitute of four-footed animals; they have not domesticated the geese or ducks which abound here, of tillage they are utterly ignorant, and the only vegetable productions they eat are a few wild berries, and a kind of sea-weed.

Their principal food consists of muscles, limpets, and sea-eggs, and, as often as possible, seal, sea-otter, porpoise, and whale. Former voyagers have noticed the avidity with which they swallow the most offensive offal, such as decaying seal-skins, rancid seal and whale-blubber, &c. When on board my ship, they ate or drank greedily whatever was offered to them, salt-beef, salt-pork, preserved meat, pudding, pea-soup, tea, coffee, wine, or brandy—nothing came amiss. One little instance, however, showed what they preferred. As they were going ashore, a lump of the tallow used for arming the lead was given to them, and received with particular delight. It was scrupulously divided, and placed in the little baskets which they form of rushes, to be reserved for eating last, as the richest treat.

The nature of their domestic ties we had no opportunity of observing; their manner towards their children, is affectionate and caressing. I often witnessed the tenderness with which they tried to quiet the alarms our presence at first occasioned, and the pleasure which they showed when we bestowed upon the little ones any trifling trinkets.

Captain King thus speaks of a party that visited his ship in March, 1828;—

They conducted themselves very quietly during their stay on board, with the exception of one who tried to pick my pocket of a handkerchief; the offender was ordered out of the vessel, and there was no further attempt to pilfer. They wished to go below, but this was not permitted, because the odour of their oily persons was scarcely tolerable, even in the open air. As to food, tallow candles, biscuit, beef, plum-pudding, were equally liked, and swallowed most voraciously. One of them was discovered taking the tallow out of the end of the deep sea-lead and eating it, although mixed with sand and dirt.

Their method of carving their food is similar to that of the Esquimaux Indians; a piece of blubber being held in the left hand, a corner of it is taken between the teeth, and it is then cut by a knife, held under-handed, into strips backward and forward, without passing the instrument entirely through, so that when the operation is finished, the piece draws out into a long band, about an inch thick, formed by the connected strips. The whole affair from first to last is most offensive to the sight, and the countenance of the carver is beyond description, for his eyes being directed to the blubber, squint shockingly, and give his ugly face a hideous appearance. The strip of blubber is next divided among the party, each of whom proceeds to extract its oily juices by drawing it through his teeth and sucking it, after which it is warmed in the fire to facilitate division into small pieces, which are swallowed, or bolted, without mastication. Morsels of this dainty food were given not only to the elder children, but even to infants at the breast. The next day, the women had daubed their faces all over with bright red ochre, to add to their beauty, no doubt.

The following is Captain Fitz-Roy's account of his first interview with the Fuegians, during his operations in her Majesty's ship the *Beagle*.

On the 13th April, 1829, when working near the land, against a light southerly breeze, we saw a small canoe paddling along shore, and some people walking on the beach. While the ship was standing off, I went to them, being the first savages I had ever met. In the canoe were an old man, his daughter, and a child, and on shore were two Fuegian men with several dogs. Their figures reminded me of drawings of the Esquimaux, being rather below the middle size, wrapped in rough skins, with their hair hanging down on all sides, like old thatch, and their skins of a reddish-brown colour, smeared over with oil, and very dirty. Their features were bad, but peculiar; and if physiognomy can be trusted, indicated cunning, indolence, passive fortitude, deficient intellect, and want of energy. I observed that the forehead was very small, and ill-shaped; the nose was long, narrow between the eyes, and wide at the point, and the upper lip long and protruding. They had small, retreating chins; bad teeth; high cheek-bones; small Chinese eyes, at an oblique angle with the nose; coarse hair; wide ill-formed mouths, and a laugh as if the upper-lip were immovable. The head was very small, especially at the top and back; there were very few bumps for a craniologist. They asked earnestly for "tabac, tabac," but seemed very timid. We bartered some biscuit and old knives for a few of their arrows, skins, spears, &c.

Their canoes, twenty-two feet long, and about three wide, were curiously made of the branches of trees, covered with pieces of beech-tree bark, sewed together with intestines of seals. A fire was burning in the middle, upon some earth, and all their property, consisting of a few skins and bone-headed lances, was stowed at the ends.

The young woman would not have been ill-looking, had she been well scrubbed, and all the yellow clay with which she was bedaubed, washed away. I think they use the clayey mixture for warmth rather than for show, as it keeps the pores of the skin, preventing evaporation, and keeping out the cold air. Their only clothing was a skin, thrown loosely about them; and their hair was much like a horse's mane that has never been combed.

Captain Fitz-Roy subsequently found the natives extremely troublesome, and strongly recommends that weakly manned vessels should avoid them if numerous. In some scuffles with his boat's crew they showed great strength. "It is astonishing," he says, "how very correctly they throw stones, and to what a distance; when the

first stone fell close to us, we all thought ourselves out of musket-shot."

The *Adventure* and *Beagle* lost several boats during their surveying expedition, of which more than one was stolen by the Fuegians. Captain Fitz-Roy was determined to pursue the thieves, but his endeavours to seize the boat were fruitless. In the course of his search he made many prisoners, most of whom subsequently escaped. Thinking that benefit might accrue from having some of them taught English, Captain Fitz-Roy brought to England four of the natives; two young men who were named by the crew "York Minster" and "Boat Memory;" a girl whom they called "Fuegia basket," and a boy who was called "Jemmy Button," because the price given for him was a large shining mother-of-pearl button.

At Monte Video, on the voyage home, these Indians were taken ashore to view the town. "The apparent astonishment and curiosity excited by what they saw," says Captain Fitz-Roy, "extraordinary to them as the whole scene must have been, were much less than I had anticipated; yet their conduct was interesting, and each day they became more communicative. It was here that I first learned from them that they make a practice of eating their enemies taken in war. The women, they explained to me, eat the arms; and the men the legs; the trunk and head were always thrown into the sea."

The acts of cannibalism occasionally committed by their countrymen, were explained to me in such terms, and with such signs, that I could not possibly misunderstand them; and a still more revolting account was given, though in a less explicit manner, respecting the horrible fate of the eldest women of their own tribes, when there is an unusual scarcity of food. This half-understood story I did not then notice much, for I could not believe it, but as, since that time, a familiarity with our language has enabled them to repeat this horrid tale more circumstantially, and as it has been confirmed by the testimony of other Fuegians, I no longer hesitate to state my firm belief of this strange and diabolical atrocity.

Soon after their arrival in England Boat Memory died of small-pox; the others were placed with a schoolmaster at Walthamstow for board and education.

I took them myself, (says the Captain,) from the coach-office to Walthamstow; they were glad to see me, but seemed bewildered by the multitude of new objects. Passing Charing Cross, there was a start and exclamation of astonishment from York. "Look," he said, fixing his eyes on the lion upon Northumberland House, which he certainly thought alive, and walking there. I never saw him show such sudden emotion at any other time. They were much pleased with the rooms prepared for them at Walthamstow; and the schoolmaster and his wife were equally pleased to find the future inmates of their house very well-disposed, quiet, and cleanly people; instead of fierce and dirty savages. At Walthamstow they remained from December, 1830, till October 1831, when they were again taken on board the *Beagle*, to return to their native land. A young man, named Richard Matthews, accompanied them with the intention of remaining at Tierra del Fuego to instruct the savages. Not a few boats were required to transport to the ship the large cargo of clothes, tools, crockery-ware, books, and various things which the families at Walthamstow and other kind-hearted persons had given.

When approaching Tierra del Fuego, (continues Captain Fitz-Roy,) they seemed to be much elated at the certainty of being so near their own country; and the boy was never tired of telling us how excellent his land was—how glad his friends would be to see him—and how well they would treat us in return for our kindness to him. The attentions which York paid to his intended wife, Fuegia, afforded much amusement to our party. He had long shown himself attached to her, and had gradually become excessively jealous of her good-will. He told me that he would rather live with Jemmy Button in the Tekeenia country, than go to his own people. This was a complete change in his ideas, and I was very glad of it; because it might be far better that the three, York, Jemmy, and Fuegia, should settle together. I little thought how deep a scheme Master York Minster had in contemplation.

We reached Woollya, and selected a space, favourably situated for our encampment, landed, marked a boundary-line, placed sentries, and made the various arrangements necessary for receiving the anticipated visits of some hundred natives. Canoes began to arrive, their owners hauled them ashore on the beach, sent the women and children to old wigwams at a little distance, and hastened themselves to see the strangers. While I was engaged in watching the proceedings at our encampment, and poor Jemmy was getting out of temper at the quizzing he had to endure on account of his countrymen, whom he had extolled so highly until in sight, a deep voice was heard shouting from a canoe more than a mile distant. Up started Jemmy, from a bag full of nails and tools which he was distributing, leaving them to be scrambled for by those nearest, and, upon a repetition of the shout, exclaimed, "My brother!" He then told me that it was his eldest brother's voice, and perched himself on a large stone to watch the canoe, which approached slowly, being small, and loaded with several people. When it arrived, instead of an eager meeting, there was a cautious circumspection that astonished us. Jemmy walked slowly to meet the party, consisting of his mother, two sisters, and four brothers. The old woman hardly looked at him before she hastened away to secure her canoe, and hide her property, all she possessed—a basket containing tinder, fire-stone, paint, &c., and a bundle of fish. The girls ran off with her without even looking at Jemmy; and the brothers (a man and three boys) stood still, stared, walked up to Jemmy, and all round him, without uttering a word. Animals when they meet show far more animation and anxiety than were displayed at this meeting. Jemmy was evidently much mortified, and to add to his confusion and disappointment, as well as my own, he was unable to talk to his brothers, except by broken sentences, in which English predominated. After a few minutes had elapsed, his elder brother began to talk to him; but although Jemmy understood what was said, he could not reply. York and Fuegia were able to understand some words, but could not, or did not choose to speak.

Many of the natives assisted us in carrying wood, and bringing bundles of grass or rushes to thatch the wigwams which they saw we were making, in a pleasant sheltered spot, near a brook of excellent water. One wigwam was for Matthews, another for Jemmy, and a third for York, and Fuegia. York told me that Jemmy's brother was "very much friend," that the country was "very good land," and that he wished to stay with Jemmy and Matthews. A small plot of ground was selected near the wigwams, and, during our stay, dug, planted and sowed with potatoes, carrots, turnips, beans, peas, lettuces, onions, leeks, and cabbages. Matthews and his party—Jemmy, York, and Fuegia—went to their abode in the three new wigwams. In that made for Matthews, Jemmy also took up his quarters at first: it was high and roomy for such a construction; the space overhead was divided by a floor of boards, brought from the ship, and there most of Matthews's stores were placed, but the most valuable articles were deposited in a box, which was secretly hid in the ground underneath the wigwam, where fire could not reach. Matthews was steady and as willing as ever, neither York nor Jemmy had the slightest doubt of their being all well-treated; so trusting that Matthews, in his honest intention, to do good, would obtain that assistance in which he confided, I decided to leave him for a few days.

Nine days afterwards we returned to Woollya, and the sight of several bits of cloth with which the Indians we saw on shore were decorated, made me feel very anxious about Matthews and his party. Our boats touched the shore; the natives came hallooing and jumping about us, and then, to my extreme relief, Matthews appeared, dressed, and looking as usual. After him came Jemmy and York, also dressed and looking well; Fuegia they said was in a wigwam. Matthews gave a bad account of the prospect which he saw before him, and told me that he did not think himself safe among such a set of utter savages as he found them to be. No violence had been committed, beyond holding down his head by force, as if in contempt of his strength; but he had been harshly threatened by several men, and from the signs used by them, he felt convinced they would take his life. Sometimes a party of them gathered round him, and if he had nothing to give them, teased him by pulling the hair of his face, pushing him about, and making mouths at him; his only partisans were the women. Now and then he left Jemmy to guard the hut, and went to the natives' wigwams, where the women always received him kindly,

making room for him by their fire, and giving him a share of whatever food they had, without asking for anything in return. York and Fuegia fared very well; they lost nothing, but Jemmy was sadly plundered, even by his own family. Our garden, upon which much labour had been bestowed, had been trampled over repeatedly, although Jemmy had done his best to prevent the people from walking there. When questioned about it, he looked very sorrowful, and, with a slow shake of the head, said, "My people very bad; great fool; know nothing at all; very great fool." It was soon decided that Matthews should not remain. I considered that he had already undergone a severe trial, and ought not to be again exposed to such savages, however willing he might be to try them farther, if I thought it right. The next difficulty was how to get Matthews's property safely into our boats in the face of a hundred Fuegians. This, however, was accomplished, and after distributing several useful articles, we departed from the wondering throng assembled on the beach.

On the 5th of March, 1834 (thirteen months afterwards), the *Beagle* anchored at Woollya. The wigwams in which we had left York, Jemmy, and Fuegia were found empty, though uninjured: the garden had been trampled over, but some turnips and potatoes of moderate size were pulled up by us, and eaten at my table, a proof that they may be grown in that region. Not a living soul was visible anywhere; the wigwams seemed to have been deserted many months; and an anxious hour or two passed, after the ship was moored, before three canoes were seen in the offing, paddling hastily towards us, from the place now called Button Island. Looking through a glass I saw that two of the natives in them were washing their faces, while the rest were paddling with might and main: I was then sure that some of our acquaintances were there, and in a few minutes recognised Tommy Button, Jemmy's brother. In the other canoe was a face which I knew, yet could not name. "It must be some one I have seen before," said I,—when his sharp eye detected me, and a sudden movement of the hand to his head (as a sailor touches his hat) at once told me that it was indeed Jemmy Button—but how altered! I could hardly restrain my feelings, and I was not, by any means, the only one so touched by his squalid, miserable appearance. He was naked, like his companions, except a bit of skin about his loins; his hair was long and matted, just like theirs; he was wretchedly thin, and his eyes were affected by smoke. We hurried him below, clothed him immediately, and in half an hour he was sitting with me at dinner in my cabin, using his knife and fork properly, and in every way behaving as if he had never left us. He spoke as much English as ever, and, to our astonishment, his companions, his wife, his brothers and their wives, mixed broken English words in their talking with him. Jemmy recollected every one well, and was very glad to see them all, especially Mr. Bynoes, (the surgeon,) and James Bennett. I thought he was ill, but he surprised me by saying that he was "hearty, sir, never better," that he had not been ill, even for a day, was happy and contented, and had no wish whatever to change his way of life. He said that he got "Plenty fruits," (excrescences of the birch-trees and berries,) "plenty birdies," "ten guanaco in snow time," and "too much fish." Besides, though he said nothing about her, I heard that there was a good-looking young woman (for a Fuegian) in his canoe, who was said to be his wife. Directly this became known, shawls, handkerchiefs, and a gold-laced cap appeared, with which she was speedily decorated; but fears had been excited for her husband's safe return to her, and no finery could stop her crying until Jemmy again showed himself on deck. While he was below his brother Tommy called out in a loud tone—"Jemmy Button, canoe come!" After some time, the three canoes went ashore, laden with presents, and their owners promised to come again early next morning. Jemmy gave a fine otter-skin to me, which he had dressed and kept purposely; another he gave to Bennett.

Next morning, Jemmy shared my breakfast, and then we had a long conversation by ourselves; the result of which was, that I felt quite decided not to make a second attempt to place Matthews among the natives of Tierra del Fuego. Jemmy told me that he knew very little of his own language; that he spoke some words of English, and some Tekeenica, when he talked to his family; and that they all understood the English words he used. York and Fuegia left him some months before our arrival, and went in a large canoe to their own country. The last act of that cunning fellow was to rob poor Jemmy of all his clothes; nearly all the tools his Tekeenica "friends" had left him; and various other necessaries. Fuegia was dressed as usual, and looking

well, when they decamped: her helpmate was also well clothed, and hardly lost anything I left with him. Jemmy said "York very much jaw," "pick up big stones," "all men afraid." Fuegia seemed to be very happy, and quite contented with her lot. Jemmy asserted that she helped to "catch (steal) his clothes," while he was asleep, the night before York left him naked.

It was generally remarked that his family were become considerably more humanized than any savages we had seen in Tierra del Fuego: that they put confidence in us; were pleased by our return; that they were ready to do what we could explain to be for their interest; and in short, that the first step towards civilization—that of obtaining their confidence—was undoubtedly made: but an individual, with limited means, could not then go farther. The whole scheme, with respect to establishing a missionary with the Fuegians who were in England, among their countrymen, was on too small a scale, although so earnestly assisted by Mr. Wilson, Mr. Wigram, Mr. Coates, and other kind friends.

I cannot help still hoping that some benefit, however slight, may result from the intercourse of these people,—Jemmy, York, and Fuegia, with other natives of Tierra del Fuego. Perhaps a ship-wrecked seaman may hereafter receive help and kind treatment from Jemmy Button's children; prompted, as they could hardly fail to be, by the traditions they will have heard of men of other lands; and by an idea, however faint, of their duty to God as well as their neighbour. That Jemmy felt sincere gratitude is, I think, proved by his having so carefully preserved two fine otter skins, as I mentioned; by his asking me to carry a bow and quiver full of arrows to the schoolmaster at Walthamstow, with whom he had lived; by his having made two spear-heads expressly for Mr. Darwin; and by the pleasure he showed at seeing us all again.

As nothing more could be done, we took leave of our young friend and his family, every one of whom was loaded with presents, and sailed away from Woollya.

WORLDLY FRIENDSHIP.

THERE is within the world in which we dwell
A friendship answering to that world full well;
An interchange of looks and actions kind,
And, in some sense, an intercourse of mind;
A useful commerce, a convenient trade,
By which both parties are the happier made:
And, when the thing is rightly understood
And justly valued, it is wise and good.

I speak not here of friendships that excite
In boys at school such wonder and delight,
Of high heroic friends, in serious strife,
Contending which should yield a forfeit life—
Such wondrous love, in their maturer days,
Men, if they credit, are content to praise.

I speak not here of friendships true and just,
When friend can friend with life and honour trust;
Where mind to mind has long familiar grown,
And every failing, every virtue known.
Of these I speak not; things so rich and rare,
That we degrade with jewels to compare,
Or bullion pure and mussy. I intend
To treat of one whose neighbour called him friend,
Or called him neighbour; and with reason good—
The friendship rising from the neighbourhood.
A sober kind, in common service known;
Not such as is in death and peril shown:
Such as will give or ask a helping hand,
But no important sacrifice demand;
In fact, a friendship that will long abide,
If seldom rashly, never strongly, tried.
Yes! these are sober friendships, made for use;
And much convenience they in life produce.
Like a good coat, that keeps us from the cold,
The cloth of frieze is not a cloth of gold;
But neither is it piebald, pieced, and poor,—
'Tis a good useful coat, and nothing more.—CRABBE.

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THE COTTAGES OF SWITZERLAND



SWISS COTTAGES.

Thus every good his native wilds impart,
Imprints the patriot passion on his heart;
And e'en those ills that round his mansion rise
Enhance the bliss his scanty fund supplies:
Dear is that shed to which his soul conforms,
And dear that hill which lifts him to the storms;
And as a child, when scaring sounds molest,
Clings close and closer to the mother's breast,
So the loud torrent, and the whirlwind's roar,
But bind him to his native mountains more.—GOLDSMITH.

SWITZERLAND occupies a singular position among European nations. It has no connexion whatever with the ocean, but is hemmed in by three large countries, Germany, France, and Italy. This circumstance has naturally given to its inhabitants and its institutions a certain mixed resemblance to all three of those countries. But this resemblance is less striking than would in most cases be found, on account of the mountain-chains which serve as a barrier between Switzerland and the neighbouring countries. These mountains are more particularly remarkable for their size and extent on the southern side of Switzerland, where they separate it from Italy, and this is precisely the part where the influence of a neighbouring nation has been least felt, for Switzerland and its inhabitants resemble Italy much less than it resembles either Germany or France. But there is a peculiar character about the Swiss, which, in truth, separates them from all three of the countries we have named. This is as observable in their dwellings as in any part of their economy. A Swiss cottage is associated in our minds

VOL. XIX.

with a kind of edifice differing a good deal from those of Germany, Italy, or France.

A Swiss cottage in the Canton de Vaud, according to the description of M. Simond, very frequently bears the following character. It is not unusually of the enormous size of eighty or one hundred feet square. It is very low, but has an exceedingly lofty shingle roof, which is loaded with large stones, to prevent it from being blown away with the wind, and projects, in the piazza shape, over an outside gallery, up a flight of stairs. This is properly the ground floor, or rather the snow floor, for the lower floor, ramparted as it is with fire-wood, and buried in snow in winter, becomes a sort of cellar, where the provisions are kept, and where the cows are housed. A large door, in the centre of the building, gives entrance to the various farming carriages and implements, as well as to all the winter fodder: thus the stable, the barn, and the dwelling, are all under the same roof, with all the apparatus of home manufactures, carried on in winter, and their produce, cheese, butter, &c. The family have access to all parts of this their domestic world, without ever stepping out of doors. These houses (which a single spark might set in a blaze), as well as all the houses in the Canton de Vaud, are obliged by law to be insured. The accounts are kept by government, free from any contingent charges of administration, and the proprietors of houses pay no premium, but only their respective share of losses by fire. The houses are estimated at three-fourths of

their value only, and the aggregate of losses is equal to about one in a thousand yearly.

The same traveller, being located for a time in another part of Switzerland, gives a description of a cottage apparently rather more humble than the average run of them. It was, however, built of larch, and was spacious and clean. It had a large common room up stairs, with several windows to it. The furniture of the room consisted of a long bench round three sides, and a long table before it: an enormous earthen stove was so placed and constructed as to answer the purpose of steps to ascend to the next story above, by an opening in the ceiling of the room. The kitchen, in another part of the building, had no chimney, but the smoke issued out through a hole in the roof, covered with a shutter that was opened or closed by pulling a rope. Above the first floor, built of stone, the structure was composed of square beams, placed one over the other, and dovetailed at the angles of the building, the whole covered with boards, within and without. Although the sides of the building showed only one story above the ground floor, yet the gable end, or rather front, had four or five, each marked by a row of small contiguous windows. This front was decorated with passages from the Scriptures, inscribed very neatly on the wood. The wood was not painted, but the turpentine, which had long before oozed through its pores, had hardened on the surface to a kind of varnish.

An entertaining English writer, lately deceased, Mr. Inglis, has given a very detailed account of the houses, within and without in a part of Switzerland called *Engadine*:—

During my day's walk I passed through many large villages, the names of which I do not recollect, but whose size appeared to me very disproportionate to the extent of the valley in which I found them. The great size of the houses, however, partly accounts for this. In no part of Europe have I seen the houses of the natives so large as I found them throughout the whole of the Unter and Ober Engadine.

He then proceeds to state that a village in every part of the Engadine is the same. It consists of one street, long or short, as the case may be, with some few and very short lateral openings, scarcely deserving the name of streets. In some part of the street there is an open space, with a fountain in the centre,—plain, but not inelegant, and closely adjoining the village, but seldom forming a part of it, is the village church,—in size and architecture nearly resembling the country churches in Scotland.

The houses in these villages are of an enormous size: indeed Mr. Inglis affirms that they cover an area greater than that occupied by any two houses in Portland Place. Their height never exceeds two stories, and the roof, which is covered with square pieces of wood, laid on like slates, upon which trunks of fir-trees are placed transversely, falls back at a very acute angle. The exterior of the houses presents a good deal of decoration. Upon the white plaster copies of Greek and Roman designs are painted in lead colour: painted Doric or Corinthian columns adorn the door-posts, and the imitation is so good as to deceive a spectator until he approaches near. The door or gateway is generally arched, and painted with some tasteful design. Sometimes an imitation of a Greek pediment is painted over the windows, and in some instances every part of the exterior is painted with one uniform design, the whole front and sides being set off with pillars, pilasters, pediment, &c.; so as to give at a distance some resemblance to a Grecian temple.

It is difficult (says Mr. Inglis) to understand how this custom and taste have arisen. The painting is for the most part old, and in some places has been renewed, but not with equal skill; and upon the houses recently erected nothing of the kind has been attempted. These, however, are but few, and form a very trifling exception when speaking of the appearance of the Engadine villages. I cannot conceive

any other origin of so singular and so universal a practice than that some Grison architect, who had left his native valleys, acquired in Italy a taste for the classic models of that land, and returning to his country, exercised his profession, and, at the same time, fed his recollection of the glorious things he had seen, by adorning the buildings of his native village. The taste might soon spread, and in the six or eight villages of the Ober Engadine a few years only would be required to satisfy its demands. In all that I have yet said, or may still say, respecting the villages and houses of the Engadine, I speak with reference to both the Ober and Unter Engadine, with the exception of the painting upon the walls, which I think is confined to the Ober Engadine; at all events it does not extend to more than one village in the lower valley. Let me add to this description of the exterior of the houses, that upon some part of the wall, generally over the gate, is found an inscription, sometimes in Roman, sometimes in Latin, indicating the period at which the house was built, setting forth the name of the builder, and containing, besides, a recommendation of the house and its inhabitants to the protection of God.

Mr. Inglis then describes the interior of these dwellings. Within the gateway or door is a spacious chamber, with an earthen floor, which serves as a sort of inner court-yard, and which presents a strange contrast to the ornamented gateway. This apartment is used as a general store-house. Ranged on one side are all the utensils required in a dairy, such as churns, cheese-presses, and the innumerable flat wooden dishes, used for the reception of the milk. On another side are various agricultural implements, together with ladders, saws, and other tools. Several spinning-wheels stand in one corner: a quantity of skins are heaped in another: and one end is always devoted to the fuel, and is heaped with wood as high as the roof. From this large store-room are entrances leading to the different apartments, the kitchen, the eating rooms, and other rooms, varying in number according to the size of the house and the necessities of the family. The furniture of these rooms is always abundant, substantial, and sometimes ornamented with carved wood-work. The sleeping-rooms are almost always above stairs, but scarcely correspond in convenience with the lower part of the house.

Swiss houses appear to have been built of wood for many ages past: probably the majority of them have never been formed of any other material. Coxe, writing sixty years ago, respecting the canton of Appenzel, says:—

In our way to Appenzel we entered several houses which were all built of wood, neatness and convenience being the principal object of the owners: such a remarkable cleanliness prevailed throughout as afforded a most striking proof of the general attention which people pay to that essential article. A continued chain of these cultivated mountains, richly clothed with wood, and thickly studded with hamlets, exhibit a series of landscapes inexpressibly pleasing.

In another passage, speaking of Aargau, he says:—

The houses, like those of Appenzel and Glarus, are generally of wood, and it was a natural observation of one of our servants, in passing through a continued chain of rocks, that as there was no deficiency of stone, it seemed extraordinary to employ wood alone for the purposes of building. But it may be remarked that these wooden houses are soon constructed and easily repaired, and being formed in a compact manner, with small rooms, and low ceilings, are sufficiently warm even for so cold a climate. The chief objection arises from the danger of fire, which, however, is in some measure obviated by the method of building their cottages detached from each other. But this observation does not hold with respect to some of the largest burghs, which are exposed to the ravages of this dreadful calamity.

Of course the dwellings in Switzerland vary with the place where they are built, and with the means of those to whom they belong; but the cut at the head of this article may be considered as a general representative of the houses in the romantic valleys of that country.

MEMOIR OF THE LATE DR. THOMAS YOUNG.

In 1831, a memoir of Dr. Thomas Young, one of the most distinguished men of the age, was printed solely for private distribution, and with the hope, modestly expressed on the part of the writer, that the "imperfect sketch" then produced would afterwards be filled up by "some abler hand."

With the exception of the short but masterly sketch given by the celebrated M. Arago, in the *Revue des Deux Mondes*, this hope has not been yet fulfilled; but as the name of Young, and the fame of his extraordinary attainments, may have reached many of our readers, and excited a desire for further information respecting this highly gifted individual, we proceed to lay before them such details as may be conveniently gathered from the sources above alluded to.

Thomas Young was born at Milverton, in Somersetshire, on the 13th of June, 1773. His parents were Quakers, and of the strictest of that sect: his mother was a niece of Dr. Richard Brocklesby, a physician of eminence, who was connected with some of the most distinguished literary and political characters of his time, and who numbered among his most intimate friends Johnson, Burke, and Windham. To the influence of the early impressions of the Quaker tenets Dr. Young "was accustomed to attribute in some degree the power he so eminently possessed of an imperturbable resolution to effect any object on which he was engaged, which he brought to bear on everything he undertook, and by which he was enabled to work out his own education almost from infancy, with little comparative assistance or direction from others." He passed the first years of his life at the house of his maternal grandfather, Mr. Robert Davies, of Minehead, whom active commercial engagements had not prevented from cultivating the classics.

Young appears to have been a forward, if not a precocious child; but unlike the majority of such children, he abundantly fulfilled the expectations of his friends, so that his after course more than corresponded with the promise of his youth. At the age of *two years* he could read fluently, and showed signs of an extraordinary memory. Very soon after this, in the intervals of his attendance at a village school at Minehead, he committed to memory a number of English verses, and by the time he was four years old he had learned by heart a variety of English authors, and even different Latin poems, which he could recite from beginning to end, though unacquainted with the language. Before he was six years old he was sent to a school kept by a dissenting minister at Bristol. Here the mediocrity of his master proved no barrier to his progress, for he became essentially his own instructor, and had generally studied the last pages of his books before he had reached the middle under the eye of the teacher.

When he was eight years old he attracted the attention of a land-surveyor of merit, residing near his father's house, and was allowed to spend as much time as he liked during the holidays, in the office of that gentleman, where he was indulged with the use of mathematical and philosophical instruments, and the perusal of three volumes of a *Dictionary of Arts and Sciences*. These were to him sources of instruction and delight, of which he never seemed to be weary. At this time he acquired some knowledge of land-surveying, and amused himself in his walks by measuring heights with a quadrant.

From the age of nine to his fourteenth year Young lived with a Mr. Thomson, at Compton, in Dorsetshire, where he was occupied, in common with the other boarders, with a close attention to Greek and Latin. He was always at the head of his class, and yet at the same time he made some progress in French, Italian,

Hebrew, Persian, and Arabic. The French and Italian he learned in order to satisfy the curiosity of a companion, who had in his possession several works printed at Paris, of which he wished to know the contents; the Hebrew to read the Bible in the original; the Persian and Arabic with a view of deciding this question, raised during a conversation at dinner,—“Are the differences between the Oriental languages as marked as between those of Europe?” Without the certainty that we gather our information from authentic sources we should hesitate to add, that at the time when he was making this extraordinary progress in languages, he entered so ardently on the study of botany that in order to examine plants he set about the construction of a microscope, without any other guide than the descriptions given by Benjamin Martin. In order to succeed in his difficult task he found it necessary to acquire much dexterity in the art of turning, and falling upon a demonstration in Martin's *Philosophy*, which exhibited some fluxional symbols, he was not satisfied until he had read and mastered a short introduction to the doctrine of fluxions.

Such incessant activity had the effect which might have been expected, and at fourteen years the health of Young was greatly changed. He was attacked by symptoms of what his friends feared to be incipient consumption,—symptoms which happily yielded, after a time, to the prescriptions of art and the extreme care of his parents. During his indisposition he merely relieved his attention by what to him stood in the place of repose—a course of Greek reading in such authors as amused the weariness of his confinement. In the year 1787 he became the fellow-pupil of the grandson of Mr. David Barclay, of Youngsbury, in Hertfordshire, it having been agreed that the two youths should pursue their studies together, under a private tutor, at Mr. Barclay's house. As a proof of his proficiency at this period we may give the following anecdote. On the day of his arrival at Youngsbury Mr. Barclay gave him some sentences to copy, to ascertain if he wrote a good hand. Young, perhaps a little humbled at such a proof being required, asked permission to retire into an adjoining room. He remained longer than appeared necessary, and Mr. Barclay began to joke about the young quaker's want of dexterity; but he presently returned with a remarkably beautiful copy, and a translation of the sentences into nine different languages.

According to the Memoir we principally follow, the tutor did not arrive, and Young took it on himself not only to direct the studies of his companion, but of another student, who now joined them, Mr. Hodgkin, author of the *Calligraphia Græca*. But M. Arago gives us a different account. He says, the preceptor who directed the studies of the two young scholars at Youngsbury was a distinguished young man, then engaged in perfecting himself in a knowledge of the ancient languages, and was afterwards the author of the *Calligraphia Græca*. He was not long, however, in perceiving the superiority of one of the two pupils, and observed with the most laudable modesty, that in their common studies, the true tutor was not always he who bore the title.

Thus passed the five years from 1787 to 1792, the summers being spent in Hertfordshire, and the winters in London. The little party of students had the advantage of occasional masters, during their annual visits to the metropolis, and with this aid Young made himself surprisingly familiar with the great writers of antiquity, keeping ample notes of his studies. He had now acquired facility in writing Latin, composed Greek verses, which were well received by the distinguished scholars of the day, and applied himself assiduously to the higher mathematics. To the studies of botany, zoology, and especially entomology, he at the same time paid considerable attention. He drew up from original sources a detailed analysis of the numerous systems of philosophy

which were professed in the different schools of Greece. The train of thought excited by the study of the conflicting opinions of the ancients is supposed to have mitigated in some degree Young's attachment to the views of his own sect, the quakers, from whose society he subsequently separated himself, during his residence in Edinburgh. In the course of his visits to London he attended the chemical lectures of Dr. Higgins, and having previously prepared himself by reading on the subject, he began to make simple experiments of his own. But he was never fond of repeating experiments, nor even of originating new ones, considering that, however necessary to the advancement of science, they demanded a great sacrifice of time, and that when the fact was once established, that time was better employed in considering the purposes to which it might be applied, or the principles which it might tend to elucidate.

Dr. Brocklesby, the maternal uncle of Young, being justly proud of the success of the young scholar, communicated some of his compositions to philosophers and literary men, and thus introduced him to the notice of Burke, Windham, and other celebrated characters. By means of their patronage, Young might easily have secured some lucrative post under government, but he preferred the independent though laborious career of a literary life. By the advice of his uncle, he directed his views to the studies necessary for the practice of physic. These studies were commenced in London under Baillie and Cruickshank, and continued at Edinburgh, where Doctors Black, Baillie, and Munro, were then highly distinguished. Young took his degree at Göttingen in 1795.

The biographer of Young justly remarks that his self-conducted education in privacy, was not without its disadvantages: that though the acquirements he made during those five years of seclusion were great, he was not gaining that which is acquired insensibly in the conflict of equals in the commerce of the world,—the facility of communicating knowledge in the form that shall be most immediately comprehended by others, and the tact in putting it forth that shall render its value immediately appreciated.

Before taking his degree, Young had become known to the scientific world by a controversy which he had carried on with Dr. Beddoes on Crawford's Theory of Heat;—by a Memoir concerning the habits of spiders; and by an observation relating to Gum *Labdanum*. He also communicated to the Royal Society his Observations on Vision, and his Theory of the Muscularity of the Crystalline lens of the Eye, which became the subject of much discussion, John Hunter laying claim to having previously made the discovery. He was soon after elected a fellow of the Royal Society.

In the intervals of more serious pursuits he found leisure for cultivating those arts in which his early education had left him deficient. Everything was with him a science, and whatever he followed he followed scientifically. He cultivated skill in bodily exercises, took lessons in horsemanship, in which he always had great pleasure, and practised under various masters, all sorts of feats of personal agility. The first time he mounted a horse, the riding-master who accompanied him leaped over an elevated barrier; Young wished to follow him, but was thrown over the horse's head ten feet. He got up without saying a word—made a second trial—was again dismounted, but did not pass this time over the head of the animal. On the third trial the young student succeeded in accomplishing what had been done before him. Both at Edinburgh, and at Göttingen he carried these kinds of exercises much farther than might have been expected. He even vied successfully with a distinguished rope-dancer, and acquired extraordinary facility in the art of vaulting on a horse. Thus we find a striking contrast between Newton, riding in a carriage with his arms extended and grasping the coach doors,

from the fear of falling; and his illustrious competitor, who would gallop erect upon two horses, with all the assurance of a riding-master.

While at Göttingen, he excited the wonder of his fellow-students by his attainments and almost incredible industry. He had acquired at an early period a profound knowledge of the theory of music. His taste for painting was confirmed during his residence in Germany. There his attention was entirely taken up with the collection at Dresden. He studied the defects and peculiarities of the greatest masters, their frequent changes of style, the material objects of their work, and the modifications which the objects and colours underwent in the lapse of time. He is said to have studied painting in Saxony in the same manner as he had studied the languages in his own country, and as latterly he cultivated the sciences. In fact, everything in the sight of Young appeared worthy of meditation and research. His college acquaintances relate that having entered his room during the day that he had received his first lesson in dancing a minuet, they found him busy, with a rule and compass, measuring the intersecting directions which the two dancers followed, and the different improvements which the various figures appeared susceptible of acquiring.

During his residence in Germany he composed a treatise entitled *De Corporis Humani Viribus Conservatricibus*, leaving few volumes unconsulted which had any connexion with his subject. He also gained a very general and accurate acquaintance with the language and literature of Germany, which he kept up throughout his life; he remarked that he found in Germany a love of new inventions, singularly and somewhat pedantically combined with the habit of systematizing old ones, and of giving an importance to things in themselves trifling, which in his case rather confirmed an original habit of dwelling on minutiae more than his subsequent experience led him to think was advantageous.

THE Russian is scarcely ever seen to strike the animal over which he has power—his horse is seldom propelled by any other influence than a few cheering and encouraging sounds, and if this increases not his pace, he does not, heated with savage fury, dissect the savage beast with a scourge, beat out an eye, or tear out his tongue. The Russian proverb is, "It is not the horse, but the oats, that carry you." As long as the horse will eat, he feeds him; and his appearance generally honours the humanity of his master.

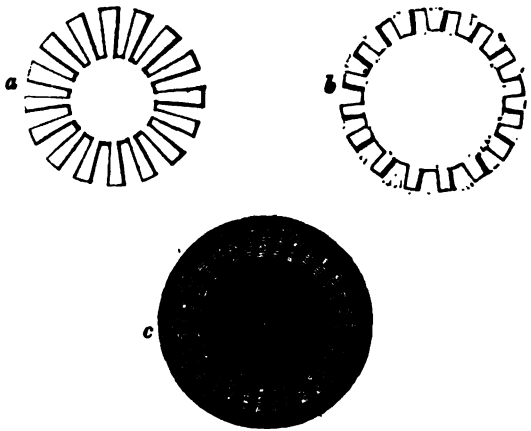
PERDIDI DIEM.

"I HAVE lost a day," said Titus, "for this day
To none have I done good." Oh! rather say,
The day this noble sentiment had birth
Shines out transcendent with enduring worth.
Small the *material* good thou could'st achieve,—
Transient and limited; but Time shall leave
These words a living lesson, potent still
To sway towards generous deeds the human will,
When he hath stript of power Imperial Rome,
And crumbled into dust her proudest dome.—H. W.

THE results of deep research or extravagant speculation seldom provoke hostility, when meekly announced as the deductions of reason, or the convictions of conscience. As the dreams of a recluse or an enthusiast, they may excite pity or call forth contempt; but, like seeds quietly cast into the earth, they will rot and germinate according to the vitality with which they are endowed. But, if new and startling opinions are thrown in the face of the community—it they are uttered in triumph or in insult—in contempt of public opinion, or in derision of cherished errors they lose the comeliness of truth in the rancour of their propagation; and they are like the seed scattered in a hurricane, which only irritates and blinds the husbandman.—SIR DAVID BREWSTER

OPTICAL ILLUSIONS. VI.

Fig. 1.

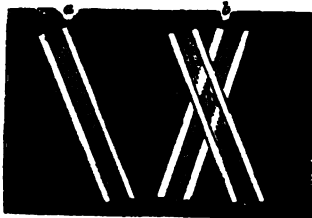


In our last paper on this subject we described several remarkable experiments made by Dr. Faraday, as well as the apparatus which he contrived for conducting them. We now proceed to speak of other experiments, made by the same gentleman.

It will be remembered that in the experiment described at the end of the last paper, two wheels having an equal number of teeth or cogs, but one having the teeth deeper than the other, gave, when viewed in the revolving apparatus, a spectral wheel with double the number of teeth. This is shown by the annexed figure, (fig. 1,) in which *a* is the wheel nearest to the eye, and having the deepest teeth, *b* the other wheel, having, like the other, sixteen teeth, and *c* the spectral wheel, with thirty-two teeth. It would be tedious to follow out the cause of each variety of effect produced in this experiment, but it may suffice generally to say, that they all result from the occurrence of one set of impressions on the retina before a previous set of impressions has lost its influence.

Dr. Faraday describes a very simple experiment, to show the production of a spectral line, where none such exists in the original objects. If a little rod of white cardboard, five or six inches long, and one thirtieth of an inch wide, be moved to and fro, from right to left, before the eye, an obscure or black ground being beyond, it will appear to spread a tint over the space through which it moves, as in fig. 2, *a*. A similar rod held and

Fig. 2



moved in the other hand will produce the same effect, but if there be visually superposed, *i. e.*, if one be moved to and fro behind the other, also moving, then in the quadrangular space included within the intersection of the two tints will be seen a black line, sometimes straight, and connecting the opposite angles of the quadrangle, as in fig. 2, *b*, at other times oval or round, or even square, according to the motions given to the two cardboard rods. This appearance is visible even when the rods are several inches or a foot apart, provided they are visually superposed. By carefully examining the effects produced, and tracing them to their causes, it will be seen that the black line is the path of the intersecting point of the moving rods. As their motions vary, so

does the course of this point change, and wherever it occurs there is less eclipse of the black ground beyond than in the other parts, and consequently less light from that spot to the eye than from the other portions of the compound spectrum produced by the moving rods.

In the experiment just described the eye should be fixed, and the part observed should be between the planes in which the rods are moved. Those who find it difficult to observe the effect at first will instantly be able to do so if the rod nearest the eye be black, or held so as to throw a deep shade: the line is then much more distant. Two bright pins or needles produce the effect very well in diffuse day-light, and the line produced by the shadow of one on the other and that belonging to the intersection are easily distinguished and separated. If, while a single bar is moved in one hand, several bars or a grating is moved in the other, then spectral lines, equal to the number of bars in the grating, are produced. If one grating is moved before another, then the lines are proportionably numerous; or, if the distances are equal, and the velocity the same, so that many spectral lines may coincide in one, that one is so much the more strongly marked. If the bars used be either straight or curved, the lines produced may be either straight or curved at pleasure, according as the positions and motions are arranged, so as to make the intersecting point travel, in a straight, or a curved, or in any other line.

Dr. Faraday shows that the production of a line in this experiment, where none exists in the original objects, depends on the same cause as the production of a spectral wheel, with twice as many teeth as either of the real wheels, in the experiments with the revolving machine; and to show more clearly the nature of this effect he varied the experiments in several different ways.

1. When wheels were used, having equal but oblique teeth, and the obliquity in the same direction, the spectrum was also marked obliquely, but when the obliquity was in opposite directions the spectrum was marked as with straight teeth.

2. When equal wheels were revolved with opposite motions, one rather faster than the other, the spectrum travelled slowly in the direction of the fastest wheel: when the difference in the velocity of the two wheels was made greater the spectrum travelled faster.

3. When one wheel contained more cogs than the other, as, for instance, twenty-four and twenty-two, then with equal motions the spectrum was clear and distinct, but travelled in the direction of the wheel having the greatest number of teeth. When the other wheel was made to move so much faster as to bring an equal number of cogs before the eye, in the same time as the other, the spectrum became stationary again.

4. When the motion of the wheels upon the machine is in the same direction, the velocities equal, and the eye placed in the prolongation of the axis of the wheels, no particular effect takes place. If it so happens that the cogs of one coincide with those of the other, the uniform tint belonging to one wheel only is produced. If they project by the side of each other, it is as if the cogs were larger, and the tint is therefore stronger. But when the velocities vary, the appearances are very curious: the spectrum then becomes altogether alternately light and dark, and the alternations succeed each other more rapidly as the velocities differ more from each other.

5. When wheels with radii, instead of cogs or teeth, are put upon the machine, the carriage-wheel phenomenon is observed with great perfection. They should be viewed obliquely, so as to be visually superposed only in part: and provided the wheels are alike, and both revolving in the same direction with equal velocity, they immediately assume the curved form described in the last paper.

6. If the wheels revolve in opposite directions, then

the spectral lines, originating at each axis as a pole, have another disposition.

7. The carriage-wheel experiment may be further imitated, by mounting the revolving machine with a single wheel carrying several equal radii at equal distances, and holding a small grating between the wheel and the eye. The bars of the grating should be equidistant, the intervals between them being about equal to that between the extremities of two contiguous spokes of the wheel.

As a variation in the mode of observing many of these phenomena Dr. Faraday recommends the following: to cast the shadows of the revolving wheels, either by sun or by candle-light, upon a screen, and observe their appearance. The way in which the cogs or radii of the wheels shut out more or less of a back-ground from the eye will enable them, to an equal degree, to intercept light which would otherwise fall upon a screen. When the two equal cog-wheels are revolved, so as to have the shadows cast upon a white screen, that shadow exhibits all the appearances and variations observed when the eye is looking by the wheels in shade at a white back-ground. The shadow is light where the wheels appear dark, for there the light has passed by the cogs,—and dark where the wheels appear light, for there the cogs have intercepted most of the rays. The screen should be near to the wheels, that the shadow may be sharp, and it is convenient to have one wheel of rather smaller radius than the other, or else to place them obliquely to the sun, for the purpose of distinguishing the shadow of each wheel, and showing how beautifully the spectrum breaks out where they superpose. When the spoke-wheels are revolved they also cast a shadow, presenting either the appearance of fixed or moving radii, according to the circumstances already alluded to.

The same ingenious philosopher also shows that reflection will produce a similar train of beautiful effects. If a white cardboard wheel, with equal radii, be fixed upon a pin, and rotated between the fingers before a glass, so that the wheel and its reflected image may visually superpose in part, the fixed hues will be seen passing in curves between the axis of the wheel and the reflected image. If the person gradually recede from the glass, but still look through the wheel in his hand at the reflected image, *i. e.*, still retain them superposed, which is best done by bringing the revolving wheel close to the eye, he will see the lines or radii of the reflected image gradually become straight, and when from three feet to any greater distance from the glass, will see the spectrum of the reflected image, having as many dark radii upon it as there are radii in the wheel he is revolving. Whatever the velocity, or however irregular the motion of the wheel, these lines are perfectly stationary. A very striking deception may be obtained in this way, by revolving a single cog-wheel between the fingers before the glass, when from twelve to eighteen feet from it. It is easy to revolve the wheel before the face, so that the eyes may see the glass through or between the cogs, and then the reflected image appears as if it were the image of a cog-wheel, having the same number of cogs, but perfectly still, and every cog distinct, instead of being the image of one in such rapid motion that by direct vision the cogs cannot be distinguished from each other, or their existence ascertained. The effect is very striking at night if a candle be placed just before the face, and near to it, but shaded by the wheel: in the reflection the wheel is then well illuminated, and the reflected face or shadow forms a good back-ground against which to observe the effect. When we come to speak of M. Plateau's experiments it will be seen that this gentleman made much use of a mirror apparatus for such experiments as these.

Another experiment, beautiful from its very simplicity, was described by Dr. Faraday. A disk of cardboard, about two inches and a half in diameter, was cut into a wheel like fig. 3: another disk, rather larger, was cut

into a similar wheel, and then the radii of one were twisted obliquely like shavings of a ventilator, and the radii of the other similarly twisted, but in the opposite direction. A small hole being made in the centre of each, a large pin was passed through that of the smaller wheel, and then a small piece of cork passed on to the pin, to hold the wheel near the head, but free to turn. Two or three beads were then added, the second wheel put on, and then a second piece of cork. The end of the pin was then stuck into a quill or a pencil, and thus was formed an apparatus very like a child's windmill, except that it had two sets of vanes, revolving in opposite directions. On walking across a room towards a window or a candle, with this little toy in the hand, or blowing at it slightly from the mouth, the lines were beautifully seen, being either stationary or moving, according to the relative velocity of the two wheels. This could be altered at pleasure by inclining the vanes more or less, or by blowing towards the centre of the wheels, or towards the edges, when the larger hind wheel received more propulsive force.

The more the truths of science are studied, the more evident does it appear that those truths may often be illustrated and experimented on by very simple and cheap apparatus; and these experiments by Dr. Faraday, on the curious and often pleasing illusion under which the evidence of the eye is placed, exemplify this in a prominent manner. We shall shortly resume the subject, by detailing the results of experiments made by other ingenious philosophers.

Fig. 3.



BUFFALO DANCE OF THE AMERICAN INDIANS.

We observed, coming from the village, a group of Indians, fantastically dressed in buffalo skins, so as to bear a strong resemblance to that beast. They retained the head, beard, and legs of the animal entire, and were so well disguised that several of them, at a little distance, might have been mistaken for the brute itself. They had prepared themselves to give us the buffalo dance. They drew up in a large circle, at a little distance from a skin tent which had been lent to us by them, our own marquee having become much tattered in a heavy gale a few nights previous. The leader of this band was the Big Kaw, who frisked behind the grave head and beard of an enormous buffalo bull. In the centre of the circle were seated a number of buffaloes, whose business it was to sing, while the rest, consisting of chiefs, squaws, and pappoosea, or in other words, of bulls, cows, and calves, danced to their music. The chorus commenced with a low, mournful ditty, which set the whole herd of dancers in motion. They began by moving slowly round the singers, but as the chant grew more and more animated the vivacity of the herd increased. From a walk they quickened their pace to a trot; from a trot it ambled off into a full gallop. Now the spirit of the beast began to show out. The cows bellowed; the bulls frisked, roared, and fought; they kicked up, they tore up the ground, and chased each other round the circle. This lasted some time, until they grew uproarious, and the butting of horns was furious. At this sight the cows drew off, and several calves, after bursting out into a loud bawl, raised up from all fours, and mounting upon their two hind feet, started off for the village—too much frightened to take any farther share in the day's diversions. The dance lasted for about two hours after which the Big Kaw, under the form of a seven-year-old bull, came and seated himself upon a billet of wood, at our sides. He appeared perfectly satisfied with his performance, but was grievously out of wind.

After this followed several other dances of a similar character. They received their appellations from different animals, and the merit of a dance consisted in imitating, as nearly as possible the actions of the beast from which it received its name. They continued until late in the afternoon, when the Indians, one after another, departed to their homes; and long before nine o'clock the busy hum was entirely stilled, and a deep silence hung over our tent, and the surrounding prairie.—*Indian Sketches.*

CHINA. XIII.

ISLAND OF CHUSAN.—APPEARANCE OF THE COUNTRY.—RESPECT FOR THE DEAD.—JOB-HOUSES.—BUDDHISTS.—MANDARINS.

WE recently presented our readers with some account of Tinghai, or Tinghai-zen, a city in the island of Chusan; for which we were indebted to the interesting narrative of Lord Jocelyn: we again avail ourselves of the information he has furnished of what he witnessed in other parts of the island.

A native comprador, (purveyor,) who had been of essential use to our troops in procuring supplies of cattle, and in assisting as an interpreter in default of a better, was, while foraging, seized by mandarin soldiers, and carried away pig-fashion, upon a pole. Two or three small parties were ordered to traverse the island in pursuit of him, one of which was accompanied by our author. He thus describes the scenery of the interior:—

The road, or rather path, was flagged with large square blocks of stone, of sufficient breadth to allow three persons to walk abreast. Through this town, and indeed over the whole island, the roads were of the same description; and from what we have since seen of the tracts of the main land, they appear all on the same model, and of the same breadth. After traversing for some miles a luxuriant sea of paddy-fields, the way wound up the side of the mountains, through a lonely pass: the path here was cut into easy flights of steps, and these passages, which were numerous through the whole island, were all formed in the same manner. The surrounding hills were covered with the tea-plant, cotton, dwarf-oak, and a species of arbutus, rich with its red fruit; whilst their lofty summits towered on high, clad in the bright green pasture. The long valleys seen from the ascent stretched from the mouths of the different ravines, some lost in the many windings in the hills, whilst others again swept down to the sea-shore, adorned with their luxuriant crops of rice, bending to the northing breeze; and far away over the curious buildings of Tinghai, the British fleet lay anchored on the deeping water. Here and there, as if dropped at random upon the sides of the hills, were clumps of fine rees; and, peeping through their thick foliage, the roofs of houses and temples diversified the scene. Amongst many of the beautiful groves of trees which here invite the wanderer to repose, spots are selected as the resting-places of mortality: and gazing on these tranquil scenes, where the sweet olema and fragrant flowers help to decorate the last home of man, the most careless eye cannot fail to mark the beauties of the grave.

It is still a matter of doubt whether the Chinese do not carry their veneration of the dead to the point of idolatry; and some centuries ago, the Jesuits, the first missionary labourers in this country, finding it impossible to freeze up the warm affections felt upon this point, turned them into their own channel by inculcating the prayers for the dead upon their proselytes.

The natives of this island do not inter their dead as in the southern provinces; but the corpse is placed upon the ground in a wooden coffin, covered with a lid, easily moved, highly polished, round which the wild flowers and creepers blossom. In most of the houses we entered on the island, these large boxes were the first article that met the eye in the entrance chamber. In the tenanted houses which curiosity induced us to open, the body appeared dressed as in life, the pipe and tobacco lay on the breast, and leaves and rice at the unconscious head.

While the men stopped to breakfast in a temple, we walked on to some of the neighbouring houses. They were all deserted except one, which appeared to belong to the head man of the district; it was buried in a grove of palm and citron trees, and other shrubs unknown to us, and surrounded by a garden where the Cape jessamine and other sweet flowers perfumed the neighbourhood. The building was a good specimen of their

country dwellings: on entering through a large wooden gateway we found a yard or court, surrounded on two sides by different out-houses serving as granaries and places to dry fruit, whilst the remaining sides were the apartments of the family and the Hall of Ancestors, a room used in common by all the members of the household. The reason of the large size of these farm-houses is obvious, when it is taken into consideration that they generally contain a father, mother, sons, their wives and children. The front of the Hall of Ancestors was prettily trellised over, and rested on pillars, dry-rubbed and carved; the interior of this large room was surrounded by matted sofas; and little tables stood in the centre, on which were placed the tea-cups and pipes. Under the projecting roof was seated a venerable man, with a long white beard betokening him to be a grandfather, for they never permit its growth until that period. The rest appeared to have fled; and he looked so lonely and desolate, with the tears streaming down his withered face, that, although we were convinced that the comprador had been taken in the neighbourhood of the village, we could not find it in our hearts to capture this patriarch, although he proved to be the elder of the district, and acknowledged having heard the people carrying off the man the previous morning. The heat was intense, and as the men kept continually falling out from its effects, we determined to surround a village and procure coolies to carry the packs and to act as guides.

Having seized a sufficient number for our purpose, we held a parley with a small party that had taken up a position in a neighbouring temple, telling them that our intentions were amicable, and that we required the services of the men we had taken, but would repay them for their labour. During the conversation two little children stole out of one of the houses, and although they were at first terrified by the strangers, I succeeded in tempting one, a very pretty child, to play with a gay cap I wore on my head. A few quarter-dollars soon made us good friends; and the people, seeing we were not the bloody-minded barbarians they expected, became as troublesome from their curiosity and familiarity as they had formerly been coy. No part of our dress was left untouched, and our hands were examined, by which they appeared to judge of our situations in life.

Our halting-places were generally in the temples, and the village supplied us with provisions. The Chinese, as far as these job-houses are concerned, show very little respect for their religion. Amongst themselves they put them to the same purpose as we did for our troops, and mandarins and travellers of all descriptions use them as caravansaries on their journeys; the mandarins, indeed, if their rank is superior to the job's as a god, place the latter outside the building during their sojourn.

On the third evening we reached a small town buried in a thick wood, the entrance to which was over a curious bridge, formed, like most of those in Tinghai, of three blocks of stone, or rather slabs, the centre piece lying parallel to the water, whilst the one on each side slants upwards from the bank, resting at one end on the land, and at the other dovetailed into the centre stone. These are often seen fourteen feet long by four or five in breadth; how they manage to place them in the position seems extraordinary, as no machinery for the purpose has been found, and they say it is done merely by manual labour.

The party failed in their endeavours to recover the man of whom they were in search, but took some of the principal inhabitants prisoners, to be held as hostages for his safety. The men had suffered severely from ague and dysentery in their march, but arriving at a sea-port found a steamer to take them back to Tinghai.

In the passage we passed by Poutoo, a small island within musket-shot of Chusan: this is a curious spot, not only from its natural beauties, which are very great

and thought by those who had been at Canton to resemble it, with its rocky stairs, winding along the sides of the hills, clothed with citron and other trees, but also on account of its being the Mecca of the Chinese religion, to which the worshippers of Budh make frequent pilgrimages, somewhat in the style of the Mussulman Hadji. It possesses a large temple, or rather a number of temples, buried in the rocks and jungle; more curious and picturesque, however, from their situation, than from any great magnificence in the structure. Attached to it is a monastery, containing some fifty priests, who seemed proud of their possession, and anxious that visitors should admire it. The old father of this monastery was upwards of eighty years of age: they all complained of a great scarcity of food, as their livelihood consists in the offerings to the gods presented by the worshippers to the temple; and these, during the late troubles, had been differently employed. It was agreed at the time that something should be done to endeavour to minister to their relief, but some weeks afterwards, other parties of military visiting the same place, found that starvation had driven many from their hold, and the poor father was fast travelling to his long home from the want of the necessaries of life.

Our author sailed with the expedition to the mouth of the Peiho, and here landed with Captain Elliot, who had been invited to an interview with the commissioner, Kea'shen. Two miles from the town they were met, agreeably to the etiquette towards visitors of rank, by a mandarin junk, on board of which were two officers, one with the red button in his cap, who was the general of the emperor's Tartar body-guard, and the other, a blue-button mandarin, holding some rank in Kea'shen's household.

They entered our boat, says our author, and handed round their agate snuff bottles, and soon became quite familiar. Blue-button was particularly communicative, asking our names and different professions, and informing us of his own military deeds; and in a private communication he acknowledged that in "the secret chamber" he sometimes indulged in the opium pipe. Red-button, however, who seemed of a more morose disposition, frequently called him to order, as if he feared some disclosures from his talkative propensities.

At the landing-place a bridge of boats had been constructed for our use across the mud-flat; and a narrow pathway, leading some hundred yards from the shore, brought us to an encampment, which had been thrown up for the reception of the mission.

A blue screen was placed at the entrance, so as to hide the interior from the gaze of the public; and here we were met by many more mandarins, and marshalled into the presence of Kea'shen; he rose at our entrance, and received the mission with great courtesy and civility. Indeed, the manners of these high mandarins would have done honour to any courtier in the most polished court in Europe. He begged us to remain covered, and was introduced to each person separately, and expressed his hopes that the supplies had been received by the squadron. He made some excuse for our reception in the tents, but intimated that Tarkou was some distance from the landing place. Judging from appearance, he might have been a man of forty, and looked, what he is said to be by his countrymen, a person of great ability: his tail, the Chinese appendage to men of all ranks, except priests, was remarkable for its length and the care that was evidently bestowed upon it. He was dressed in a blue silk robe, with a worked girdle: on his legs were the white satin boots common to all the higher orders: his head was covered with a mandarin summer cap, made of fine straw: in it was placed the deep red coral button, denoting the rank of the wearer, and the peacock's feather, drooping between the shoulders. On the whole, his dress was plain, but the mandarins when in full costume, judging from specimens taken at Chusan, must have a very gorgeous appearance.

The encampment was surrounded by a high canvass wall, resembling that which encircles the private apartments of great men and native rajahs, when travelling in India. Inside this screen were eight small tents, in each of which a table and forms were placed. These formed an oval, and in the centre was erected a canvass cottage, of rather an ingenious description, whilst at the upper end, concealed by another screen, stood the tent of conference. This was lined with yellow silk (the royal colour) and worked with the arms of the empire at the back.

The interpreters and Captain Elliot remained with the commission, whilst the rest of the officers and gentlemen sought the tents around, in which the lower order of mandarins were busy preparing a breakfast for the party; for it was an extraordinary thing in this visit, that everything was apparently done by mandarins—none of their servants being admitted.

The meal consisted of numerous little plates, piled one upon the top of the other, containing birds'-nest soups, sea-slugs, sharks' fins, hard-boiled eggs, whose interiors were far advanced to chickenhood, and dressed fish: these were the greatest delicacies. This is but a small portion of the supply, for at the table where I had the honour to partake of the *good fare* there were no less than thirty of these little saucers. These breakfasts were spread in the different tents, and each was intended to stay the ravenous appetites of five barbarians.

Some time afterwards, when the expedition had sailed further south, some mandarins came off to the ship and breakfasted with the admiral. It was surprising to see the enormous quantity of food they devoured; and one who was of an immense size, weighing upwards of thirty stone, upon being questioned as to his powers of consumption, acknowledged, with a degree of vanity, that a sheep was his ordinary allowance for three days, nor did he seem at all satisfied with his morning meal. The Chinese, like the natives of India esteem size and bulk, as they imagine such an exterior a sign of wealth and power, and respect it accordingly.

We were much struck at the immense bodily strength and power of the northern Chinese, particularly of the men who were employed tracking the boats upon the river, who, although seemingly a wretched class, more like beasts of burden than human beings, are possessed of such physical powers that six or eight of them will drag against the stream, and with apparent ease, a boat of considerable tonnage.

A full account of those singular people, the Chinese boat-trackers, has already been given in our sixth article on the *Manners and Customs of the Chinese*, Vol. X., p. 82.

A FRIEND of mine, while shooting wild-fowl with his brother, was attended by a sagacious Newfoundland dog: in getting near some reeds by the side of a river, they threw down their hats, and crept to the side of the water, where they fired. They soon afterwards sent the dog for their hats, one of which was smaller than the other. After several attempts to bring them both together in his mouth, the dog at last placed the smaller hat in the larger one, pressed it down with his foot, and then brought them both together. This fact need not be doubted. These individuals have both at different times assured me of its truth. I know an instance somewhat similar. A spaniel was endeavouring to bring a dead hare to his master. After several ineffectual efforts to carry it in his mouth, or to drag it along, he contrived to get all the feet of the hare in his mouth, and in this way conveyed it to his master.—JESSE.

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THE BANKS OF THE THAMES. VIII



HAMPTON COURT.

Let any wight, (if such a wight there be),
To whom thy lofty towers unknown remain,
Direct his steps, fair Hampton Court, to thee,
And view thy splendid halls: then turn again
To visit each proud dome by science praised,
"For kings the rest," (he'd say,) "but thou for gods wert raised."
J. P. ANDREWS, after GRÖTIUS.

CARDINAL WOLSEY, like many other ambitious men, hastened his own downfall by making too obtrusive a show of the power and wealth which his ambition had acquired for him. York Place, (since known as Whitehall,) and Hampton Court Palace, were instances of this uncontrolled love of splendour. Both belonged to the Cardinal, both were fitted up with almost unprecedented splendour, and both passed from the hands of this miscalculating man to those of the wily monarch from whom he had obtained all his power and wealth.

Soon after the Cardinal came into possession of Hampton Court Palace, it is said that he fitted up no less than two hundred and eighty silken beds, with suitable hangings, for the accommodation of visitors. In 1526 Wolsey thought it expedient to present the palace to Henry the Eighth; and that monarch resided in it occasionally, especially towards the end of his reign. Edward the Sixth was born in the palace; and the subsequent sovereigns, Mary and Elizabeth, frequently visited it. At the commencement of the reign of James the First the conference was held at Hampton Court, from which resulted the new translation of the Bible, and certain alterations in the Litany. Charles the First occasionally resided at Hampton, but rather as a prisoner than as a free monarch. Cromwell made it one of his residences, and the scene of his daughter Elizabeth's

marriage with Lord Falconberg. Charles the Second, and James the Second, passed a portion of their time in the palace; and William rebuilt the state apartments and some other parts of the edifice. From that time the palace has not been occupied as a royal residence, except for a short time by the Prince of Orange, to whom the use of it was granted in 1795 as an asylum, after he had been compelled to quit his own dominions. The principal domestic parts of Hampton Court are now occupied by different private families, on whom grants for life have been conferred by the Crown.

It appears probable that the original plan of Hampton Court Palace comprised five open courts or quadrangles, all surrounded by buildings; but after the alterations which it has since undergone, it is now composed of but three. The approach to the house is from the west, which side contains ranges of subordinate apartments and offices; the entrance to these is by a plain gateway, and at each extremity of the west front is an octangular brick turret. Within this outer portal is the first court, about a hundred and seventy feet by a hundred and forty, surrounded on all four sides by buildings of more or less elegance; among which is the west end of the Great Hall, presenting, with its large rich window, the impressive resemblance of a venerable chapel. The passage to the middle quadrangle is by a groined archway, finely ornamented. This court, which is somewhat smaller than the outer one, is bounded on the west by a range of buildings in which is the reverse front of the portal leading from the first court; on the east by another range in which is a fine oriel window, and a very rich portal flanked by turrets; on the south by a colonnade

of the Ionic order, designed by Sir Christopher Wren, but scarcely harmonising with the rest of the building; and the north by the Great Hall, one end of which is seen in the outer court.

The Great Hall is more than a hundred feet long, by forty wide, with an elegant gable window at each end. The sides are lighted by seven lofty windows, placed at a considerable height from the ground, as was customary in old halls, to afford space for the tapestried hangings beneath. At the upper end of the Hall is a dais or platform, and on one side of it a window of most exquisite workmanship, on one pane of which the Earl of Surrey wrote, with a diamond, some lines to the "fair Geraldine." The roofing of the Hall, which is of oak, is open-worked, and so exquisitely carved as to produce a general splendour of effect that almost approaches to sublimity.

It is impossible to visit this Hall without carrying the imagination back to the time when Cardinal Wolsey held here his more than regal banquets. Mr. Jesse tells us, on the authority of the chroniclers of those days, that Wolsey's household consisted of one thousand persons, and that the arrangements of the palace were consistent with the due and even luxurious accommodation of this large number. In the Hall there were three boards or tables, presided over by three officers, one a steward (a priest,) another a treasurer, (a knight,) and the other a comptroller, (an esquire;) also a confessor, a doctor, three marshals, three ushers of the hall, and two almoners and grooms. The officers of the Hall kitchen, of the private kitchen, and of the state apartments, were so numerous, and classified in such an exact manner, that we cannot attempt to enumerate them; suffice it to say that all these were daily fed in the Hall; one table being for lords of the household, another for gentlemen, and others for the inferior degrees.

Cavendish, Stow, and the other chroniclers of past time, have dwelt with minute wonder on the magnificent entertainments given by Wolsey in this Hall. One in particular, given to the French ambassadors sent over at the conclusion of a peace in 1528, was specially noted: the lord mayor entertained them in London; the king feasted them at Greenwich and at Richmond; but Wolsey's banquet at Hampton far exceeded the others. The rich hangings of arras, the massive silver and gold plate, the regiments of tall yeomen in gay liveries that waited upon the guests, the glare of the torches, the costliness and excellence of the wines, the savour of the meats, and the superabundance of everything, are all descanted on by Stowe with great minuteness. The Cardinal, we are told, did not enter the Hall till the end of the first course, (perhaps to show his importance,) but after he had welcomed the guests, and taken his seat, the banquet proceeded.

Anone came up the second course, with so many dishes, subtleties, and devices, above a hundred in number, which were of so goodly proportion and costlie, that I think the Frenchmen never saw the like. The wonder was no less than it was worthie indeed. There were castles, with images the same as in St. Paul's Church for the quantity, as well counterfeited as the painter should have painted it on a cloth or wall. There were beasts, birds, and personages, most lively-made and counterfeited, some fighting with swords, some with guns and cross-bowes, some vaulting and leaping, some dancing with ladies, some on horses in complete harness, jousting with long and sharp speares, with many more devices. Among all other was a chess-board, made of spiced plate, with men thereof the same; and for the good proportion, and because the Frenchmen be yerie expert in that play, my Lord Cardinall gave the same to a gentleman of France, commanding there should be made a goodlie case for the preservation thereof in all haste, that he might convey the same into his country. Then took my lord a boule of gold filled with ippocrass, and putting off his cappe, said, "I drink to the king my sovereign lord, and next unto the king your master," and therewith drank a good draught. And when he had done,

he desired the grand master to pledge him, cup and all, the which was well worth five hundred marks, and so caused all the lords to pledge these two royal princes. Then went the cups so merrily about, that many of the Frenchmen were faine to be led to their beds.

But we must leave the Hall and its festivities. The third quadrangle of which the palace consists, usually called, from the fountain in the area, the Fountain Court, consists chiefly of buildings constructed by Sir Christopher Wren in the reign of King William the Third, at the time when the south and east sides of the old palace were taken down, and the present state apartments in those divisions erected. The north and west sides were left standing, but were externally renovated to correspond with the new buildings. The court measures more than a hundred feet in each direction; and on each side is a beautiful colonnade of the Ionic order, with duplicated columns.

On the northern side of the Fountain Court is the Chapel. It is paved with black and white marble, and fitted up with oak, elaborately carved in many parts by the celebrated Gibbons. The roof is of a Gothic pattern, with elaborately-worked pendant ornaments. Before the civil war this chapel was ornamented with stained glass and pictures: but at that disturbed period, we are told that—

Sir Robert Harlow gave order (according to the ordinance of Parliament,) for the putting down and demolishing of the popish and superstitious pictures in Hampton Court, where the altar was taken down, and the table brought out into the body of the church, the rails pulled down, and the steps levelled, and the popish pictures and superstitious images that were in the glass windows were also demolished, and order given for the new-glazing of them with plain glass; and, among the rest, there was pulled down the picture of Christ nailed to the cross, which was placed right over the altar, and the pictures of Mary Magdalen and others, weeping by the foot of the Cross; and some other such idolatrous pictures were pulled down and demolished.

The east and south fronts of the palace, comprising the state apartments, form two extensive piles. The eastern, three hundred and thirty feet in length, is chiefly built of bright red bricks, but with decorations of stone; the central compartment, in which is the state entrance to the palace, is of stone, and highly embellished. The south front is about the same length as the eastern, and has, like it, a central compartment of stone, but is not so highly embellished; it looks over the gardens; and the ground was here sunk ten feet, for the purpose of obtaining a view from the lower apartments. The numerous state apartments are of magnificent dimensions; and they, as well as other apartments in the palace, are splendidly fitted up, and adorned with pictures by the first masters.

The most valuable treasures of art in the palace are unquestionably the Cartoons of Raffaele, which are known, at least by name, to most readers. They were drawings (cartoons) intended as copies for tapestry; and done by Raffaele, rather more than three centuries ago. When they were sent to Arras, in order that tapestries might be worked from them, the weavers cut each of them perpendicularly into six or seven slips, in order to work more conveniently. The tapestries thus produced were admired and exhibited at Rome; while the inestimable patterns or cartoons lay in oblivion in a cellar at Arras for a whole century. At length Charles the First, at the suggestion of Rubens, sought them out; when it was found that several of them were torn to fragments or otherwise destroyed; there being only the slips of seven of them remaining in an entire state. Some years after this, William the Third caused seven stretching-frames to be made, secured the slips carefully in their respective places to form the original pictures, and built a room for their reception at Hampton Court Palace, where they still remain. Propositions have at some periods been made to remove them to London, where they could be

more seen and appreciated: but it is feared that the effect of the metropolitan atmosphere on the water-colours, in which they are painted, would be unfavourable, while the Cartoon Gallery is allowed to be well-adapted for their reception. The subjects of these cartoons are as follow:—1. The Death of Ananias. 2. Elymas the Sorcerer struck blind by St. Paul. 3. The Lame Man restored by Saint Peter and Saint Paul. 4. The Miraculous Draught of Fishes. 5. Saint Paul and Saint Barnabas at Lystra. 6. Saint Paul preaching at Athens. 7. The last charge to Peter. We may remark, that, on the sale of the collection formed by Charles the First, the cartoons were secured at the price of 300*l.* by Cromwell, whose known determination to possess them prevented competition; but not long afterwards he obtained a loan of 50,000*l.* on them from Holland, which sufficiently indicates the estimation in which they were held.

Of the very large collection of pictures by distinguished masters, contained in different apartments of the palace, we have not room here to speak; but we must give a passing notice of some singular tapestries in a room called Wolsey's withdrawing-room. This room is entered by a doorway from the centre of the dais in the Hall. It is about sixty feet long, thirty wide, and twenty high. The ceiling is decorated with pendent ornaments, between which are fleurs-de-lis, roses, portcullises, coats-of-arms, &c. The ribs are of oak, and were formerly elaborately painted and gilt; they are divided into compartments, and from them small pendants descend as at the intersections. Around the room are a series of tapestries worked by Flemish artists, and placed in their present position by Cardinal Wolsey. Of these tapestries Mr. Jesse remarks:—

With all their drawbacks, these tapestries possess qualities which the real artist and connoisseur will immediately recognise as worthy of study and attention. The vigour of some of the groups and single figures, the expression of many of the heads, the feeling for simple and often elegant form, and also the exceeding grace and beauty of disposition and arrangement of many of the draperies, to say nothing of the bold, though it must be admitted, often strange conception of the allegories—afford fair compensation for many defects which arise out of ignorance of, or want of practice in, true drawing, and the absence of a grander and purer style.

The pleasure grounds attached to the palace are laid out in the formal Dutch taste; and in a garden called the private garden is the celebrated grape-vine, a hundred and ten feet long. This vine was planted more than seventy years ago; and it has been known to yield in one season two thousand two hundred bunches of grapes weighing on an average one pound each. A park, nearly five miles in circumference, is situated near the river; and in it is a canal half a mile in length bordered with fine lime-trees. A labyrinth or maze, on the opposite side of the palace, is one of the objects which, taken in conjunction with the various other attractions of the place, make Hampton Court one of the pleasantest jaunts to the visitor which the "banks of the Thames" can afford. At this part of our noble river the scenery on both banks has always been celebrated for its beauty.

Children we are all
Of one great Father, in whatever clime
Nature or chance hath cast the seeds of life,
All tongues, all colours: neither after death
Shall we be sorted into languages
And tints, white, black, and tawny, Greek and Goth,
Northmen, and offspring of hot Africa;
The All-Father, He in whom we live and move,
He, the indifferent Judge of all, regards
Nations, and hues, and dialects alike;
According to their works shall they be judged,
When even-handed Justice in the scale
Their good and evil weighs.—SOUTHER.

THE ECONOMY OF MARINE LIFE.

APART from the local advantages to such people as those of the Channel Islands—who use it as fuel and as manure—of stranded sea-weed, there is a principle, connected with the fact of its coming ashore, which it is necessary to understand before one can examine the sea with due knowledge of the economy of that extraordinary element. It is a fact, palpable to any one's observation, that all the coasts of the land, composed of mineral substances, or of dead shells, or other animal productions, or vegetable ones in which life is extinct, are habitually wetted by the ocean waters, to the full extent that these waters act upon them. It is also a fact, well known to those acquainted with the economy of nature, but not so palpable to common observation in those who do not attend to the principle of things, that no living production of the sea, or any other water, is wetted by that water while it remains in the living state. This is known to be the case in all waters, however soft and limpid they may be, or however mixed with saline and other active substances; and it is also known that the more such substances exist in the composition of any water, whether of the sea or of any other collection, the more completely are the living inhabitants of that water, animal or vegetable, protected against its action upon the surface of their bodies. The substance which nature employs for this purpose is a mucous or slimy matter, of some description or other, in which the surface of the living being is habitually bathed, and by which it is completely protected from that macerating and decomposing influence, which the water, whether salt or fresh, would otherwise exert upon it, and in so far operate its destruction; in the same manner as water very speedily decomposes the greater number of organized substances after they are dead.

The most remarkable and important relation between the waters of the sea and the dead and living inhabitants of that element, is not, however, the circumstance of the living productions and inhabitants elaborating a mucous or slimy production, by which the wetting is prevented, and which applies not only to aquatic plants and animals covered with soft skins, but even to the most compact of the porcelain shells, which, when living, are invested with a kind of membrane, often of extreme tenuity, which possesses the same quality. The curious part of the matter is, the difference of their relation in the sea to a substance which can be wetted by its waters, and to one which cannot be so wetted. The wettable substance finds its way to the wettable shore by an obscure but by a very certain and constant kind of attraction; and the substance which the water of the sea cannot wet has no such tendency to come on shore, but remains to perform its functions in the water. No matter whether it is marine plant, marine animal of any kind whatsoever, or aquatic bird which frequents the waters without habitually living in their volume; for if the plant or the animal is fitted by nature for living in the sea, there is no surface-action of the sea upon it as long as it is in the living state; and it consequently has no tendency whatever toward the shore. But when either plant or animal dies, and ceases to perform its functions, including the production of the water-repelling mucus among the rest, it is immediately subjected to the economy of the waters, just as if it were a dead thing; and then the action of the sea casts it on the shore, as having no longer connexion with the energy and economy of living nature there. This is the cause of the vast accumulations of shells with which we meet on various shores, and on some of the shores of the Channel Islands among the rest; and it is also the reason why that sea-weed, which is so valuable to the Channel Islanders, comes ashore in considerable quantities, after those violent disturbances of the ocean waters which have torn it from its natural situation as a living vegetable, and transferred it over to those dead products which the sea invariably casts upon the strand, as being no longer useful in its very varied economy.

If the people of the Channel Islands were fully aware of this peculiar property of dead sea-weed, it might save them no small portion of their labour at those times of the year when the time arrives to cut and carry this weed as a very necessary article of their provision, both domestic and agricultural. If they were simply to cut it down—that is, to sever it from the tentacula or roots by which it adheres to the rocks without deriving any nourishment from them—then it would not go out to sea, but would be collected in the bays in the creeks to probably the same extent as now, and with a great reduction of labour to those whom it is valuable as an article of domestic economy.—MURK.

BRUNELLESCHI,
AND
THE CATHEDRAL OF S. MARIA DEL FIORE,
AT FLORENCE.

If we date from the death of Justinian the entire disappearance of the system of, and the taste for, the architecture of Greece and Rome; and if we pass over the long and gloomy period wherein the fairest works of antique art were a prey to the ravages of the Northmen, we shall find that Italy prepared the way for the restoration of good taste, and that Filippo Brunelleschi was the first to prepare the way for its reception.

This illustrious Italian, born in 1375, was descended from an ancient Florentine family: his father was a notary, to which profession young Filippo was destined. He received a good education, but his father observed with some dissatisfaction that his son was more attached to the ingenuities of the hand than to the culture of the head; and in despair of making him excel in literature and law, he placed him with a goldsmith, an art which was then in great repute, since it was intimately connected with the finest of the arts of design, which the ornamental taste of the Roman Catholic religion fully developed and encouraged.

Our young artist became captivated with the charms of sculpture, which taste was encouraged by an acquaintance with the afterwards celebrated sculptor Donatello. Filippo also studied with great assiduity the sciences of geometry, optics, and mechanics; and his young and ardent fancy looked forward to architecture, as the subject on which his genius was to display its full power; so that, when Donatello was about to visit Rome for the purpose of studying sculpture, Brunelleschi determined to accompany him to gaze upon the architectural monuments of antiquity, which at that time were not only forgotten in Rome, the place of their birth but the principles upon which they were constructed were unknown to the whole world.

It is one of the grand properties of genius to see clearly that which to other eyes is obscure. Many of the professors of art and science, in their numerous important and extensive departments, are undoubtedly men of great and exalted talent; they follow in the path of their predecessors, and simplify and improve our knowledge; but the man of genius does more than this; he penetrates deep into the mysteries of nature, removes the veil which prevents other men from seeing farther, opens new fields of research, discovers hidden principles which are new, or explains and brings out into the light of day such as have long been lost.

When Brunelleschi arrived at Rome he was lost in surprise and admiration at the sight of so many architectural wonders, which in his day existed in a better state than at present. The world is five centuries older than when our young architect first sat down among the ruins of imperial Rome. His wonder seems to have bewildered him; so that it required a long time before he could acquire that sober state of mind necessary for the study of these wonderful models. Even then he is said to have forgotten the commonest offices of life,—the hours of repast and of sleep. He was constantly constructing plans,—measuring antique edifices,—obtaining exact proportions,—and endeavouring to establish the true characters of the three orders, so as to arrive at that system of reason, intelligence and harmony which was to re-establish and perpetuate the authority of his principles. The ambition of becoming the restorer of ancient architecture sustained his courage and excited his ardour; his pecuniary resources were exhausted, but his profession of goldsmith supplied him with daily bread: his enthusiasm in the cause of architecture was genuine:—it was not of that weak and flimsy nature which wears itself out in protestations of what it *will do*:—his was the “deep stream which

bubbles not:”—it sources were concealed within himself, and they were not communicated even to his intimate friend Donatello, who returned to Florence, leaving Brunelleschi at Rome amid the ruins of past grandeur.

We come now to notice the work upon which the fame of Brunelleschi chiefly rests. The grand Basilica or the Cathedral of Santa Maria del Fiore at Florence was commenced by Arnolfo di Lapo, about the year 1295, a few years before his death. It appears that Arnolfo, in the conception of a vast plan, intended to cover the spacious octangular area between the four branches of the cross with an immense vault. This, however, is only conjecture; since the architect did not leave behind him any plan for inclosing this enormous space. He and his contemporaries had no knowledge of the resources of Greek and Roman architecture; and the knowledge and skill of the time did not warrant such an undertaking as this gigantic dome. The only person who at all favoured the practicability of such a scheme was Brunelleschi, whose secret ambition when at Rome, was to erect this great work without any centering; or internal support from carpentry work, but, taking as a point of departure, the summit of the nave, to build his vault in stone, and to make its elevation proportionate to the rest of the edifice. At that time such a project as this was thought to be wild and visionary.

Brunelleschi wanted only a little more knowledge in the art of construction. He again applied himself, and interrogated the monuments of antiquity: he looked into these works for the reasons of their solidity; the means whereby they were executed; the relations of their masses; the processes whereby the materials were worked; the secrets of their union and of their transport and position; the mechanical laws whereby to calculate forces and resistances; the boundary line, in short, between boldness and temerity.

In 1407 Brunelleschi returned to Florence. In this year the most eminent architects and engineers were convened from all parts to deliberate on the best means for completing the cathedral. Many formidable difficulties were opposed to the construction of a single vault, and there was no existing building which could be taken as a precedent. The dome of Sancta Sophia was somewhat smaller in diameter than the one now proposed: this one, together with that of St. Mark's at Venice and the cathedral at Pisa, was constructed under such very different circumstances as to afford little practical information to bring to the construction of the new dome. Brunelleschi, however, had solved the difficulty. He appeared at the meeting, and with great sagacity and self-restraint, revealed a part only of his plan. He foresaw that the exposition of the whole of it would have the effect of placing those weapons in the hands of another which he felt himself destined to yield. He advised, therefore, that the substructure of the future cupola should be commenced, and certain other precautionary measures used, until the final decision of the meeting should be made. This advice was agreed to, and the plan recommended by him was put into practice.

Delighted thus to have imparted the first impulse to this great work, he devoted many months to the construction of his models. A second meeting of architects and engineers was convoked, in order to arrive at a final decision, when Brunelleschi suddenly quitted Florence and went to Rome.

And here is another remarkable feature in the mind of this extraordinary man. He calculated upon the weakness of human nature: knowing that men often seek eagerly after that which is afar off, and as it were inaccessible, but which, if close at hand, and easily obtainable, they too often despise, he calculated that his services would be the more appreciated in Florence, when they must be sought after in Rome. Nor was he deceived, for scarcely had he departed when his absence



CATHEDRAL OF SAINT MARIA, AT FLORENCE.

om the meeting was severely felt. The judges recalled mind the superiority of his arguments and of his knowledge, and the ascendancy which he had assumed and maintained in the first conference over all his competitors. They sent to him, and told him that the fate of the enterprise depended on him, and begged him to hasten his return. Brunelleschi did return: he appeared again before this assembly, and saw that it was composed of men made timid rather by the feeling of their own inexperience and insufficiency for the task than by their knowledge of its difficulties. The time was wasted in vain discussions and timid propositions. Brunelleschi ought neither to augment their fears, nor too much to diminish them. He spoke to them as follows:

I will not conceal from you the magnitude of the difficulties belonging to the project which occupies our attention. It is the peculiarity of great things to be difficult. I think, even now, obstacles greater in character and in number than you perhaps have imagined. I doubt whether the elements would ever have dared to construct a vault of such tremendous magnitude as the one we now propose to raise. I have long meditated on the means for so adapting both the internal and external construction of it as to insure success; but the peculiar form and the great height of the edifice deter me. If our vault were circular I would resort to the method adopted by the ancients in the Pantheon or Rotunda. But here we have eight facets, and consequently eight upright courses of stones to elevate, which we must unite with the rest of the structure; thus the affair becomes more difficult, and no one can be better assured of the difficulty than

myself. God forbid, however, that I should despair. Who can doubt that the Great Author of all science, to whose honour this magnificent temple is erected, will not confer strength, intelligence, and genius on him who shall be selected for this undertaking? As for me, who am not commissioned to this work, how can I be useful to you? If the matter rested on me alone I confess that I should feel courage, and doubt not of finding the means of success, without encountering so many difficulties. But how can I reveal to you these means, since you have as yet decided on nothing? My advice is, that if you wish determinedly to proceed with the execution of this grand design, you be not content with what I may propose, but that you assemble here from all parts of Europe the most skilful masters of the art, submit to their searching deliberation all the points of difficulty, and then decide finally in favour of him who shall propose the most simple and effectual plans, and announce them with the greatest rectitude of mind and judgment.

Thus artfully did Brunelleschi argue. His advice was adopted, but he refused to show his model. Clever as a tactician, as well as profoundly skilful as an architect, he sought by concealing himself from curiosity to excite it the more. He pleaded business at Rome, and thus eluded the premature offers made to him. He set out on this third expedition, in order to gain a fresh accession of strength among the models of antiquity for the great trial which he himself had provoked. Here we must leave him, and conclude the subject of this notice in a future article.

ON CHESS. No. XIX.

ON THE POWERS OF THE PIECES AND PAWNS,
(Concluded.)

ANOTHER variation of value arises from the following circumstance:—Suppose a bishop to be at one end of a diagonal line of squares cleared of pieces: a queen or rook could not be placed on any square of that diagonal without being *en prise*, a circumstance which, from their superior value, would be avoided, whether they were supported or not. Also a bishop, knight, or pawn could not be placed on that diagonal, without capture, unless supported. A similar power is possessed by the other pieces, and may be thus expressed:—if a piece commands a certain range of squares, the opposite party cannot place on any square of that range a superior piece, or an unsupported equal or inferior piece, without immediate loss. It will be observed, that this is not the power of moving along a line of squares, but of preventing the antagonist from occupying any square of that line without loss. Supposing the board to be about half-cleared of men, the power of the relative pieces in thus preventing the opponent from occupying any square in a particular line, has been calculated to be

Pawn ...	= 2
Knight ...	= 5½
Bishop ...	= 7½
Rook ...	= 10½
Queen ...	= 17

But if we now omit all hostile proceedings, and consider simply how many squares a piece may command, without taking any opposing piece, we arrive at different results, principally because the pawn moves straight forward when merely making a move, but diagonally when capturing. The proportionate number of optional squares within the reach of the piece at one move,—supposing the board, as before, to be about half-cleared of combatants,—have been calculated at

Pawn ...	= 1
Knight ...	= 5
Bishop ...	= 7
Rook ...	= 10
Queen ...	= 16½

Suppose we wish to attack a particular piece with one of our own. If ours happen to be a pawn, we can do so by moving it to one square only; but if it be a bishop, the diagonals may be so far clear as to allow of our doing it in either of the directions. Place the black king on his own square, and the antagonist white bishop on its queen's bishop's 2nd.: the bishop can give check at two different squares. With the king in the same position, and the antagonist rook on its own square: the rook can check at two different squares. With the black king in the same position, place the white queen on her bishop's second: she can check at six different squares. Place the white knight on his king's fourth; he can check the king on two squares. In all these cases, we suppose the attacking piece to be free from any obstruction, either from an ally or an antagonist. From this enumeration of powers it is seen, that when a particular piece is to be employed to make an attack on a particular antagonist piece, it may often be done on more than one square. But as the intervention of other pieces would in some degree prevent this from being done, and as the presence of other pieces blocks out some more than others, according to their different modes of movement, we have hence a new scale of powers. The comparative power of the different pieces, in choosing what point to select as a position of attack, has been estimated at

Pawn ...	= 2
Knight ...	= 6
Bishop ...	= 6½
Rook ...	= 11
Queen ...	= 24

Let us assume that a piece is actually attacked. In order to save it, one of three things must be done:—1st., to capture the attacking piece: 2nd., to interpose another piece: 3rd., to remove. Now different pieces have these several powers in different degrees; and to compare them it will be convenient to suppose that the attacking piece cannot be captured without loss: there will then remain two modes of releasing the piece. If the attack be made by a pawn, nothing can be interposed, since the beleaguered pieces are close together: the assailed party has, therefore, nothing to do but to remove to a more distant square. If the attacking piece be a knight, no interposition will ward off the attack; on account of the peculiar privilege of this piece in leaping over other pieces. If a bishop attack a rook, interposition will not save it, because the bishop may take the interposed piece, without being re-captured by the rook; this arises from the circumstance that the rook has not the *diagonal* power of the bishop: removal is the only way of saving the rook. For a somewhat similar reason, if a rook attack a bishop, no interposition will save it, because the bishop and the rook move in different ways:—interposition is, therefore, of no avail. In all these examples it is assumed that the attacked and the interposed pieces, are not supported or defended by others. From a minute calculation of the various kinds and degrees of this power, it is found that the *dislodging faculty*, or the power of an assailant to compel the removal of an assailed piece, is greater in the pawn and the knight than in the other pieces in comparison with their generally inferior power, being in the ratio of

Pawn ...	= 0·8
Knight ...	= 2·8
Bishop ...	= 1·0
Rook ...	= 2·0
Queen ...	= 4·7

From the circumstance of a pawn being capable of promotion to the rank of a piece, its value is greater than it would be if that privilege were denied; and as it alone is capable of this sudden increase of power, the ratio of its value when compared with the pieces, is higher. The pawn has likewise an increase of comparative power resulting from its use as a *support* for a superior piece. If a piece make an attack on another of inferior value, a pawn may be as effectual a support for the latter as a superior piece would be: this circumstance also increases the ratio of the pawn's power. On the contrary, if two pawns become, by capture or exchange, placed one behind the other, or "doubled," the power of the hindmost one is much decreased, particularly if on the rook's file; so much, indeed, that the two together are deemed not to be worth more than one pawn and a quarter under usual circumstances. Another circumstance which modifies the power of a pawn is the contiguity or not of another pawn on the adjoining file: if a pawn is isolated, that is, if neither of the adjacent files is occupied by a pawn, the pawn's value is below the average hitherto expressed; but if it be supported by pawns on both the contiguous files, its value is greatly enhanced. These details show how much the value of a pawn depends on position.

Lastly, there is a difference of power in different pieces in giving checkmate to the adverse king. When the king has no pieces or pawns left for his defence, the attacking pieces show degrees of power very different from those which they possess in the usual course of the game. A rook is of almost infinite value compared with a bishop or a knight; for while the former, acting in conjunction with the king, may give checkmate, and must do so if proper care be taken, a knight or a bishop cannot. Under such circumstances a rook is nearly as valuable as the queen, for the latter has now a surplus amount of power which cannot be brought into use; and checkmate is given nearly in the same way by the rook as by the queen, only rather more slowly.

The reader will now be in a condition to understand, from this brief and necessarily imperfect sketch, how many circumstances must be taken into account before we can correctly estimate the relative value and power of the combatants in the chess battle-field. In order to elicit something like a practical rule which may be valuable in play, all the several lists which we have given, and a few more besides, are added together, and the total balance of each power compared with that of the others. The values of any particular piece, in moving over the open board—in moving over a board about half cleared by play—in keeping off an antagonist from a particular set of squares—in making an attack on two or more different squares—in dislodging an antagonist from a particular square—in giving mate without the aid of other pieces, &c.,—are added together: this is done for each piece; and finally, the whole are reduced to smaller numbers by making a pawn = 1. The final relative values then are as follows;—

Pawn ...	= 1.00
Knight ...	= 3.05
Bishop ...	= 3.50
Rook ...	= 5.48
Queen ...	= 9.94

As, from the nature of the game, the king is invaluable, since he is never exchanged or captured, he is excluded from the computation. It will be seen, from this list, that a knight is worth about three pawns; and that a rook is worth a bishop and two pawns, or five pawns and a half. There appears to be nearly half a pawn difference of value between the knight and the bishop; but the most experienced players are generally willing in an indifferent part of the game, to exchange one for the other, thereby implying that the two are valued equally. This would appear to show that the computed values are not quite correct; but the discrepancy has been explained in a remarkable manner. Suppose a bishop and a knight to be on the board, but not immediately attacking each other. Take the average state of the board, and the bishop could attack the knight in a smaller number of moves than the knight could attack the bishop, arising principally from the knight being unable to act at a distance. This smaller number of moves is often sufficient to give "the move," the advantage of which in an average state of the game is reckoned to be equal to half a pawn: his value, added to that of the knight, would account for the superior value of the bishop.

The result arrived at in this manner is found to be sufficiently near to that which experience points out to the player, to merit attention; still the mode in which it is arrived at is too uncertain and conjectural to give it a scientific character. The time has not yet arrived for applying the rigour of mathematics to the game of chess, so as to demonstrate the excellence of one move over others, in the precise ratio of the powers possessed by the pieces. The great dependence of the player's success on position, independent of the number of his pieces, and the striking effect which the single move will often produce, have hitherto prevented any attempt to include the whole game in a system of mathematical laws. Until this can be done, we doubt whether chess ought to be termed "science;" since we are accustomed to apply this term to those subjects only which fall under the influence of general laws or principles which are universally admitted.

God is a Spirit none can see,
He ever was, and e'er shall be;
His eye, with infinite survey,
Views every realm, by night or day.
What has been, is, or shall be done,
Or here, or there, to Him is known;
Nor can one thought arise, unseen,
In mind of angels, or of men.—DODDRIDGE.

FATHER LONG-LEGS, (*Tipula rivosa*.)

FEW of our readers, perhaps, are unacquainted with the slender, fragile insect popularly called *Father*, or *Harry Long-legs*. During the evenings of autumn they must have noticed its long and delicate limbs reposing on the shrubs in their gardens, or more probably they have witnessed its ineffectual struggles to extricate those feeble limbs from the spider's web, or from the alluring candle, towards which, in common with many other insects, it is too apt to hasten.

This insect is the largest of the European *Tipulæ*, being often more than an inch and a half in length, and possesses characters which are shared by the other species of that genus, and are sufficient to distinguish them from gnats and other somewhat similar insects. These characters are the length and trifling bulk of the body, the extent of the wings, and the length and slender form of the legs, which are also remarkably fragile, so that it is difficult to handle the insect without breaking them, and they even appear insufficient for the support of the body, which the insect balances, and causes to vacillate continually. This vacillation is attributed by Kirby and Spence to the weight of the body and the elasticity of the legs, and the object of it is supposed by them to be in some way connected with respiration. Rennie conjectures that this constant motion may be for the purpose of exercising themselves and of driving the fluids into their long legs, which may not be effected in the exercise of flying on account of their legs then remaining almost motionless. Another point by which the insects of this genus may be easily distinguished from gnats, is the mouth, which in *Tipulariæ* projects but little while in gnats it forms a long proboscis.

The larvæ of these insects vary much in their form and habits, some being terrestrial, others aquatic. In general they resemble elongated worms, with the body divided into rings; sometimes they are furnished with appendages performing the office of feet, in other cases they are entirely destitute of such aids to locomotion. The head is of an invariable figure, but in those of the larger species it is small, and usually concealed under the first ring. It is furnished with two fleshy horns, two hooks, and two scaly pieces: the last-named appendages serve to cut and bruise the aliment on which the larvæ feed. Their respiration is carried on by means of two stigmata, situated in the last ring of their bodies, which is considerably depressed. They live beneath the earth, at the depth of one or two inches, and are most abundant in wet pastures. Their food is said by most writers to consist of the softer kinds of vegetable substances, the fine fibres of roots, &c., but in the supplementary notes to Cuvier's *Insecta* it is stated that they feed on earth and soil, and that although they do not eat plants, yet, nevertheless, they do them much injury, because as they often change place, they raise and detach the roots, which they expose to be dried up by the sun. These larvæ are also found in the cavities of half-rotten trees, where they find a mould of a rich quality. They undergo their metamorphosis in the earth, and change there into the chrysalis state. In this new form they are of a greyish colour, and the rings of their bodies are covered with projections and spines inclining backwards. The organs of respiration are now situated on the head, and consist of two horns, differing in length according to the species. The use of the spines becomes evident as the time of the last metamorphosis approaches. By their means the larvæ push and raise themselves above the surface of the earth to the height of about half their body, and thus they await their final change. At length the skin of the chrysalis bursts open and releases the perfect insect, the elegant *Tipula*, to the enjoyment of life and liberty. It is during the month of September that this last change takes place, and at that time in situations such as we have described the perfect insects

are very abundant, walking upon the tops of the grass as if they were placed upon high stilts, or flying up in swarms into the air, with a faint but perceptible noise occasioned by the action of their wings. Latreille, in noticing the singular organs called balancers, or poisers, situated near the wings, in these and other dipterous insects, says, that they occupy the situation of the spines in bees and wasps, with spiracles in the same manner situated behind them, whence it is evident that the hinder part of the chest, where these balancers are, corresponds to the part which in the male cicada and the cricket contains the organs of sound. But from the observations of De Geer and other naturalists, it appears that the buzzing of insects is continued after they have been deprived of these organs, therefore they can be in no way connected with the production of sound. The true use of the balancers is that which their name imports, and which is thus explained in the language of Derham; "If one of the poisers, or one of the lesser auxiliary wings, be cut off, the insect will fly as if one side overbalanced the other, until it falleth to the ground; so that if both be cut off they will fly awkwardly and unsteadily, manifesting the defect of some very necessary part. The use no doubt of these poisers and secondary lesser wings is to poise the body, and to obviate all the vacillations thereof in flight, serving to the insect as the long pole, laden at the ends with lead, does to the rope-dancer." Another naturalist (*Schelver*) is of opinion that the poisers are air holders, and affirms that without their aid the insect is unable to fly at all.

The attitude of the female in laying her eggs is very singular. Supporting her body in a vertical position by means of her hind-legs, she thrusts the extremity into the earth and deposits one or more eggs in the hole thus made; she then moves forward without altering the position of her body, and proceeds with her task in a similar manner in another place. The ovipositor of this insect is well adapted to this method of working, as it consists of a sort of pincers of a horny consistence and sharp at the point. The eggs are small, oblong, a little curved, and of a shining black. Each female lays a large number of these eggs.

The larvæ of smaller tipulæ are found, some in cowdung, some in different kinds of mushrooms, and others in the water. A singular species infests the agaric of the oak, though it does not penetrate into the substance of the plant, but remains underneath it. The skin of this larva is humid, and it covers the places where it passes with a gluey coat, which it produces at its mouth. It forms a curious little nest or tent of the same material, and finally spins a cocoon of a conical figure, and with a rough surface, in which it incloses itself, and changes into a chrysalis. In this form it remains about fifteen days, when it emerges as a perfect insect.

The aquatic larvæ are numerous, and differ much from each other in conformation. Some of them live in holes in the banks of streams where the water reaches them; while others are more active in their habits and swim with great agility. Many inclose themselves in cases, formed of any available materials within their reach; in fact, these aquatic species have little in common but the stigmata, or breathing processes, the number of which is the same in all. In their chrysalis state they also vary nearly as much as in the first stage of their existence. Some remain entirely without motion at the bottom of the hole which the larva had inhabited, others swim and run with swiftness in the water. All are provided with respiratory organs, and apply them to the surface of the water to pump in the air. The insects produced from these larvæ are rather small, and are frequently mistaken for gnats.

In their perfect state the tipulæ are largely destroyed by birds, and yet their numbers are very great, as must be evident to most persons living in the country. The larvæ of the aquatic species also afford food to fish and to carnivorous aquatic insects.

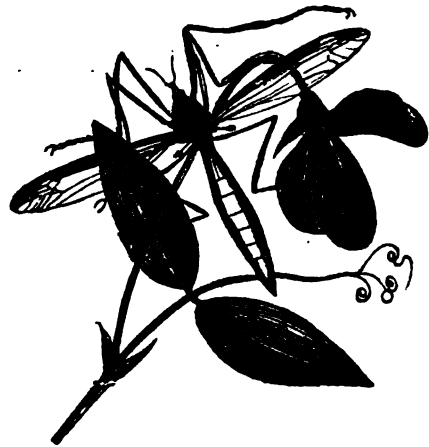
There are several other species, besides the large insect already described (*Tipula rivosa*), to which we may briefly direct the attention of our readers. They are commonly spoken of as *crane-flies*. The garden crane-fly (*T. hortorum*) is rather smaller than *T. rivosa*, and is produced from a larva and chrysalis of a darker colour. The wings of this species are transparent, with obscurely marked whitish variegations.

Another very common species is *T. oleracea*, nearly similar in size to the preceding. It has transparent wings with a dusky rib or upper edge. In the larva state some insects of this species were made the subject of an experiment by Mr. Stickney (as related by Kirby and Spence), in order to ascertain their power of resisting cold. Several of the grubs were exposed to a severe frost, till they were congealed into masses of ice, yet some of them survived.

Tipula cornicina is described by Shaw as being of a middle size, with transparent wings having a marginal dusky spot. The body is yellow, with three longitudinal dusky streaks. Its larva, which is found in meadows, &c., is brown, with a flattened, or truncated tail, beset with a certain number of radiating soft spines or processes, and the chrysalis is slender, and furnished, as in most others, with minute spines about its segments, by the assistance of which it is enabled to raise itself to the surface of the earth when its final change approaches. There are not many insects in this genus adorned with lively colours; *T. crocata* however, is of a polished black, with yellow rings round the abdomen.

One of the most familiar specimens of the smaller Tipulæ may be observed in great numbers on windows in the decline of summer. It is an elegant species called by Linnæus *Tipula phalanoides*. Its general length is about the tenth of an inch, and the wings, which are very large in proportion to the insect, are of an oval shape, and of a grey colour, mottled and variegated in an elegant manner with dusky specks. The edges of the wings are fringed with hairs, and under the microscope the whole insect presents a beautiful appearance.

Another species is called *T. plumosa* from having plumed antennæ. It is of the size of the common gnat, and is one of those aquatic species already mentioned as so greatly resembling that insect.



It is a curious fact, that children are the best judges of character at first sight in the world. There is an old Scotch proverb, "They are never cannie, that dogs and bairns dinna like;" and there is not a more true one in the whole collection.—JAMES HOGG.

LONDON:

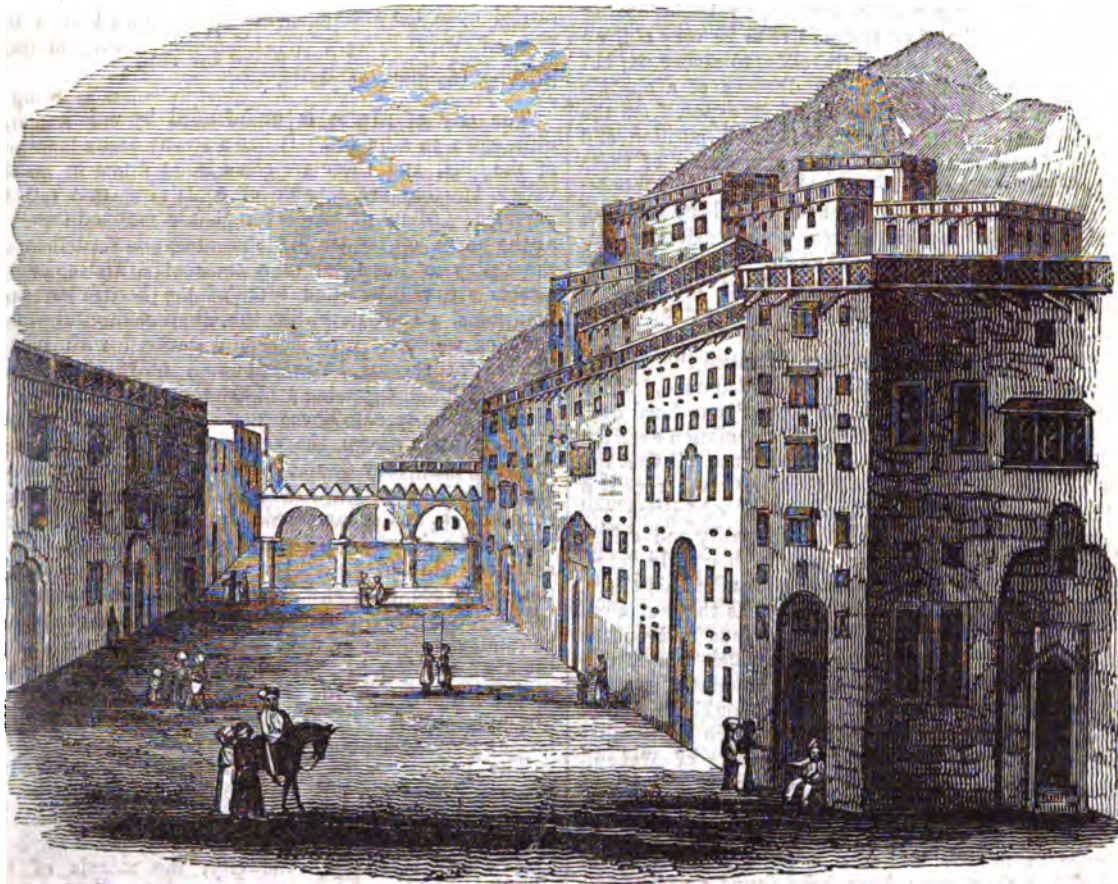
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TURKEY AND THE TURKISH PROVINCES.



STREET IN MECCA.

MECCA AND ITS INHABITANTS.

IN our recent article on Antioch, we promised to visit some of the more southern towns of the empire, such as Mecca and Medina, with a view of shewing their chief points of difference from the towns of European Turkey. We shall therefore treat of Mecca in the present paper, and devote a subsequent article to Medina.

Both Mecca and Medina are situated in Arabia, and it seems desirable to mention in what way they are connected with the Turkish empire. After the downfall of the Caliphs and the rise of the Ottoman power, all the fertile parts of Western Arabia, as well as the principal cities, came under the Turkish government one by one; and in the province of Hejaz, in which both Mecca and Medina are situated, the Turkish supremacy has been shown somewhat in the following manner. The Sultan, as protector of the Mohammedan Holy Places, appoints a Pacha of Hejaz, who resides in the port nearest to Mecca, with a Turkish guard, and divides the receipts of the custom-house with the sheriff of Mecca. The rise of the Wahhabites, and the ambitious designs of Mehemet Ali, have somewhat disturbed this arrangement; but we believe that, nominally at least, the Sultan retains this supremacy.

VOL. XIX.

The city of Mecca, the birth-place of Mohammed, is situated about one day's journey from the Red Sea, in a valley which winds irregularly between two mountains; and is surrounded by a district presenting an appearance of the greatest sterility. Not a river, streamlet, or brook, refreshes the traveller in this sandy valley, or awakens the least appearance of vegetation on its surface. Inclosed by high mountains and sterile sands and exposed to the heat of a scorching sun, the inhabitants are dependent on other places for provisions; their own soil being unable to repay the labour of the cultivator. Their markets are furnished with a supply of flour from Egypt, with vegetables and rice from India, and with herbs, &c., from Tayif—the price being proportioned to the difficulty of obtaining them. The lower classes of people obtain water from wells, and though it is heavy and brackish they never drink any other; those who can better afford to pay for it, get their supply from the neighbouring mountains, where rain-water is collected for that purpose. It is remarkable, that there are very few dogs in Mecca; most other Mohammedan towns, in a climate similar to theirs, are overstocked with these animals, and are likewise infested with swarms of insects and vermin, from which the sacred city is in a great measure exempt

The chief annoyance in this respect is experienced from mice of the European kind, which are numerous and very bold. A traveller, who remained some time at Mecca, informs us that these troublesome visitors would leap on his bed and stare in his face; and that on one occasion, when he neglected to wash some balm of juniper from his hand, they bit his fingers severely while he slept.

It may be supposed, from what has been said of the confined situation, aridity of soil, and absence of vegetation of the valley in which Mecca stands, that the climate must be very unfavourable to the health of its inhabitants; but this does not seem to be altogether the case. That they are a poor, meagre, wretched-looking race of men, and that they seldom live to be very old, we have the testimony of several travellers to assure us; but they appear to be liable to few diseases of a chronic nature, and to suffer less than we might expect from the many deprivations attending their isolated position and burning climate. The melancholy appearance of these people corresponds with the constitution of their minds: they are naturally inclined to sadness, and the sound of singing is rarely heard in Mecca, while musical instruments seem to be entirely unknown. They are, however, quickly irritated, and their slaves are said to receive worse treatment than any others among Musselmans.

It falls not within our province to notice the circumstances attendant on the birth of Mohammed, which event took place at Mecca in the year of our Lord 569, or the steps by which he attained that dominion over the minds of men which led them to embrace all that fell from his lips as the truth of God, however much it might militate against the common laws of justice and humanity, or give a sanction to immorality and crime. We have only to do with the scene of his early years, where before prosperity had altered and sullied his views, he spent much time among the mountains that surround his city in meditating on his future plans and on the abolishment of idolatrous worship, which his strong mind rejected and abhorred. On his account, therefore, not only the city itself, but the whole neighbourhood of Mecca, is viewed by his disciples as a place of peculiar sanctity, and has been for ages the centre of Mohammedan worship, and the object of continued pilgrimage from all parts of the world where his followers live. By the law of his religion, every Musselman is obliged to go, once in his life at least, to pay his devotions at Mecca; but there must have been found a way of dispensing with this law, or of evading its requirements, since the number of the pilgrims at Mecca, grows less every year; and instead of crowding in multitudes, as formerly, from all parts of Asia and Africa, and bringing with them rich presents for the support of the temple at Mecca, the pilgrims are now comparatively few in number, and devoid of wealth: so that the present situation of the inhabitants of Mecca, who have no other source of livelihood than that which arises from the visits of pilgrims to their city, forms a remarkable contrast with that of their ancestors, who abounded in wealth from the same cause. So poor is the place by nature, and so grossly ignorant are its inhabitants, that they exist in a state of pitiable dependence on the religious enthusiasm of others; and in case the visits to Mecca should altogether cease, it must inevitably be deserted by its wretched people or reduced to a simple *douar* or hamlet.

Ali Bey gives the following account of the state of the arts and sciences in Mecca:—

I believe there is no Musselman city where the arts are so little known as at Mecca. There is not a man to be found who is capable of making a lock, or forging a key. All the doors are locked with large wooden keys, and the trunks and cases with padlocks brought from Europe. Slippers and sandals are brought from Constantinople and Egypt; for they knew not how to make them at Mecca,

except, indeed, those of wood or untanned leather, which are very bad. There is not a single man to be found who knows how to engrave an inscription, or any kind of design on hewn stone, as formerly; nor a single gunsmith or cutter able to make a screw, or to replace a piece of the lock of a European gun; those of the country being able to manufacture only their rude match-locks, their bent knives, lances, and halberds. The sciences are found in the same state as the arts at Mecca. The whole knowledge of the inhabitants is confined to reading the Koran, and to writing very badly. They learn from their infancy the prayers and the ceremonies of the pilgrimage to the house of God, to Saffa, and to Merona, in order to be able at an early age to gain money by officiating as guides to the pilgrims. Children of five and six years old are to be seen fulfilling these functions, carried upon the arms and shoulders of the pilgrims, who repeat, word for word, the prayers which the children recite, at the same time that they follow the path pointed out by them to the different places.

The city of Mecca is undefended by walls, and is quite open on all sides. It has a strong fortress on one of the hills, and there are some isolated towers in the valley, but they are capable of containing only a small garrison. Many of the buildings are grouped together at the north of the temple, and are prolonged through the valley in the form of a crescent. The principal streets are regular, and some of the houses are very handsome. They have, like the Cyprian dwellings, two rows of windows, with balconies covered with blinds. There are several large windows, quite open as in Europe; but the greater part are covered with a curtain made of palm-tree. These curtains are extremely light, and effectually screen the apartments from the rays of the sun, while they do not intercept the entrance of the air. The houses are mostly of stone, three or four stories high, and ornamented with mouldings and paintings. The doors have generally a base, with steps and seats on both sides. All the staircases are narrow; but the rooms are lofty and well proportioned. Every inhabitant has a particular interest in the preservation and adornment of his dwelling, in order that it may invite the attention of pilgrims: whose payments for lodgings during their stay in the city, with the gifts which they are induced to bestow, are the only means of livelihood for the people during the remainder of the year.

The population of Mecca is rapidly diminishing. Some parts of the city lie entirely abandoned and in ruins, and two-thirds of the remaining houses generally stand empty. Notwithstanding the reputation for holiness which belongs to the city, the morals of the people are said to be more depraved than those of the inhabitants of any other Moslem city. Their thievish propensities are indulged in the very temple itself; and they seem wholly indifferent to the degraded and miserable condition to which they are sunk. The women have a graceful appearance, and speak very well and with much feeling; but they are greatly disfigured by the practice of making indelible drawings on their skin, and of staining their eyelids and teeth, the latter of a bright yellow. Their lips, feet and hands they stain with a red colour; and the materials they employ for this purpose are the same as those used by the Egyptians. Their dress consists of an immense pantaloon of Indian striped cotton, a loose robe bound round the waist with a belt; and a caftan of India cotton. Their ornaments are rings and bracelets, which they wear on their arms, legs, and feet; and occasionally a nose-jewel hanging down on the upper lip. The costume of the men is composed of a *benish*, or exterior caftan bound with a belt, a shirt, drawers, and slippers.

The greatest curiosity in Mecca is the Kaaba or "House of God" which is of high antiquity, and which was held in great veneration by the Arabs, long before the time of Mohammed. It is built of square-hewn, but unpolished stones of quartz, schorl, and mica: its height is thirty-four feet four inches, and its four sides, (for it is nearly square,) vary from twenty-nine to thirty-eight feet

in length. In the angle formed by the north-east and south-east sides, is placed a large black stone, which is raised forty-two inches above the pavement, and is bordered all round with a plate of silver about a foot broad.

This much admired stone is believed by all true Moslems to have been at first a transparent hyacinth presented to Abraham by the Angel Gabriel, who brought it from heaven; but being touched by a sinful woman, it became black and opaque. It is said to be a fragment of volcanic basalt sprinkled throughout its circumference with small pointed, coloured crystals, and varied with red feldspath, upon a black ground.

The whole of the Kaaba, except the base, is covered with a curtain of black cloth. This cloth, which is called *Tob el Kaaba* (the shirt of the Kaaba,) is renewed every year; but, instead of being spread over the building, it is at first, fastened up in drapery, to keep it from the hands of the pilgrims; and thus it is represented in our engraving. The Tob has a gold band two feet broad, surrounding it at two-thirds of its height; and on this band are inscribed numerous passages from the Koran. A new curtain is also sent every year to cover the door, which is truly magnificent; being embroidered all over with gold and silver.

The interior of the Kaaba consists of a room or hall, with two pillars to support the roof. The columns and the wall are covered with splendid rose-coloured silk, sprinkled with flowers, embroidered in silver, and lined with white silk. This magnificent covering is presented by the Sultan of Constantinople, on his accession to the throne, and it is only on that occasion that it is ever changed. The floor is paved with very fine marble. From one column to another, and from both columns to the walls, there are bars of silver, from which are suspended a great number of gold lamps, one above the other.

Near the Kaaba, within a railing of bronze is a sort of sarcophagus, hung with a black cloth embroidered with gold and silver, and having golden acorns attached to it. We are told that this sarcophagus is nothing else than "a large stone that served Abraham for a footstool to construct the Kaaba, and increased in height as the building advanced, in order to facilitate his labours; at the same time that the stones came out miraculously already squared from the spot where the footstool now stands, and passed into Ismael's hands, and thence into his father's."

Inclosed within a small building also near the Kaaba, is the well Zemzem, believed by the Moslems to be the one miraculously opened by the angel of the Lord for Hagar, when nearly perishing from thirst in the desert with her son Ismael. The person who has the charge of this well, and is called the chief of the Zemzem, is a person of no small consequence. He gives out the water to the fainting pilgrims; and possessing the confidence of the chief officers of the temple, he is said to obey their wishes implicitly by taking the opportunity his employment affords, of administering poison to their enemies, and to those who have become in any way obnoxious to them.

The Kaaba is nearly in the centre of the temple. The ground round it is paved with fine marble, on which the pilgrims perform their circuit; for to walk seven times round the Kaaba repeating a certain number of prayers is one of the numerous ceremonies which a pilgrim has to go through. We cannot here describe them in their order; but the most important seem to be, kissing the black stone, drinking as much water as possible from the sacred well Zemzem,—making seven journeys between two of the hills and repeating loud prayers on each,—having the head shaved and repeating after the barber certain prayers,—performing their devotions in the Kaaba, and afterwards,—(if they are so highly privileged,)—assisting in washing the floor of the

sacred building. The water thus employed, as it flows out at a hole made for the purpose, they collect eagerly,—drink it,—and pour it over their persons. Thus do these poor Mohammedans appease their own consciences, and imagine that they are propitiating the favour of God, by a round of empty observances and wearisome ceremonies.

The rapidly declining state of the city of Mecca and the great decrease in the number of pilgrims who pay their adorations at the birth-place of their prophet, will probably cause the foregoing description of the place, and its customs, to apply, in the course of a few years, to the *past* alone. The devastations committed in the neighbourhood of Mecca by wandering Arab tribes, have deprived it of many sources of attraction for the devotee. There is one principal object of pilgrimage, however, remaining, almost much venerated by pilgrims as those within the city itself; and with the mention of this we close our account of Mecca. The place we speak is a mountain called *Arafat*, where, according to the ridiculous superstition of the people, Adam met his wife, after they had undergone a separation for the space of two hundred years; and where *having built the chapel now standing*, he left Hejaz and retired with Eve into the island of Ceylon.

SUPERSTITION AND IMPOSTURE.

AMONG those persons who came to pay their respects to me, were two remarkable impostors residing in this neighbourhood, and acting in different departments of knavery: one of them had lately abandoned his claims to supernatural power, to save himself from present injury; and the reputation of the other I had completely ruined by convicting thieves to whom his god had promised concealment and security on receiving part of their plunder. The former of these knaves, an old man, had unluckily for himself inspired his neighbours with a belief that he had the power of bringing rain by performing certain ceremonies; and they had spread his fame over the whole district. From this, and his knowledge of the appearance of the sky, and the various signs of coming showers or approaching heavy rains, he had long imposed on the people, and reaped considerable profit; until at last their eagerness of belief outrunning his powers of imposition, not only destroyed his occupation, but nearly cost him his life. It was urged by some one, and acquiesced in by all, that, as there was no doubt of his ability to call down rain when necessary, it ought not to be left to his caprice when this talent should be exercised; and that when required by a whole village, he should be obliged to furnish rain in sufficient quantities: that, if he did so, he was to be liberally rewarded; but on the contrary, if he were contumacious, and refused to give the necessary supply, that he should be tormented with thorns, or beat into compliance. Having suffered severe punishments on various occasions, he at last made up his mind no longer to be a responsible agent for the weather, and loudly and constantly denied having any authority in the matter. This, although deemed to be a false excuse, proved a sufficient protection to him during several seasons in which there was no deficiency of moisture; but this season the people, losing all patience from a long-continued drought which was destroying their crops, dragged the recalcitrant cloud-compeller to various villages, in which he suffered severely for his supposed neglect. Even the chief of the district had determined on having rain by force, if fair means proved insufficient, and had sent some of his followers to bring the conjuror to the village where water was most required; it was while on his way there that he was fortunate enough to see me, and, making his escape, threw himself on my protection. In the court-house the old man stated, that he was in terror of his life, for at present there was every appearance of continuance of the same dry weather that had already done so much mischief; and then gravely proceeded to prove to me by many oaths that it was no fault of his that no rain was forthcoming. I had some difficulty in protecting this old impostor, particularly as a few slight showers fell near his village, which was situated on one of the highest inhabited parts of the district; and I have no doubt that the people thought, not that they had been the infatuated dupes of a rogue, but that I was imposed upon by a charlatan wizard.

FORBES'S *Ceylon*.

THE VEGETABLE BUTTER OF AFRICA

*In a Letter to the Editor of THE FRIEND OF AFRICA, from
Mrs. (Bowdich) LEE.*

HAVING been long convinced that the vegetable butter of Africa might form an important article of commerce, I send you a brief account of all that is known concerning it either as observed by myself or others, hoping, through the medium of your periodical, to awaken more attention to its valuable qualities than it has hitherto excited.

Mungo Park was the first traveller who spoke of the vegetable butter in so decided a manner as to give any idea of what it really is, although older writers mention it under various names for grease. In the countries which he first visited, it was called the Shea tolu, and he describes the tree from whence it is derived as resembling the American oak in appearance, adding that it is an article of food, and bringing a bunch of the leaves home. The flower has never reached this country, but the seed, or fruit, so decidedly refers the tree to the natural family of Sapotæ, that botanists have placed it there as a species of Bassia, differing from that of the tallow tree on the coast of Africa, and elsewhere. It extends over a large portion of the Continent, from Jaloff and Houssa, to the latitude of the Gaboon river; how much farther south is not yet known; but it has not been observed in the neighbourhood of the Congo. Mr. Lander constantly mentions it in his last voyage, under the name of "mi cadania," and in one instance he states that he received two hundred-weight of the butter as a present. I will not here insert any botanical description of the Bassia, as it will be easily found in Persoon's list of the class Dodecandria monogynia, and in other authors, but proceed to speak of my own knowledge of the tree and fruit. On my first arrival at Cape Coast, I constantly heard of the "Ashanti grease" as an indispensable article of the native toilet, for both males and females; and no sooner had I an establishment, than I was frequently obliged to purchase a pot of it for the use of my women. Without some aid of this sort I was told that their skins would become white and scaly, and even crack. When I omitted the supply, such constant recourse was had to the palm oil intended for the lamps, that for the sake of my olfactory nerves I hastened to repair the fault. It looked very dirty and smelt very disagreeably after it had been perfumed, so that I was obliged to insist upon its being used in its pure state; but even this was not sweet, owing to the dirty state in which it arrived from Ashanti. On his return from that place, Mr. Bowdich spoke highly of its fragrance when fresh, and of its use in cooking and burning; but a large pot of it which he had procured at Coomassie, (Kumasi) was either lost, or stolen on his perilous route back to head-quarters. The vessel in which we embarked for England was bound to the Gaboon for a cargo of wood; and we, in consequence, were detained in that river for many weeks, at a distance of more than fifty miles in the interior, and in a latitude of 9° north. During this period we passed several days in the native town of Naange, where I had an opportunity of seeing the vegetable butter in its greatest perfection, though the season was past for procuring the flowers. The substance was perfectly white, and resembled English butter immediately after it is turned out of the churn. The food cooked in it, such as meat, fish, bananas, &c., had the most delicate flavour imaginable; no smell issued from it, and on biscuit it was excellent. I filled two small jars with it, into one of which I put salt, in the manner of potted butter, but this turned rancid before my four months' voyage was completed, while that in the other jar, having been simply clarified, remained sweet and fresh for years. I was very anxious to see the tree, although not in flower; but this was no easy task for a European female

to accomplish, as it grew in the thickest part of the forest. Preceded, however, by two natives with hatchets to open the path, two more to frighten away reptiles, and scouts to give the alarm of wild beasts, and who made ten times more noise and fuss than was necessary, I was taken through the bush to a tall, straight tree, the bark of which resembled that of an ash. The branches sprang from the trunk at so great a height that we could not procure either leaves or pods, and all the advantage which I derived from my expedition was the power of saying that I had seen "the fat tree," as the natives term it. The governor of the town made up for my disappointment by giving me several of the nuts, and a fast-decaying pod; we put some of the former into boxes of earth, and brought them with us half across the Atlantic, when they perished, notwithstanding our care.

In the neighbourhood of the Gaboon the butter is extracted by first boiling the nuts, and then expressing the oil; the inhabitants deem it a most precious production, and great distress is felt when any scarcity of it takes place. Yet they use no precautions to increase the number of trees. Their favourite comparison for anything wonderful or advantageous, is "like the fat tree;" and in a song composed on first seeing white men, these are the words of the burden.

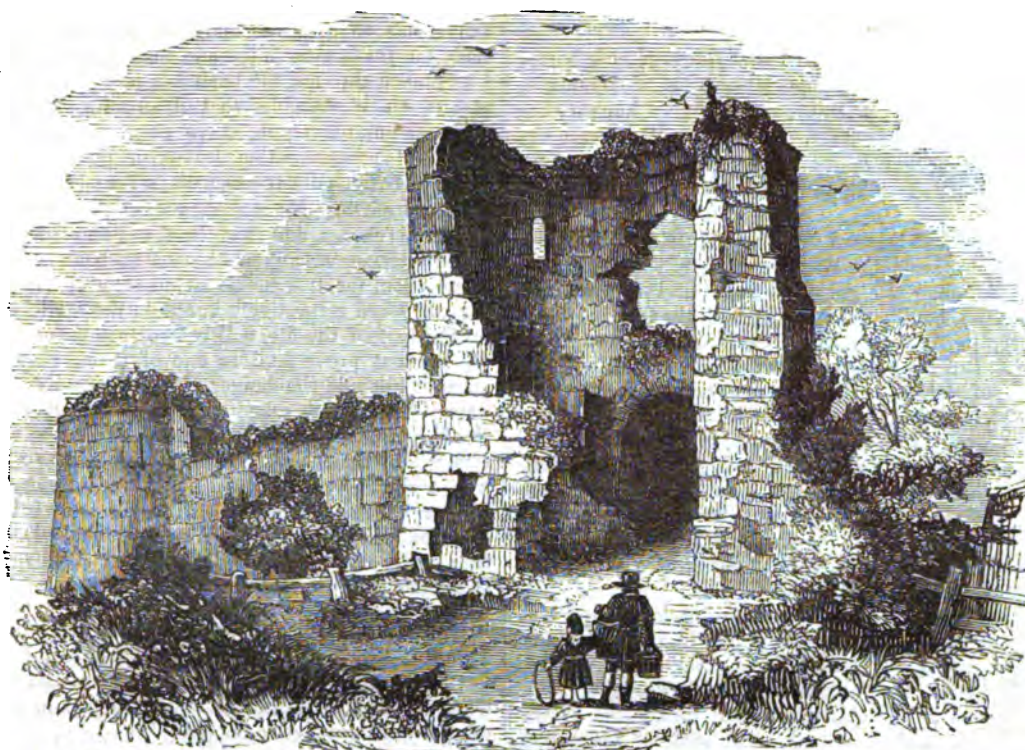
On going back to the vessel, I showed the nuts to a servant of mine from Booroom, a country to the east of Ashanti; she instantly recognised them, and told me that her people bruise the nuts, boil them, and when the oil rises to the surface of the water, they skim it off, and put it into calabashes to cool.

When I visited Africa a second time, I procured some of the butter from the Jaloffs, and when in England, I afterwards found it so healing to the skin in frosty weather, or easterly winds, that I submitted it to the inspection of M. Chevreul, the celebrated analyser of different kinds of grease, and the following is a translation of his report.

The substance sent to me by Madame Bowdich, under the name of vegetable butter, is formed:—1st., of a small proportion of aromatic principle; 2nd., of oleine; 3rd., of stearine. This last is analogous to the stearine of mutton fat, for in saponification it gives stearic acid. The vegetable butter is perfectly liquid at 112° of Fahrenheit, at 100° it begins to get turbid, at 96½° it exhibits a liquid portion, in which float some small brilliant crystals. The liquid part is a combination of oleine and stearine, as are also the crystals, but the latter contain a much larger portion of stearine. A thermometer plunged into melted vegetable butter falls to 83½°, it afterwards ascends to 89½°, when it becomes quite concrete. It is easily converted into soap, when heated with solution of potash, or soda, and the soaps thus obtained are analogous to those made from mutton fat, with this advantage, that they are inodorous. If it were possible to procure this substance in any quantity, and at a reasonable price, it might be advantageously employed by soap manufacturers; either mixed with vegetable oils to form soaps similar to those mixed with olive-oil, or alone for toilet soaps. Lastly, the vegetable butter appears to me to be capable of being employed for the same alimentary uses as the Cocoa Butter.

MAN, for whom all things were made, was himself made last of all. We are taught to follow the heavenly Artist, step by step, first in the production of the inanimate elements; next, of vegetable, and then of animal, life; till we come to the master-piece of Creation, man, endowed with reason and intellect. The house being built, its inhabitant appeared: the feast being set forth, the guest was introduced; the theatre being decorated and illuminated, the spectator was admitted to behold the splendid and magnificent scenery in the heavens above, and the earth beneath; to view the bodies around him, moving in perfect harmony, and every creature performing the part allotted it in the universal drama; that seeing, he might understand, and understanding, adore, its Supreme Author and Director.—BISHOP HORN.

PEVENSEY CASTLE.



RUINS OF PEVENSEY CASTLE.

... By degrees the Saxon empire sank,
Then set entire in Hastings' bloody field.
Compendious war! (on Britain's glory bent,
So fate ordained) in that decisive day,
The haughty Norman seized at once an isle,
For which, through many a century, in vain,
The Roman, Saxon, Dane, had toiled and bled:
Of Gothic nations this the final burst;
And, mixed the genius of these people all,
Their virtues mixed in one exalted stream,
Here the rich tide of English blood grew full.—THOMSON.

THE venerable ruins of Pevensey Castle, in Sussex, form an impressive memorial of that stormy period when the Normans succeeded the Saxons in the government of Britain. It was here that William of Normandy landed, nearly eight centuries ago, and within a few miles is the spot where the decisive battle was fought between him and Harold the Saxon. Let us endeavour to present the broad features of this momentous struggle in a brief and popular form.

About the year 1040, after a temporary possession of power by the Danes, Edward, surnamed the Confessor, of the Saxon lineage, was chosen king of England. He was childless, and long before his death many were the discussions and speculations as to who should succeed him. William, the duke of Normandy, who was Edward's cousin,—Earl Harold, an ambitious noble, whose sister Edward had married,—and Edgar Atheling, the real descendant of the Saxon kings who had been displaced by the Danes,—all became objects of interest in this respect. Edward, as he grew older, showed a vacillating character, which proved the cause of much subsequent misery to his kingdom. About the year 1060 he determined that William should succeed him; then he changed his mind, and devised in favour of the Atheling; when he again wavered, and sent Harold over to Normandy, to inform William of his final determination in his favour. William, knowing the influence of Harold in England, endeavoured to secure his friendship and support, and, outwardly at least, succeeded. But Harold was an ambitious man, and left no measure untried which promised to increase his power, whether legally or not.

At length, in the beginning of the year 1066, Edward approached his end, and Harold seems now to have imbibed hopes of the sovereignty. Accompanied by a few adherents, he found his way into the apartment of the dying monarch, whom he questioned as to the appointment of a successor. "Ye know full well, my lords," said the now feeble king, "that I have bequeathed my kingdom to the Duke of Normandy, and are there not those *here* whose oaths have been given to secure his succession?" alluding to a kind of oath of fealty which Harold had taken towards William. But Harold renewed his importunities, and the sick and wearied monarch replied, "Harold, take the kingdom, if such be thy wish, but the gift will be thy ruin. Against the duke and his barons no power of thine can avail." Harold replied that he feared no enemies, and the king, shortly before he breathed his last, as if worn out by these cravings for power, said, with a sort of pettish weakness, that the English might have Harold, or any one they pleased, for their king.

Such was the mode, according to one account, in which Harold acquired his equivocal claim to the English throne, and collateral circumstances do not throw any discredit on the account. Sir F. Palgrave shows how strikingly the circumstances resemble the scenes which often occur at the death-bed of a wealthy but weak-minded man.

The childless owner of a large estate, (says he,) at first leaves his property to his cousin on the mother's side, from whose connexions he has received much kindness. He advances in age, and alters his intentions in favour of a nephew on his father's side, an amiable young man living abroad, and from whom he had been estranged in consequence of a family quarrel of long standing. The young heir comes to the testator's house, is received with great affection, and is suddenly cut off by illness. The testator then returns to his will in favour of his cousin, who resides abroad. His acute and active brother-in-law has taken the management of his affairs, is well informed of this will, and when the testator is on his death-bed, he contrives to tease and persuade the dying man to alter the will again in

his favour. This is exactly the state of the case; and though considerable doubts have been raised relating to the contradictory bequests of the Confessor, there can be no difficulty in admitting that the conflicting pretensions of William and Harold were grounded upon the acts emanating from a wavering and feeble mind. If such disputes take place between private individuals, they are decided by a Court of Justice, but if they concern a kingdom they can only be settled by the sword.

This familiar way of illustrating the subject is particularly calculated to impress its main features on the mind.

No sooner was Edward dead than Harold took prompt measures to seize the vacated throne. William was abroad; Atheling was youthful, timid, and poor; Harold was at hand, bold, and aspiring; and the nobles, partly by force, partly by entreaty, conferred the crown on Harold. But his tenure of sovereignty was brief. On the 6th of January, 1066, he assumed the crown, and on the 14th of October in the same year he terminated his career, after a troubled reign of a very few months. He contrived to embroil himself with one of his brothers who had joined the Norwegian king in a hostile attack on England, and on the very next day after Harold had defeated this brother in the north of England he heard that William of Normandy had landed, with a powerful force, at Pevensey, in Sussex.

William is said to have been hunting in his park at Rouen when intelligence was brought him that Edward was dead, and that Harold, in despite of his oath of fealty, had seized the vacant sceptre of England. For a time he was as one stunned by the suddenness of the announcement, and it was not until some of his nobles had aroused him that he could form any decided plan of action. As, however, there seemed to be a general impression in his court that the claim of William to the English crown was founded on a legitimate gift from the deceased monarch, the nobles lent their assistance to him in his project to dispossess Harold. The times in which these events took place were feudal times, in which nobles held their possessions under a contract to fight for the king whenever he should require their services, and in which the vassals or retainers accompanied a noble to battle in return for the protection which they received from him. Under such circumstances there was no national army, for the retainers of any noble, who formed the real fighting soldiery, were ordered not by their king but by their lord, and consequently a king had to obtain the support of his nobles before he could command the personal services of the vassals belonging to them. This feudal service was, however, by agreement confined to the soil of their birth, and William found that he could not obtain the services of his nobles in an invasion of England, without promising them large rewards in the shape of possessions in the conquered country. This was a very important feature in the transaction, and one which may be deemed the principal cause of the tenure of land in England at the present day. Many of our noblemen can trace back their titles and estates to the time of the Conquest, when their ancestors received them in lieu of services rendered to the Conqueror.

While William was making these preparations Harold was preparing for defence on the southern coast of England, but at the time when the attack was actually made Harold was in the north of England. He was informed by a messenger, who had travelled with the utmost speed, that William had crossed the Channel with seven hundred ships and boats (some say three thousand) and had effected a landing with his army at Pevensey.

On September 29th, 1066, this memorable landing was effected. The war-horses, the archers, the knights, the standard-bearers, the duke himself,—all landed in safety, and almost without opposition. William occupied an ancient Roman castle, at Pevensey, and exhorted his

troops to prepare for the coming contest. He rendered all his vessels unseaworthy, in order that no idea of escape might enter into the minds of his soldiers, and took every opportunity to cheer them to their approaching duties. He is said to have stumbled when he first put his foot upon English ground: a soldier said, "*Mal signe est ci*:" "No," cried William, showing a clod of earth in his hand, "I have taken possession of the country."

To meet troops thus prepared for him Harold hastened from the north. He stopped a short time at London, to collect his forces, and then hastened onward to Sussex. Some fruitless attempts are said to have been made at negotiation, for it was evident to each of the chieftains that they had respectively ventured their whole fortunes on the cast of the die, and before engaging in a conflict which must prove fatal to one of them, they made an attempt to avoid the danger. The attempt was, however, unsuccessful: each asked more than the other could or would concede, and nothing remained but to settle the struggle by the sword. When it was evident that battle was inevitable the two armies passed the intervening night in a very different manner. Harold's army indulged in riot and debauchery, the 'Wass-heal' and 'Drink-heal' resounding from the tents, whereas William's army spent the time in responding the Litany and chanting psalms.

The next day, the 14th of October, saw the two armies pitted against each other. The English were fortified in their position by lines of trenches and palisades, and within these defences they were marshalled, shield against shield, presenting an impenetrable front to the enemy. The men of Kent formed the van-guard. The burgesses of London claimed the honour of being the royal body-guard, and were drawn up around the standard, at the foot of which stood Harold, his two brothers, and the bravest of his nobles.

The English stood to meet the attack of the Normans. William Fitzosborn and Roger Montgomery led the first division; Almeric of Thouars and Alan Fergant, the second; while William led on the third division in person, having before him his minstrel, Taillefer, who loudly sang the lay of Charlemagne and Roland, and the mighty deeds of the Paladins. The three divisions, thus marshalled, attacked, nearly simultaneously, three different parts of the English force, and a fearful slaughter commenced.

It forms no part of our object to detail the events of the battle—the attack and counter-attack—the fierce struggles for commanding positions—the alternate yielding and rallying of each party the incessant exertions of the two leaders to keep their adherents in a state of excited enthusiasm. Suffice it to say that, after Harold had been wounded in the eye by an arrow, and borne from his horse, the discomfiture of his troops became evident, and the night closed in with victory on the side of William. From that hour he became in effect, and soon after formally, king of England, and his barons received the broad lands of the conquered country as a reward for their exertions in the day of battle.

As to the real fate of Harold, a curious uncertainty exists. One of the early chroniclers states that William surrendered the dead body of the defeated monarch to Githa, Harold's mother, who caused it to be buried in the abbey of the Holy Cross. Another writer says that a body, of which the features were undistinguishable, but supposed to be those of Harold, was found between the corpses of his two brothers, and that William caused this corpse to be buried in the sands of the sea-shore, accompanying his directions with the words, "Let him guard the coast which he so madly occupied," and refusing to Githa the purchase of the body by its weight in gold. A third account, furnished by the monks of Waltham Abbey, to which Harold had been a great benefactor, states that the Conqueror having given to

some of the monks permission to search the field for the dead body of Harold, they sought among the loathsome heaps of the unburied, but sought in vain: they then obtained the aid of Editha, one whom Harold had tenderly loved, to search with them: she selected a ghastly and mutilated corpse as that of Harold, and had it entombed in Waltham Abbey.

There were those, however, who denied that Harold fell on that memorable day. Years after this event, when the Norman yoke was firmly and oppressively established in England, a decrepit hermit inhabited a cell near the Abbey of St. John, at Chester. Henry the First once visited the scarred, half-blinded, and recluse old man, and is said to have heard from the hermit himself that he was Harold, who had been secretly conveyed from the field of battle to a castle on the coast, and from thence to the place of his seclusion. Sir Francis Palgrave, after noticing the various accounts given of the fate of Harold, says:

If we compare the different narratives concerning the inhumation of Harold we shall find the most remarkable discrepancies. It is evident that the circumstances were not accurately known, and since those ancient writers who were best informed cannot be reconciled to each other, the escape of Harold, if admitted, would solve the difficulty. I am not prepared to maintain that the authenticity of this story cannot be impugned, but it may be remarked that the tale, though romantic, is not incredible, and that the circumstances may be easily reconciled to probability. There were no walls to be scaled, no fosse to be crossed, no warder to be eluded; and the examples of those who have survived after encountering much greater perils are so very numerous and familiar, that the incidents which I have narrated would hardly give rise to a doubt if they referred to any other personage than a king.

A word or two respecting the castle at Pevensey. The spot where the battle took place is that which is now known as Battle, a few miles from Hastings and from Pevensey. Harold's standard was torn at the end of the conflict, William's planted in its place, and a splendid abbey afterwards built on the spot, in commemoration of the victory, the high altar occupying the precise place at which the standard had been planted. On William's accession to the throne he presented the manor of Pevensey (called by the Saxons *Peowensea*, and by the Normans *Pevennil*) to his half-brother, Earl Robert, who fortified it with the noble castle, now in ruins, and which was probably formed on the ruins of the ancient Roman castle. The remains are situated on a craggy steep, commanding a beautiful view of the adjacent country. The external walls are circular, and inclose an area of seven acres, being, together with the towers, tolerably entire for the height of twenty-five feet. They display throughout abundance of Roman bricks, which furnish corroborative evidence of the previous existence of a Roman fortification on that site.

BIOGRAPHICAL MEMOIR OF DR. THOMAS YOUNG.

II.

ON his return to England, Young entered himself of Emmanuel College, Cambridge, of which Dr. Farmer, an intimate of his uncle, was then master. There he took his regular degrees in physic, but did not attend any of the public lectures. He contented himself with pursuing in private the various studies in which he was engaged, cultivating the intimacy of the most highly-gifted members of the university, and discussing subjects of science with the professors. In these engagements he passed the time of his residence at college, finding no rival in the variety of his knowledge, and few competitors in some of its branches.

At the death of his uncle, Dr. Brocklesby, in 1797, Dr. Young came into possession of the house, books,

pictures, and part of the fortune of that gentleman. He now found himself in circumstances of independence, and surrounded by distinguished and valuable friends, whose intimacy he continued to prize and enjoy through life. On leaving Cambridge he settled as a physician in London, in Welbeck Street, where he continued to reside during twenty-five years.

In 1801, Dr. Young was appointed Professor of Natural Philosophy in the Royal Institution, and during two years he continued to lecture alternately with Sir Humphrey Davy. As a lecturer, he was not eminently successful, for though his lectures were full of striking and original matter, he was not happy in the mode of conveying his ideas, so as to suit the capacities of a mixed audience. He was always compressed and laconic, and seemed to think his audience better instructed than such an assembly could possibly be, in the abstruse points on which he delighted to dwell; it is even said that men of science could not follow him without considerable difficulty. Even as a lecturer on the Practice of Medicine at St. George's Hospital, he was by no means popular. Arago suggests, that his want of success may perhaps in justice be attributed to the frequent opportunities he took of pointing out the inextricable difficulties which are met with at each step in studying the numerous diseases to which the human frame is liable. Those among the faculty who wished to attain their knowledge rapidly, and with as little labour as possible, must needs have felt discouraged by such language as Young was constantly making use of,—for instance when he said—“No study is so complicated as that of medicine; it exceeds the bounds of human intelligence. Physicians who act precipitately, without attempting to comprehend what they observe, are often as much in error as those who constantly generalize from observations which are not analogical.” Or, “In the lottery of medicine, the chances of the possessor of ten tickets are evidently greater than those of the person who has only five.”

The extent of Dr. Young's knowledge appears to have had an effect that was unfavourable to his practice as a medical man. He was undecided, and wanting in confidence at the sick-bed. Remarkably distinguished for boldness in his scientific views in general, he was yet so well aware of the prejudicial effects which might eventually result from the action of the best medicines, that he appeared to balance these against the favourable chances which might be expected, and this at a time when decisive measures were called for. The same timidity was displayed in all his medical works.

He was scarcely convinced, (says Arago,) of the soundness of his own arguments, when he attacked the celebrated Dr. Radcliffe, whose whole secret in a brilliant and successful practice, was, as he himself declared, the employment of contrary remedies, or when he contended with Dr. Brown, who found himself under the painful necessity of acknowledging from the evidence of the official documents of a fever hospital, that the majority of fevers, when left to themselves, are neither more severe, nor of longer duration, than when they are treated by the best methods.

In 1802, Dr. Young published his *Syllabus*, a course of Lectures on Natural and Experimental Philosophy, with mathematical demonstrations of the most important theorems in Mechanics and Optics; in the same year he accompanied the Duke of Richmond and his brother, Lord G. Lennox, in his medical capacity, to Rouen, and in an excursion to Paris where he was first present at the National Institute, at that time attended by Napoleon. There he made the acquaintance of several of the leading members of that distinguished body, into which he was himself eventually elected. On his return he was constituted Foreign Secretary to the Royal Society, an office which he maintained during life. In 1804 he married Eliza, daughter of J. P. Maxwell, Esq., of Cavendish Square,—an union productive of uninter-

rupted happiness for the remainder of his life. At this time it was Dr. Young's resolution to confine himself for the most part to medical studies, and to make himself known to the public in no other character. But he had resolved on that which to him was impossible. He never slackened in his literary and philosophical exertions. He was always ready to lend his aid to any one engaged in similar investigations. He was living in the first circles in London, and his avocations could not be concealed; therefore it is conceived that in putting forth his non-medical papers separately and anonymously, he was making a fruitless as well as voluntary sacrifice of the general celebrity to which he was entitled. From an impression that it would be likely to interfere with his success as a medical practitioner, he likewise resigned his professorship in the Royal Institution. In his anonymous publications, however, the veil was very transparent. Two contiguous letters of a Latin motto, in a regular order, formed the signature to each paper, but Young communicated the Latin words to all his friends; and few were ignorant of the real nature of his pursuits.

In 1807, Dr. Young published his *Course of Lectures on Natural Philosophy and the Mechanic Arts*, in two quarto volumes, each consisting of eight or nine hundred pages, where every branch of natural philosophy was treated in a new and profound manner. It is said of this work, that it contains the original hints, of more things since claimed as discoveries, than can perhaps be found in a single production of any known author. On this occasion Dr. Young forgot his former precautions, and gave his name to the publication. We cannot give even the titles of all the numerous works which Dr. Young published, but the mention of only a few of them will show how diversified were his researches.—*Memoir on Iron Furnaces. Essays on Music and Painting. Researches into the habits of Spiders. On the Stability of the Arches of Bridges. On the Atmosphere of the Moon. The Mathematical Theory of Epicycloidal Curves. Restitution and Translation of different Greek Inscriptions. On the Means of strengthening the Timber-work of Wooden Vessels. On the Action of the Heart and Arteries in the Phenomenon of Circulation. Theory of the Tides. On the Diseases of the chest. On Friction in the Axes of Machines. On the yellow Fever. On the Calculation of Eclipses. Essays on Grammar:—&c.* Such a variety of elaborate works seem sufficient to have shut up their author in his study; but, on the contrary, he was to be found in the most brilliant circles in London, delighting his friends with the accomplishments of his mind, and the elegance of his manners. He was a true living library, where an exact, precise, and substantial answer could be given in an instant to every kind of question which could be proposed.

In the year 1814, the studies of Dr. Young were directed to a subject, which has added greatly to his fame, although it has led to much controversy. It was at this time that he began to investigate the lost literature of Ancient Egypt, and discovered the key to the hieroglyphics.

In the year 1814, (says his biographer,) Sir William Rouse Boughton had brought with him from Egypt, some fragments of papyri, which he put into the hands of Dr. Young, the fragment of the Rosetta Stone having about this time been placed in the British Museum, and a correct copy of its three inscriptions having been engraved and circulated by the Society of Antiquaries. Dr. Young first proceeded to examine the enchorial inscriptions, and afterwards the sacred characters, and after a minute comparison of these documents he was enabled to attach some Remarks on Egyptian Papyri, and on the Inscription of Rosetta, containing an interpretation of the principal parts of both the Egyptian inscriptions on the pillar, to a paper of Sir W. Boughton's, published by the Society of Antiquaries, 1816, in the eighteenth volume of the *Archæologia*.

He continued to prosecute these researches with

almost incredible toil and activity. In 1815 he wrote on the subject in the *Museum Criticum*, and in 1816 published two letters announcing the progress of the discovery of the relation between the Egyptian character and hieroglyphics, forming the basis of his own inquiries, as well as of the system carried further in its details by M. Champollion, whose attention had long been directed to similar studies.

The whole results of his labours on this subject were first brought out in a complete form in the article *EGYPT* of *Encyclopædia Britannica*, to which Dr. Young furnished sixty-three articles, scientific, biographical, and literary. In 1817 he paid a second visit to Paris, and renewed his intercourse with Humboldt, Arago, Cuvier and Gay Lussac. In 1818 he was appointed one of the commissioners for considering the state of the weights and measures of Great Britain. In the same year he became Secretary to the Board of Longitude, with the charge of the supervision of the *Nautical Almanac*. This latter appointment was to him a desirable one, and henceforth he had no anxiety to increase his medical practice. In the summer of 1819 he made a hasty tour of Italy, and examined the Egyptian monuments preserved in that country, returning to England by way of Switzerland and the Rhine. In 1821 he made an excursion to Spa and Holland, and in the same year undertook the medical responsibility and mathematical direction of a society for life assurance. This led him into researches in which he took great interest, and produced his Formula for expressing the Decrement of Human Life, &c. In 1823 he again visited Paris, and also published an account of his Hieroglyphical Discoveries. In 1825 he removed from Welbeck Street to a house which he had built in Park Square, Regent's Park, where he continued his favourite pursuits, and expressed himself as having attained the main objects of his desire in this life.

In the summer of 1828 he went to Geneva, and there appeared to suffer an unusual degree of fatigue on slight occasions, and symptoms of age came on him, which contrasted strongly with the freedom from complaints which he had hitherto enjoyed. During his absence the Board of Longitude was abolished, but in many departments of the Admiralty the assistance of men of science was found so indispensable, that a new council of three members was appointed, consisting of Dr. Young, Captain Sabine, and Mr. Faraday.

This change involved Dr. Young in more labour than he could perform without injury to his health, and is thought to have aggravated a complaint which must have been long, though insensibly in progress, and which was now bringing him rapidly to a state of extreme debility. From the month of February, 1829, his illness continued with slight variations till the 10th of May following, when he expired without a struggle, having hardly completed his fifty-sixth year. "His disease proved to be ossification of the aorta, and every appearance of advanced age, not brought on probably by the natural course of time, nor even by constitutional formation, but by unwearied and incessant labour of the mind from the earliest days of infancy." His remains were deposited in Farnborough Church, Kent. Of his acquirements in almost every department of human knowledge, we have endeavoured to give some faint idea; it only remains to add the testimony of his biographer, that in all the relations of private life, Dr. Young was an exemplary character, and his whole career was one of usefulness and moral rectitude.

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THE CITY OF DRESDEN.



DRESDEN.

THE kingdom of Saxony, which forms part of confederate Germany, has for its capital, the ancient town of DRESDEN. The Elbe divides the city into two portions, which are connected by a fine bridge, 552 feet long, with 16 arches. The country round has a mixture of romantic nature with the richest cultivation; so that the environs of this city are reputed to be more delightful than those of any other capital of Europe. The approach to the city is on almost all sides by avenues shaded by trees. It stands in a fine plain, which is, for the most part, surrounded by eminences covered with trees, vineyards, or gardens. The sweetness and amenity of its aspect have acquired for it the epithet of the "German Florence."

The heights of Kesselsdorf, in the vicinity of Dresden, were celebrated as the scene of some important battles in the early part of the last century, during which the city suffered severely. The important situation of the city caused a fort to be built there as early as the ninth century. The city was bombarded for nine days by Frederick the Great, in 1760; and it has been exposed to the devastations of war upon other occasions. The Austrians occupied the city in 1809, without injuring it. In the following year they began to pull down the fortifications, but desisted on the breaking out of the Russian war. To the historian, however, Dresden will present its most remarkable feature in being the centre of operations, in 1813, in the great and important contests, when almost all the powers of Europe were arrayed against Napoleon. Besides the political importance of Dresden, as a capital, the possession of the Elbe, by means of some of the most important fortresses, was another motive, which induced Napoleon to place himself with his whole army on the banks of this river; and the

entire neighbourhood resembled a great fortified camp, from which he could pour forth his columns, with equal ease, on the chief cities around. The Emperor displayed the most consummate skill in the defences of the city, as a military post. At the final retreat of the French, Dresden received a strong Russian garrison and became the seat of the Russian administration under Prince Reppin. The king of Saxony was twenty months a prisoner of the Allied Powers, and his dominions were then governed by Russian and Prussian authorities. The adherence of this king to the fortunes of Napoleon, though rare and admirable as an instance of political integrity, was disastrous to himself and his monarchy; his dominions were dismembered by the congress of Vienna, and the northern and eastern parts of his territory transferred to Prussia.

When the French retreated from Dresden to Leipsic in 1813, they blew up the central part of the bridge over the Elbe, which was repaired at the expense of the Emperor of Russia.

Dresden has very little external trade or manufacture. It is a place of transit for foreign produce, and has several fairs during the year. The manufactures of mathematical, mechanical, and musical instruments have arrived at some celebrity in this place; together with several other arts and trades; such as the making of porcelain, earthenware, lace, mirrors, and plaited straw. There is a foundry for bomb-shells and cannon, and another for bells: there is also a yearly exhibition of Saxon manufactures. The municipal expenses amount to nearly 7000*l.* a year, and the population may be reckoned at 60,000 souls. As a town, answering to the uses and conveniences of life, this place has been much improved since the war, by the levelling of the fortifications;

whereby the space gained has been used for gardens, promenades, and new buildings.

Excepting the people of Vienna, the capital of Austria, no people of Germany are so fond of being out of doors as the Saxons of Dresden, and no other capital displays so many temptations to allure them; wood and water, mountain and plain, precipice and valley, corn and wine, palace and cottage, seem tossed together in bright confusion, and glowing in a climate, which, north of the Alps, may well be called genial. The rising ground to the south-east of the city, which was the principal scene of the combats and bombardments that terminated in the retreat of the French to Leipsic, is the only part of the environs at all devoid of natural sweetness and beauty.

As the season of Spring comes on, strangers visit Dresden from all parts of Europe; and this city, with its fine sky and scenery, becomes for a great part of the year the general rendezvous of Germany.

One of the especial sources of attraction for visitors at Dresden is its fine collection of pictures. Hence it has acquired the reputation of being the centre of the arts in Germany. No gallery on this side of the Alps deserves, as a whole, to be placed above it: it is gratifying to find that these pictures have had the rare fortune to be treated with reverence by every hostile hand. Frederick the Great, as we before remarked, battered down the churches of Dresden, and laid its streets in ruins, but he ordered his cannon and mortars to keep clear of the picture-gallery. He entered as a conqueror, levied the taxes, administered the government, and, with an affectation of humility, asked permission of the captive Electress to visit the Gallery as a stranger. Napoleon's policy likewise induced him to treat Saxony with great consideration, and he was careful to preserve the pictures unviolated. None of these went to Paris.

Crowds of copyists fill the gallery during the summer months. A sure and lucrative employment is found in making miniature copies of the more celebrated pictures, or individual groups or figures from them. Of the amateur artists many are ladies, and here the pride of rank, which in everything else in Germany is so unyielding, gives way. The countess pursues her task by the side of her more humble companion, who is copying for her daily bread, under the gaze of every strolling stranger. It is not at all uncommon to find ladies repairing to Dresden from distant capitals to spend part of the summer in copying pictures.

This city possesses likewise one of the most complete collections of copper-plates in Europe. This collection contains everything that is interesting in the history of the art, or valuable for practical excellence. It possesses the earliest copper-plate yet known, bearing the date of 1466. A vast quantity of ancient sculptures, and casts in gypsum of other great works, which could not be bought, completes the Saxon school of arts.

Amongst the curiosities of Dresden we must not pass over the treasures of the "Green Vault," of which every Saxon is so proud. Whoever takes pleasure in the glitter of precious stones, and in gold and silver, wrought not only into royal ornaments, but into every form that art can give them, will find much delight in strolling through the apartments of this gorgeous toy-shop. Here are the crowns, jewels, and regal attire of the Saxon princes for ages back. Pearls, and innumerable carvings in ivory are here, and jewelled nick-nacks of all sorts and sizes.

There is also the armoury for ancient weapons, all so complete with reference to the middle ages, that were Europe thrown back by the word of an enchanter, to those times, Saxony could take the field with a duly equipped army sooner than any other power. This place is therefore just what a well-stored armoury must have been in the days of yore. Among the relics kept here is the first instrument with which Schwarz tried his newly invented gunpowder. The fire is produced by friction.

A small bar of iron placed parallel to the barrel is moved rapidly backwards and forwards by the hand: above it is a flint, whose edge is pressed firmly against the upper surface of the bar by a spring: the friction of the flint against the bar strikes out the fire, which falls upon the powder in a small pan beneath.

One of the least pleasing features of this gay and elegant capital is the number of condemned malefactors employed in cleaning the streets, fettered by the leg, and kept to their labour by the rod of an overseer and the muskets of sentinels. When not so employed their time is spent in a miserable and corrupting confinement, in dungeons always loathsome, and sometimes subterranean. Some of the German lecturers on political economy rail at the bad management of English prisons, without seeming to look to faults nearer home, which if, correctly narrated by travellers, are discreditable to any European country.

One thing which attracts the early curiosity of visitors at Dresden, is the custom of young lads singing psalms on Sundays and feast days about the town. Pious men have bequeathed funds to give a number of boys, who are at the same time choristers of the different churches, a cocked hat, a black scarf, and a suit of clothes, on condition of their entertaining the inhabitants with sacred music. Bands of ten or a dozen, with one for a leader, each dressed in black, with a cocked hat and scarf, march slowly about the town, and stopping at every second or third house, sing a psalm. This singing is often very agreeable: the shrill clear voices of the young people, sounding through the streets, have something of simplicity, which oftentimes pleases as much as the multiplied tones and warblings of the royal orchestra.

THE EMIGRANTS' FIRST SABBATH IN AFRICA.

It was, indeed, an affecting sight, to look round on our little band of Scottish emigrants, thus congregated for the first time to worship God in the wild glen allotted for their future home, and the heritage of their offspring. There sat, with his silvery locks, the aged patriarch of the party, with his Bible on his knee—a picture of the high-principled, grave, Scottish husbandman; his respectable family seated around him. There was the widow, with her meek, kind, and quiet look—the look of one who had seen better days, but who, in adversity, had found pious resignation—with her three stalwart sons, and her young maiden daughter, placed beside her on the grass. There, too, were others, delicate females—one of them very nearly related to myself—of whom I need not more particularly speak. There was the younger brother of a Scottish laird, rich in blood, but poor in fortune, who, with an estimable pride, had preferred a farm in South Africa to dependance on aristocratic connections at home. Looking round on these collected groups, on this day of solemn assemblage, such reflections as the following irresistibly crowded on my mind:—"Have I led forth from their native homes, to this remote corner of the globe, all these my friends and relatives, for good or for evil!—to perish miserably in the wilderness, or to become the honoured founders of a prosperous settlement, destined to extend the benefits of civilization and the blessed light of the Gospel through this dark nook of benighted Africa?" The issue of our enterprise is known only to Him who ordereth all things well. Having selected one of the hymns of our national church, all united in singing it to one of the old pathetic melodies of our native land. The day was bright and still, and the voice of psalms rose with a sweet and touching solemnity among those wild mountains where the praise of the true God had never, in all human probability, been sung before. We then read some of the most suitable portions of the English Liturgy, and concluded with an excellent discourse from a volume of sermons presented to me on parting by the Rev. Dr. Pringle, of Perth. We had a similar service in the afternoon. While we were singing our last psalm, an antelope stood for a little while on the opposite side of the rivulet, gazing at us with innocent amazement. — *Pringle's African Sketches.*

OPTICAL ILLUSIONS. VII.

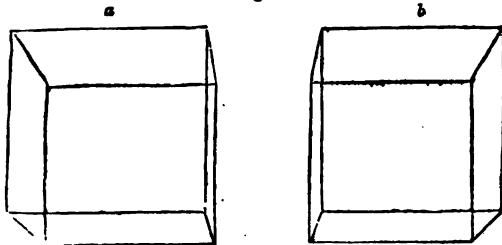
ON BINOCULAR VISION.

We now invite the reader's attention to a very curious class of optical illusions, connected with the use of *two* eyes in the process of vision. Under the ordinary sense of the word illusion, it is not usual to apply such a term to the act of seeing; but in fact it is one of the most beautiful of all illusions, viz., the impression on the mind, that two distinct acts of vision, one by each eye, form but one act.

Opticians and anatomists have frequently asked, "Way does not vision with two eyes produce in the mind the idea of a double object? How can single vision result from the use of *two* eyes at once?" It is known that an image of the object is impressed on the retina of each eye; and it appears natural to suppose that the mind would thence recognise two objects instead of one, whenever we look with both eyes at once. This, however, is not the case; and numerous theories have been formed to account for the illusion. Of all these theories that proposed by Professor Wheatstone is the only one which seems to meet all the difficulties of the case. We are strongly disposed to think that it is the correct explanation; and we will endeavour to give a popular sketch of that gentleman's views, as presented in a paper read before the Royal Society three or four years ago.

Professor Wheatstone grounds his explanation upon this proposition,—That in all the ordinary cases of vision with two eyes, the effect produced upon the mind is *compounded* of the two effects which would be produced by each eye separately. Hitherto, inquirers on this subject have been in the habit of assuming that an object presents the same appearance to one eye as to the other; but Mr. Wheatstone's explanation is greatly dependant on the curious fact that the appearance of an object is *not* precisely the same to the two eyes. To shew the nature of the difference, place a small cube immediately in front of the eyes, and at about seven inches' distance from them; shut each eye in succession, and look with the other; the cube will not present the same shape to each eye, but will appear as *a* in the one instance, and *b* in the other, in Fig. 1. They are slightly dissimilar, and this dissimilarity increases as the optic axes

Fig. 1.



converge more rapidly, or, which is the same thing, as the object is viewed at a smaller distance. Supposing the cube to be small—a die for instance—it will be seen on a little attention, that the difference arises from the circumstance, that with the right eye we can see a little of the right *side* of the cube, but not the left side; while with the left eye we see a little of the left side of the cube, and none of the right.

Mr. Wheatstone supposes that our ideas of objects placed at a moderate distance, are formed from the combination of these two images superposed as it were in the mind; and that the chief reason why we do not mistake a picture, however cleverly painted, for the object which it is intended to represent, is, that the image of a picture is exactly the same in both eyes, since the picture does not present *sides* or *bulk*, but only a flat surface; whereas the image of an object is different in the two eyes. When an object is viewed from afar, the same

difference does not exist, and a consequence results which we will state in Mr. Wheatstone's own words:—

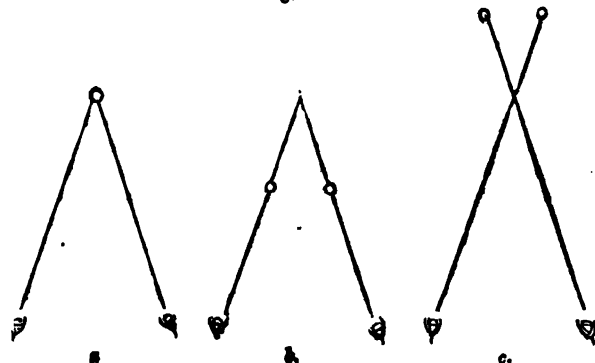
When an object is viewed at so great a distance that the optic axes of both eyes are sensibly parallel when directed towards it, the perspective projections of it, seen by each eye separately, are similar, and the appearance to the two eyes is precisely the same as when the object is seen by one eye only. There is in such case, no difference between the visual appearance of an object in relief, and its perspective projection on a plane surface; and hence pictorial representations of distant objects, when those circumstances which would prevent or disturb the illusion are carefully excluded may be rendered such perfect resemblances of the objects they are intended to represent, as to be mistaken for them; the Diorama is an instance of this. But this similarity no longer exists when the object is placed so near the eyes that to view it the optic axes must converge; under these conditions a different perspective projection of it is seen by each eye, and these perspectives are more dissimilar as the convergence of the optic axes becomes greater.

It will be convenient to give the name of *right image* to the appearance which an object presents when viewed by the right eye, and *left image* to the appearance presented to the left eye. We may then state that in all pictures, the right and left images are alike; that in objects seen from a great distance, the images are so nearly alike that we cannot discern any difference between them; that in objects seen at a short distance, the images are decidedly dissimilar; and that the illusive effects of pictures depend greatly on the distance of the objects which they are intended to represent. A picture of a near solid object *cannot* be made to represent exactly the appearance of the object itself, however consummate may be the skill of the painter; for the right and left images of his picture are similar, while those of the object are dissimilar. The mind does not accustom itself to the image presented by either eye singly, but to both together superposed or combined; consequently a combination of two similar images (the ordinary vision of a picture) cannot exactly resemble a combination of two dissimilar images (the ordinary vision of a solid object).

Mr. Wheatstone states, that no former writer seems to have been aware of this subject, with the exception of the great painter Leonardo da Vinci, who explains why a painter could not represent a small object exactly as it is seen by the eye, because the portion seen by one eye is not the same as that seen by the other. But Da Vinci failed to follow out the fact to its singular consequences.

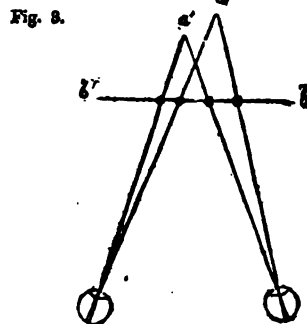
A very curious question now presents itself. If the right and left images of an object are dissimilar, and a picture fails to be completely illusive because its right and left images are similar, what would result if we place before the eyes two pictures at the same time, one representing the right image, and the other the left image, of any given object? To the solution of this question Mr. Wheatstone directed his attention. It is necessary to make the images of the two pictures fall on similar parts of the two retinae; and fig. 2. will shew how this may be done in a simple way. Under the ordinary circumstances of vision, the object is seen at the point where the two

Fig. 2



axes meet; but two objects may be seen as one, if they are placed one in the direction of each optic axis, at equal distances before or behind their intersection. In all the three cases (fig. 2, *a. b. c.*) the mind recognises but one object. As unpractised persons, however, find it difficult to focalize the eyes properly, Mr. Wheatstone recommends the employment of a pair of tubes, capable of being inclined towards each other at various angles, so as to correspond with different convergences of the optic axes. By the use of such tubes, or by the naked eyes with a little practice, a person might make two objects appear as one, if similarly situated with respect to the converging point of the two optic axes.

Now, if the two objects thus placed, instead of being exactly similar, were perspective projections of the same solid object, the mind will still continue to perceive the object to be single; but instead of a representation on a plane surface, as each drawing appears to be when separately viewed by that eye which is directed towards it, the observer will perceive a figure of three dimensions, the exact counterpart of the object from which the drawings were made. These effects may be illustrated by one or two instances:—If two vertical lines near each other, but at different distances from the spectator, be regarded first with one eye, and then with the other, the distance between them when referred to the same plane will appear different; if the left hand line be nearer to the eyes, the distance as seen by the left eye will be less than the distance as seen by the right. This is exemplified in fig. 3, where *a'a* represent the positions



occupied by the two lines; and the points on the cross section *b b'* shew the relative distances at which they appear apart when seen by the two eyes separately. Now if the lines here spoken of were drawn on two pieces of card, at the respective distances at which they appear to each eye, and these cards be afterwards viewed by the aid of the tubes above alluded to, the observer will no longer see two lines on a plane surface; but two lines will appear, one nearer to him than the other, precisely as the original vertical lines themselves. Again, if a straight line be held before the eyes in such a position that one of its ends shall be nearer to the observer than the other is, each eye, separately referring it to a plane perpendicular to the common axis, will see a line differently inclined; and if lines, having the same apparent inclinations, be drawn on two pieces of card, and be presented to the eyes as before directed, the real position of the original line will be correctly perceived by the mind.

Mr. Wheatstone traces all these effects to the same source as that whence arises a curious appearance observed when a plate of metal, whose surface has been turned on a lathe, is viewed by candle-light. When a single candle is brought near such a plate, a line of light appears standing out from it, one half being above, and the other half below, the surface; the position and inclination of the line changing with the position of the light and the observer, but always passing through the centre of the plate. On closing the left eye the relief disappears, and the luminous line coincides with one of the diameters of the plate; on closing the right eye the line

appears equally in the plane of the surface, but coincides with another diameter; on opening both eyes, it instantly starts into relief. The luminous line here spoken of results from the reflection of light from the minutely depressed concentric circles produced by the tool in the operation of turning. The Professor remarks that this appearance must have been observed by many persons, but that none had thought of referring it to its cause; which is exactly analogous to that of the vision of two inclined lines, when each is presented to a different eye focalized in the manner before described.

The difficulty of effecting this focalization with exactness led Mr. Wheatstone to construct a very ingenious instrument called a *stereoscope*, the arrangement and employment of which we shall describe in our next paper on this subject.

"FIFTEEN YEARS AGO."

Oh! tis but "fifteen years ago,"

(How the years fleet fast away!)

That I heard the winds of Autumn blow,

As I hear their voice to-day;

And saw,—as now they meet mine eye—

The bleak trees, stripped and bare,

Lift up their wild arms to the sky,

Like mourners in despair;—

While the leaves—like the hopes of the mourner—dead,

Bestrewed the withered earth;

And I looked on the desolate scene, and said,

With a sorrow akin to mirth,

"I love the pomp of the dying year,"—

And gazed, as oft a child

Hath gazed, they tell us, on a bier,

And then, unconscious, smiled.

What then were the sky and the earth to me,

In their places, foul or fair!

My heart was young, and I thought there would be

Eternal summer there.

But now, as life with the rolling wave

Of each rapid year sweeps on,

All the buoyant swell of hope, that gave

My spirit strength, is gone.

Like the earth and the sky, I seem to bear

Each change the seasons bring;

But oh! I ne'er can hope to share

With them another spring.

Decay for all things!—all alas!—

Now fifteen years have flown—

Reflect, as mirrored in a glass,

An emblem of mine own.

My spring is gone; my summer's sun

Wears Autumn's sombred glow—

Oh! it was not thus my verse had run

But "fifteen years ago."—J. S. B.

THOMAS CURSON, born in Allhallows, Lombard-street, armourer, dwelt without Bishopgate. It happened that a stage-player borrowed a rusty musket, which had long lain leger in his shop: now though his part were comical, he therewith acted an unexpected tragedy, killing one of the standers-by, the gun casually going off on the stage, which he suspected not to be charged. Oh! the difference of divers men in the tenderness of their consciences; some are scarce touched with a wound, whilst others are wounded with a touch therein. This poor armourer was highly afflicted therewith, though done against his will, yea without his knowledge, in his absence, by another, out of mere chance. Hereupon he resolved to give all his estate to pious uses: no sooner had he gotten a round sum, but presently he posted with it in his apron to the Court of Aldermen, and was in pain till by their direction he had settled it for the relief of the poor in his own and other parishes, and disposed of some hundreds of pounds accordingly, as I am credibly informed by the then churchwardens of the said parish. Thus as he conceived himself casually (though at a great distance) to have occasioned the death of one, he was the immediate and direct cause of giving a comfortable living to many.—FULLER.

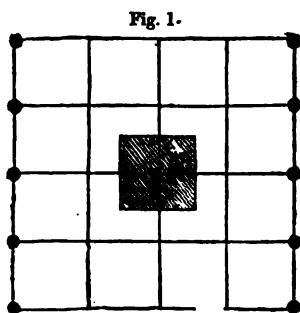
ON CHESS. No. XX.

ANCIENT GAMES FROM WHICH CHESS IS SUPPOSED TO HAVE BEEN DERIVED.

In two former articles we investigated the powers of the pieces, and endeavoured to afford an easy account of the various methods which have been adopted for obtaining those numerical values which are given to the pieces in elementary works on chess. We propose now to inquire how the pieces became invested with their present powers; and although our information on this subject is not very precise, yet it is sufficiently interesting to form part of the present series.

The Hindoo origin of chess, supported by Dr. Hyde, Sir William Jones, and others, was for a long time credited, until Mr. Christie proposed to consider "whether it be more natural to conceive the game to have been invented by an effort of the mind of one person, and devised, formed, and perfected at one instant of time; or whether it may not be considered probable, that some rude materials existed, which falling into the hands of ingenious and able workmen, at different periods, were variously fashioned by them, and united at last in the elegant structure of the modern game." We propose to give a brief analysis of Christie's attempt to prove "that a game of pastoral origin was already in general use, which being expanded as to the superficies of its board, and augmented in the number of its men, and varied in the properties of its pieces, might have been fashioned and completed by the ingenuity of the Orientals into the modern game of chess."

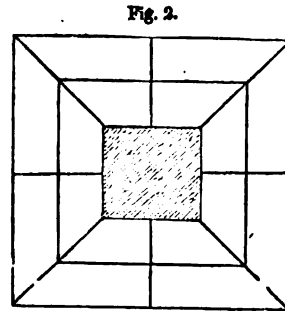
Among the ancient games of skill the one to which writers have referred the origin of chess is the *περραια*, or the game of the pebbles, supposed to have been invented by Palamedes at the siege of Troy. From scattered words and phrases in various Greek writers, it is probable that the game was played on a board containing sixteen squares with a central space called *ἑρα γραμμῆ*, the sacred barrier. The game was played by two persons, one being provided with five white pebbles and the other with five black pebbles, arranged at the beginning of the game as in the accompanying figure. Each



player endeavoured to cut off, inclose, or block up, his adversary's men. In Constantine's *Lexicon* the "sacred barrier" is thus alluded to:—"The middle line was the extreme boundary beyond which the men could not be moved, and this was also termed the sacred line; wherefore when either of the parties was driven up to this fixed line or mark in the centre of the board, he then moved his piece from it, saying, 'I move my pebble from the sacred.'" The offensive moves seem to have had the following objects: 1, the temporary circumvention, where the pebble was checked between the sacred and another pebble; and was then, according to a law of the game, withdrawn with the expression just quoted; 2, the circumvention of any pebble took place between two hostile pebbles; retreat being cut off, such pebble was then taken; 3, each party endeavoured to get beyond the sacred, so as to occupy his adversary's half of the board, and so to crowd his game that no move should be left to him: the game was then finished.

There is a game which has been played all over the north of Europe from the remotest antiquity, which Christie supposes to be identical with the Greek game *τροχιον*, and more ancient than the *περραια*, since depositing the pebbles seems to be more simple and primitive than moving them. The game is played on a board of

the following form, and is known in England by various names, such as, "Ninepenny Marl," "the game of Morris" or "Nine Men's Morris" also "Fivepenny Morris," and lastly "Merelles." Some writers state that the game was introduced into this country by the Norman conquerors, under the name of *merelles*; and that this word, which signifies *counters*, was afterwards corrupted into *morals* and *morris*. Others suppose the pastime to have derived the appellation of "Nine Men's Morris" from the different coloured men being moved backwards and forwards as though they were dancing a morris.



The scheme or board for the game is frequently chalked on the ground; on barn floors; on the crown of a hat; on the side of a pair of bellows; upon a table; or, (as we have often seen it on Salisbury Plain,) it is cut out in the green sward. Hence the remark of Titania in the *Midsummer Night's Dream*:

The nine men's morris is filled up with mud, alluding to the wet season, which had obliterated the rustic merelle board.

Strutt, the historian of the *Sports and Pastimes of the People of England*, gives a figure of the merelle-table as it appeared in the fourteenth century, the lines of which are similar to those in figure 2; the only difference is, that each of the angles is marked by a black spot.

The manner of playing the game is briefly thus:—two persons, each having nine men, different in colour or form, for distinction's sake, place them alternately, one by one, upon the angles or spots; and the object of either party is to prevent his antagonist from placing three of his pieces so as to form a row of three, without the intervention of an opponent piece. If he succeed in forming a row, he takes one of his antagonist's pieces from any part except from a row of three which must not be touched if he have another piece on the board. Every piece that is taken is put into the central square. When all the pieces are laid down, they are played backwards and forwards, in any direction that the lines run, but they can only move from one spot to another at one time. He that takes all his opponent's pieces is the conqueror. The game is subject to slight variations in different counties of England. In Wiltshire, if the losing party have his men reduced to three, they can hop and skip into any vacant place, in order to form a line. However simple this rustic game may appear, much skill is required, particularly in the choice of the first places, so as to enable the player to form the lines as perfectly and as quickly as possible.

The Oriental name for the central space (Fig. 2) is equivalent to the English *pound* or *fold*, and Christie thinks it very probable that it was originally intended to represent something of this kind; for, as the Eastern shepherds amused themselves by playing with the pebbles, whilst they watched their *folds*, they might afterwards have introduced the figure of the fold itself as an ornament to the board, and as a settled place for depositing the pebbles captured during the game.

From a critical examination of the Greek writers, our author concludes, that the game of the pebbles was derived from the original game of the Asiatic shepherds. The pastoral character of this game now became military—the central *fold* was converted into a *sacred*, which acted as a kind of mound or barrier against mutual incursions. In the course of time the game was modified by the use of dice as well as pebbles, and formed

the ancient *plindion*: the board was now called the *city*, the pebbles *dogs*, and the object of the game was said to be to capture the city: the pieces appear to have been of two colours, and one pebble being circumvented by two others of an opposite colour was captured. There appear to have been twelve points on each side of the board, and fifteen men of each colour; but here, as the conclusions of our author lead us rather to the game of backgammon than to chess, we omit much of his theory.

The steps by which our author supposes the advance to have been made from this primitive game to that of chess, (in which there is, *first*, not a sacred line, but a royal line behind each row of pebbles or pawns, *secondly*, a king whose person is sacred, and, *thirdly*, officers to attend him,) are so very ingenious that we quote the passage at full:

I have before explained, the meaning and office of the *sacred mark* in the *perreia*; and have shown that, as the object of the game was to effect a circumvention of any one pebble, between two of the adverse party, so, the same could be produced by forcing a pebble into an intermediate station between the *sacred* and a hostile piece. This was an advantage only to be found in the centre of the board. But the purpose of the sacred was not complete; for the assistance of the sacred would often have been desirable for effecting a circumvention in the distant parts of the board. Hence arose the idea of making it *moveable*. By its power of co-operating with a pebble in circumventing, it was already endowed with the properties of a piece; and it was therefore no great stretch of innovation to raise it to the dignity of one, thereby giving it in form what it already possessed virtually. As the advantages of it, in its first inactive state, had been common to both, so it was now but fair that *each party should have a pebble endowed as the iepa γραμμή had been*. To distinguish it from the rest, it was perhaps called the "*inviolable pebble*." As the *central mark* was *sacred*, so was this *inviolable*; and hence the custom of NEVER TAKING THE KING AT CHESS. As it would not have been prudent to expose the sacred person of this pebble in the front line, and the scanty dimensions of the board would not allow of the pebbles being obtruded further upon the middle of the board, a place was assigned to it in the centre of an additional or rear rank. An imperfection yet remained. The properties of the sacred were twofold,—*inviolability*, and the power of making any pebble *recede* from it. We have only found a representative for its first property. The whole virtue of the sacred was to be called into action. The inviolable pebble was the solitary occupier of the rear rank:—it was thought proper that *attendants* should be given to the right and left of it, who should share amongst them the *offensive* powers of the sacred, which it might not have been so consistent with the character of the first dignified pebble to assume. The power of causing to *retire*, was therefore vested in the companion of the inviolable piece; and hence we have derived the custom of *checking*. And with all this, the original object of the *perreia* was still retained, namely, the *blockade*; to which the *check-mate* of the modern chess is certainly analogous; only that in the early game it was attempted indiscriminately upon the pebbles in general; and in the improved game, the effect of it is exclusively directed to the most conspicuous piece.

The most important feature in this ingenious argument is the metamorphosis of the sacred mound, barrier, or temple, into a "king," endowed with the inviolability of the sacred (that is, not subject to capture); but conferring the repelling power of the sacred on the persons of certain officers or superior pebbles provided for that purpose. In modern chess the king has little or no repellent power; for he cannot put himself into check, while all the other pieces may do so. The sacred being thus converted into an inviolable piece, and four officers being created in order to repel attack, and guard the person of the king, the central's sacred was removed, and an additional line or row of points was added behind the common pebbles or pawns. Doubling some of these officers, so as to increase the number to eight, and increasing the number of single pebbles, or pawns from five to eight, are regarded as subsequent innovations.

The learned inquiries of our author tend to show that the Scythians, (the ancestors of the present Tartars,) occupying the desert tracts eastward of the Caspian, were the original inventors of the game from which chess has been produced by a regular series of improvements and modifications made during three thousand years: therefore that the game existed long before the siege of Troy; and that it thence spread westward to Greece, south-west to Persia, south-east to India, and east to China; and that in each country it received certain modifications and additions.

The game was gradually introduced into Rome, and probably formed the *Ludus Latrunculorum*. The object of this game, and the method of playing it, were similar to the *perreia*, except that there was no *sacred*; and that the power of *checking* was lost by the absence of the central space. Hyde is of opinion that the *Ludus Latrunculorum* greatly resembled the modern draughts, in that the pebbles moved diagonally, made captures by leaping over the pebbles of the antagonist, and that they were crowned. On these points Christie is at issue with Hyde, and he also objects to the interpretation of Ovid by Daines Barrington, that the pieces were shaken like dice instead of being moved like draught-men.

The Chinese chess is a contest between two small bands of soldiers on the banks of a river: to these a number of pieces is added, the chief office of which is to defend the general, and to capture straggling opponents. The pieces and men, as in the ancient *perreia*, have no distinction as to form: they are flat counters of ivory, an inch in breadth, and a quarter of an inch in thickness, and are distinguishable from each other only by means of certain lines marked upon them.

Christie is of opinion that the Hindoo who, thirteen centuries ago, is said to have invented chess, borrowed the ancient game from the Tartars, who were, and still are, the links of communication between all the nations of Asia, and gave to it some of the modifications already alluded to. The Chinese game in which the combatants, five on each side, fight on the opposite banks of a symbolical river, is supposed by our author to be a more primitive form than the Hindoo, derived from the Tartars, and subjected to less alteration. Mr. Davis, in his recent work on China, says,—“The Chinese chess differs in board, men, and moves, from that of India, and cannot in any way be identified with it, except as being a game of skill, and not of chance.”

It must be confessed, from melancholy experience, that a speculative acquaintance with the rules of duty, is too compatible with the violation of its dictates, and that it is possible for the convictions of conscience to be habitually overpowered by the corrupt suggestions of appetite. To see distinctly the right way, and to pursue it, are not precisely the same thing. Still nothing in the order of means promises so much success as the diligent inculcation of revealed truth. He who is acquainted with the *terrors of the Lord*, cannot live in the neglect of God and religion with present, any more than with future, impunity; the path of disobedience is obstructed, if not rendered impassable; and wherever he turns his eyes he beholds the sword of Divine justice stretched out to intercept his passage. Guilt will be appalled, conscience alarmed, and the fruits of unlawful gratification embittered to his taste.—ROBERT HALL.

Of the great number to whom it has been my painful professional duty to have administered in the last hours of their lives, I have sometimes felt surprised that so few have appeared reluctant to go to “the undiscovered country, from whose bourne no traveller returns.” Many, we may easily suppose, have manifested this willingness to die from an impatience of suffering, or from that passive indifference, which is sometimes the result of debility and extreme bodily exhaustion. But I have seen those who have arrived at a fearless contemplation of the future, from faith in the doctrine which our religion teaches. Such men were not only calm and supported, but cheerful in the hour of death, and I never quitted such a sick chamber, without a wish that my last end might be like theirs.—SIR HENRY HALFORD.

RURAL SPORTS FOR THE MONTHS. OCTOBER.

See! from the brake the whirring pheasant springs,
And mounts exulting on triumphant wings:
Short is his joy; he feels the fiery wound,
Flutters in blood, and panting beats the ground.
Ah! what avail his glossy, varying dyes,
His purple crest, and scarlet-circled eyes,
The vivid green his shining plumes unfold,
His painted wings, and breast that flames with gold!—Pope.

Our tables are supplied with a very delicate article of food by means of the sport for which this month is distinguished. Pheasant-shooting commences on the 1st of October, and these birds, which are no less remarkable for the elegance of their forms than for the beauty of their plumage, are also highly prized in an economical point of view in all the countries where they are found. As an ornament to parks and thickets they are unrivalled among British or naturalized species, and in the rich and glowing colours of their plumage they seem to belong to another and a more brilliant clime.

Pheasants are in general shy and solitary birds, frequenting the thickest coverts. Spaniels are therefore usually employed by the pheasant-shooter, and are required to be strong, short on the legs, and courageous; since the thickness of the coverts will oppose, and sometimes overpower any but the strongest and best-made do s. Pointers, beagles, and even terriers, are also used in this sport, but the nature of the locality will best determine the sort of dogs to be employed. Pheasant-shooters, in general, assemble early, and after searching the stubbles of wheat, barley, and bean-fields, proceed to the neighbouring woods. A foggy day is not deemed unfavourable to the sport, for pheasants are apt to wander from their close retreats in such weather, while in bright sunshine they keep mostly to the depth of the woods. They are often spoken of as birds of easy conquest, on account of their size and the slowness of their flight, and they have even been called stupid, because when roused, one of them will often perch on a tree, and give its attention so riveted on the dogs as to allow the sportsman to approach very near. The old birds, however, have been observed to have recourse to various stratagems, before they have been compelled to take wing, and when they rise, the whirring noise they make with their wings, and the disturbance of the leaves, through which they are making their way, is so startling to the inexperienced hand, that many a young sportsman finds his first attempts at pheasant-shooting far less easy of accomplishment than he had been led to expect. In October the trees are so full of foliage, that it is a difficult and wearisome task to beat the woods for pheasants, in addition to which the birds often rise without being seen, and when seen and shot, they are frequently lost, or the search after them occupies a considerable time. Shooters therefore endeavour to meet with them in potatoe or turnip-fields, deep stubbles, and rushy fields, ear covers, but especially under hedges, holly-trees, or coppices, where they are generally pointed by the dogs, and the greater part of them being young birds, they are easily killed. November is considered by many sportsmen as the month in which pheasant-shooting is to be had in perfection. The leaves have then fallen from the trees, and no longer obstruct the view of the rising bird, the pathways in the woods are more easily traversed, and the birds themselves are full grown, and in better condition than during the preceding month. But these advantages may be looked on as in some measure counterbalanced by the increased wariness of the birds, and their comparative scarcity after the earlier shootings have thinned their numbers, and have taught those that remain to flee the report of the destructive gun.

It is only on particular occasions that sportsmen intentionally destroy the hen-pheasant. It seldom happens

that the hens become too numerous, and as they are easily distinguished from the male birds, they are generally spared. A conventional understanding was formerly entered into, that a fine of half-a-guinea should be paid to the keeper of the manor whenever a hen-pheasant was killed. This is frequently evaded, but is nevertheless a wise regulation. It is thus noticed by the poet Pye:—

But when the hen to thy discerning view,
Her sable pinion spreads, of duskier hue,
The attendant keeper's prudent warning hear,
And spare the offspring of the future year;
Else shall the *fine*, which custom laid of old,
Avenge her slaughter by the forfeit gold.

The Common Pheasant (*Phasianus Colchicus*, LINN.) is considered as the type of the genus *Phasianus*; and though not originally British is completely naturalized in our country, and adapts itself with facility to our climate, as it does to that of most other temperate regions of the earth where it has been introduced.

It seems generally admitted that the pheasant was originally brought from the banks of a celebrated river in Asia Minor. This river is in ancient Colchis, and was once of so much importance that many towns were erected on its banks, and one hundred and twenty bridges crossed its waters, in different parts of its course. Its ancient name was *Phasis*, but it is now called the *Fax*, and sometimes the *Rion*: the Russians are now entirely in possession of its navigation. The ancient Greeks, we are told, in ascending this stream were attracted by the beauty of the birds which they saw in great numbers on its banks, and soon secured to themselves this valuable addition to their luxuries. Thus pheasants were rapidly introduced to the southern countries of Europe, and generally made part of the expensive and superabundant repasts of the ancients. Heliogabalus, in his ostentatious folly, is said to have fed the lions in his menagerie with these birds. The banks of the *Phasis* are still, as in ancient times, remarkable for the number of fine pheasants to be seen there. The name of these birds, as it is evident, is derived from that of the river: in Italy they are called *Fasiano*, in France, *Faisan*. The time of their introduction into Great Britain is uncertain. In the time of our first Edward the price of a pheasant was four-pence, but we must remember the superior value of money in those days, and also the rate at which other provisions were sold. For instance,—during the same reign we find that wheat was sold at one shilling and eight-pence the quarter. A receipt “for to boile Fesant” is also found in a book stated to have been compiled by the master-cook of Richard the Second, and this proves the bird to have been known as early as 1381.

The accurate description of the common pheasant by Bewick need only be compared with the reality, to prove its faithfulness. According to this Naturalist the bird is two feet eleven inches in length. The bill is of a pale horn colour; the nostrils are hid under an arched covering; eyes yellow, and surrounded by a space, in appearance like scarlet cloth, finely spotted with black; immediately under each eye is a patch of short feathers of a dark glossy purple; the upper parts of the head and neck are deep purple, varying to glossy green or blue; lower parts of the neck and the breast reddish chestnut, with black indented edges; the sides and lower part of the breast the same, with pretty large tips of black to each feather, which in different lights vary to a glossy purple; the under parts of the body are dusky; the back and scapulars beautifully variegated with black and white, or cream-colour speckled with black, and mixed with deep orange, all the feathers edged with black; on the lower part of the back is a mixture of green; the quills are dusky, freckled with white; the two middle feathers of the tail are about twenty inches long, the shortest on each side less than five, of a reddish brown marked with transverse bars of black. Legs dusky, with a short blunt

spur on each, but in some old birds the spurs are as sharp as needles; between the toes there is a strong membrane. The female is less, and does not exhibit that variety and brilliancy of plumage which mark the male; the general colours are light and dark brown, mixed with black, the breast and belly finely freckled with small black spots on a light ground; the tail is short, and barred with black somewhat like that of the male; the space round the eye is covered with feathers.

The common pheasant is the only one of its kind which has multiplied freely in our island. The beautiful natives of China, the golden and silver pheasant, are confined to parks and aviaries. The hen pheasant makes her nest on the ground, and lays from twelve to fifteen olive-coloured eggs, which are smaller than those of the domestic hen. The incubation lasts about three weeks; at the expiration of which time the young break the shell, and follow their mother like chickens.

The eggs are sometimes destroyed in mowing the clover near the woods which pheasants frequent, and of those which are hatched it is reckoned that one-third never attain their full growth, for many die in their first moulting, and numbers more in a disorder of the trachea, commonly called "gapes." This disease is occasioned by an intestinal worm, which adheres to the inner surface of the wind-pipe, and causes death by suffocation, sometimes arising from inflammation of the part, sometimes by actual obstruction. Fumigation by tobacco, when carefully employed, has been found to cure this disorder, but a simpler means of cure in the case of domestic poultry, amongst whom the disease is common, is to put a pinch of common salt far back in the mouth of the bird so as to reach the upper part of the trachea.

These birds have always shown a remarkable timidity and indisposition to become domesticated like other gallinaceous poultry. Mr. Waterlow has the following remarks on this subject:

Notwithstanding the proximity of the pheasant to the nature of the barn-door fowl, still it has that within it, which baffles every attempt on our part to render its domestication complete. What I allude to is a most singular innate timidity, which never fails to show itself on the sudden abrupt appearance of an object. I spent some months in trying to overcome this timorous propensity in the pheasant, but I failed completely in the attempt. The young birds which had been hatched under a domestic hen soon became very tame, and would even receive food from the hand, when it was offered cautiously to them. They would fly up to the window and feed in company with the common poultry. But if any body approached them unawares, off they went to the nearest cover with surprising velocity. They remained in it till all was quiet, and then returned with their usual confidence. Two of them lost their lives in the water by the unexpected appearance of a pointer, while the barn-door fowls seemed scarcely to notice the appearance. The rest took finally to the woods at the commencement of the breeding season.

Yet when pheasants are in the constant habit of being attended in the covers by a keeper, they attend to his whistle and come in flocks to be fed; but this is during severe weather and when they are pressed by a scarcity of food.

Pheasants are very general feeders: blackberries, sloes, haws, grain, seeds, and tender leaves are eaten by them, together with a great number of insects. The hen bird when kept in confinement will lay many eggs, but does not dispose them properly in a nest or sit upon them. The eggs are therefore generally placed under a common hen, and when they are hatched the young are reared in the following manner. During the first month their food consists of hard boiled eggs, crumbs of bread, and lettuce leaves, well mixed, with an addition of the eggs of meadow-ants. This food must be given frequently and in small quantities. Every kind of moisture is hurtful to them at this early age, and it is therefore necessary to keep them without water, and never to let

them go abroad until the dew is dried up. The place in which they are kept, must be very clean, and they should be taken in before sunset. In the second month they may receive more substantial food, such as wheat, barley, ground beans, and a variety of small insects, with the eggs of wood-ants. They must now have access to small heaps of fine sand, or of dry earth, that they may rid themselves of the vermin with which they begin to be infected. Clean water must also be given to them frequently. In the third month the young birds may be carried, with the crib, into the fields, if possible where there is white clover, the seeds of which are found to strengthen them and forward their growth. They must at first be fed in the field with their usual food, but the quantity may be daily diminished, so that they may learn to depend more and more upon their own resources, and become better acquainted with the country. After a time they will grow as wild as those bred in the woods, and will no longer require to be provided for by those who took the trouble to rear them.

It has been found easier to collect pheasants together on an estate, than to keep them there, when collected. They often leave the place where they have been bred in search of food that is congenial to them: on this account it is found necessary to supply the covers with a variety of food, and to take care that water is also at hand. Mr. Yarrell mentions a mode of inducing them to stay at home which is occasionally adopted, *i. e.* sowing in summer, beans, peas, and buckwheat mixed together, and allowing the whole crop to remain standing on the ground. For winter feeding, cart-loads of raw potatoes are occasionally driven into the covers and scattered about by hand.

We cannot close our notices of the pheasant without mentioning the rare species of this genus of which a specimen was exhibited some few years ago in the Zoological Gardens, Regent's Park. It is a native of some parts of the Chinese Empire, but is very rare in Pekin. The specimen alluded to was found on the snowy mountains of Surinagur, and was called *Doomdurong* or Long Tail. It was a most beautiful bird, and the tail-feathers were of the extraordinary length of five feet six inches. This species is called, from the name of the gentleman who first introduced it into Europe, "*Reeves's Pheasant.*"



PHESANTS.

PERHAPS in no trade has the division of labour been successfully carried to so great an extent as in that of watch-making. In an examination before a committee of the House of Commons, it was stated that there are a hundred and two distinct branches of this art, to each of which a boy may be apprenticed.—G. POULETT SCROPE.

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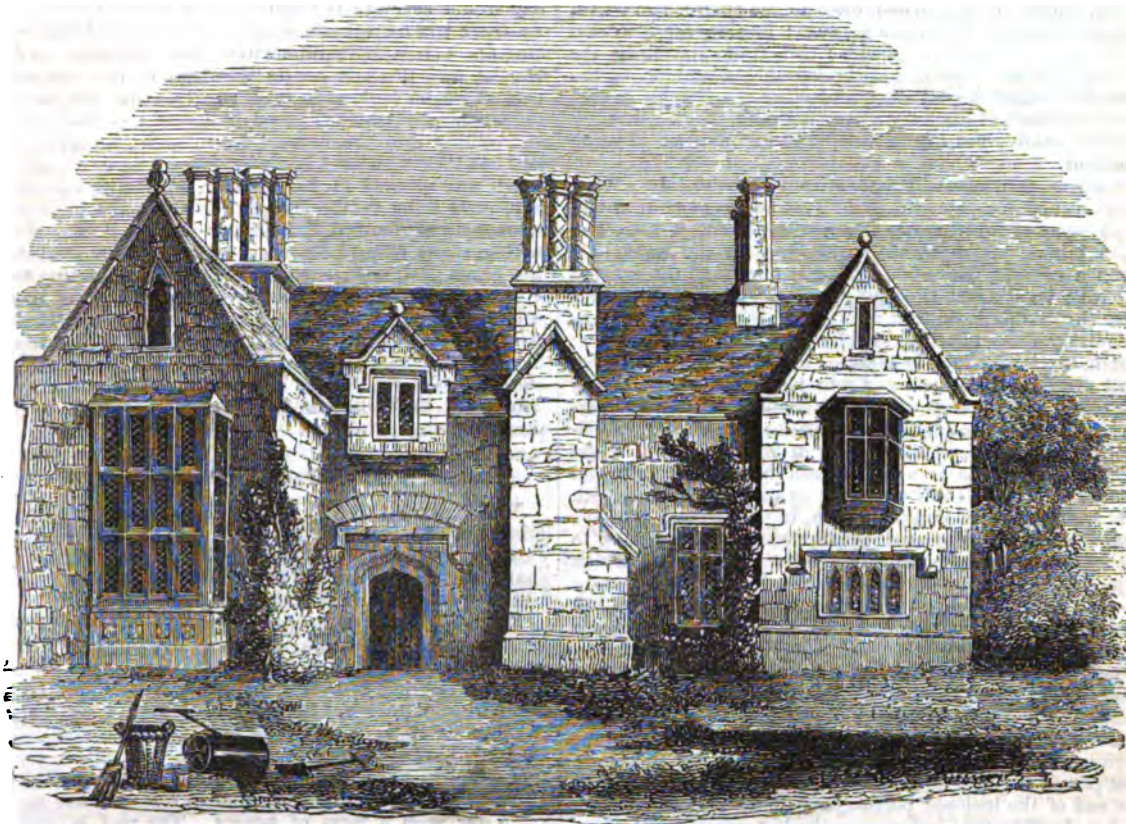
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SUPPLEMENT,

OCTOBER, 1841.

PRICE
ONE PENNY.

THE HOUSES OF ALL NATIONS. II.



OLD ENGLISH MANOR HOUSE.

On a former occasion, (Vol. XV., p. 33,) we presented a brief view of the rude habitations of mankind, and stated that the transition from these to the comforts of a modern house was by no means abrupt; that a wide interval existed between them, which could only be filled up by tracing the progress of civilization in various countries through successive ages. A portion of this great and important subject, including ARCHITECTURE, has already occupied three Supplements, (Vol. XVI., pp. 121, 209, and 249,) and we now propose to conclude with a few rough sketches of the houses of those nations which have made considerable advances in the arts of life.

It will be necessary to remark, that our object does not include a description of temples, churches, prisons, public offices, hospitals, &c.; but the homes, the domestic arrangements, of the middle classes of society. As the exhibition of architectural taste is more displayed in what are called public buildings than in private houses, we shall not find it necessary to dwell at much length on architectural details; but shall chiefly direct our attention to those arrangements by which the domestic comfort of the interior, rather than the beauty of the exterior, is secured. Royal palaces will not occupy much of our attention, for it is well known that such edifices partake less of the peculiar character of the people, than do dwellings of more humble pretensions. The palaces of the sovereigns of Europe, whatever differences they may present in external architecture or in dimensions, very much resemble each other in the costly decorations of the interior.

VOL. XIX.

1. HOUSES OF THE ANCIENTS.

The nature of the details which the ancient classical writers have handed down to us, is not such as to give us much insight into their dwellings and domestic arrangements. Wars and tumults, ambitious projects, and contests for civil power, were unhappily so prevalent, that the "homes" of the ancients are but sparingly alluded to, and that in such form as little enables us to form a clear conception of them. There were, however, some distinguished men who did not disdain to leave on record something which would shew us what their dwellings were. Among this number was Pliny the younger, whose letters on various subjects, and to various persons, have been handed down. Pliny has left a singularly minute description of his summer villa in Tuscany. It is too long to present verbatim, but as it is of importance, in illustrating the arrangement of the house of a Roman gentleman, we will give a portion of it.

"My villa is so advantageously situated, that it commands a full view of all the country round; yet you approach it by so insensible a rise, that you find yourself upon an eminence, without perceiving you ascended. The exposition of the principal front of the house is full south, and seems to invite the afternoon's sun in summer (but somewhat earlier in winter) into a spacious and well proportioned portico, consisting of several members, particularly a porch built in the ancient manner. In the front of the portico is a sort of terrace, embellished with various figures,

599

and bounded with a box hedge. At the extremity of this portico stands a grand dining-room, which opens upon one end of the terrace, and such parts of the house which project forward, together with the woods inclosing the adjacent hippodrome. Almost opposite to the centre of the portico, stands a square edifice, which encompasses a small area, shaded by four plane trees, in the midst of which a fountain rises, from whence the water, running over the edges of a marble basin, gently refreshes the surrounding plane trees, and the verdure underneath them. This apartment consists of a bed-chamber, secured from every kind of noise, and which the light itself cannot penetrate; together with a common dining-room, which I use when I have none but intimate friends with me. A second portico looks upon this little area, and has the same prospect with the former I just now described. There is, besides, another room, which, being situated close to the nearest plane tree, enjoys a constant shade and verdure: its sides are incrustated half way with carved marble; and from thence to the ceiling a foliage is painted with birds intermixed among the branches, which has an effect altogether as agreeable as that of the carving; at the basis, a little fountain, playing through several small pipes into a vase, produces a most pleasing murmur.

"From a corner of this portico you enter into a very spacious chamber, opposite to the grand dining-room, which, from some of its windows, has a view of the terrace, and from others, of the meadow; as those in the front look upon a cascade, which entertains at once both the eye and the ear; for the water, dashing from a great height, foams over the marble basin that receives it below. This room is extremely warm in winter, being much exposed to the sun; and in a cloudy day the heat of an adjoining stove very well supplies his absence. From hence you pass through a spacious and pleasant undressing room, into the cold bath-room, in which is a large gloomy bath: but if you are disposed to swim more at large, or in warmer water, in the middle of the area is a wide basin for that purpose, and near it a reservoir from whence you may be supplied with cold water to brace yourself again, if you should perceive you are too much relaxed by the warm. Contiguous to the cold bath is another of a moderate degree of heat, which enjoys the kindly warmth of the sun, but not so intensely as that of the hot bath, which projects farther. This last consists of three divisions each of different degrees of heat: the two former lie entirely open to the sun; the latter, though not so much exposed to its rays, receives an equal share of its light. Over the undressing room is built the tennis court, which, by means of particular circles, admits of different kind of games. Not far from the baths is the staircase leading to the inclosed portico, after you have first passed through three apartments. . . . At one end of the inclosed portico, and, indeed, taken off from it, is a chamber that looks upon the hippodrome, the vineyard, and the mountains. Adjoining is a room which has a full exposure to the sun, especially in winter; and from whence runs an apartment that connects the hippodrome with the house. On the side of the house rises an inclosed summer portico, which has not only a prospect of the vineyards, but seems almost contiguous to them. From the middle of this portico you enter a dining-room, cooled by the salutary breezes from the Apennine valleys; from the windows in the back front, which are extremely large, there is a prospect of the vineyards; you have also another view of them from the folding doors, through the summer portico. Along that side of this dining-room, where there are no windows, runs a private staircase for the greater convenience of serving at entertainments. At the further end is a chamber, from whence the eye is pleased with a view of the vineyard and of the portico. Underneath this room is an inclosed portico, somewhat resembling a grotto, which, enjoying in the midst of the summer heats its own natural coolness, neither admits nor wants the refreshment of external breezes. After you have passed both these porticoes, at the end of the dining-room stands a third, which, as the day is more or less advanced, serves either for winter or summer use. It leads to two different apartments, one containing four chambers, the other three; each enjoying, by turns, both sun and shade."

In another villa which Pliny had a few miles from Rome, the entrance was through a portico into a central court, and from thence another passage led into a large hall: on every side of this wall were either windows or doors leading to various apartments. On one side of the hall was a large family room and another which Pliny used as his library and

study, together with a bed-room, and entrances to rooms belonging to the slaves or servants. On the other side of the hall were doors leading to the baths and many other apartments.

The excavations which have been made at Pompeii show that the Roman dwellings were often very considerable in extent, and provided with numerous offices and outhouses. Baths were, by no means an unusual adjunct to a house, and some of them were constructed with great ingenuity, so as to afford a supply of hot, warm, and cold water, to the different rooms appropriated as bath-rooms. This custom, of providing baths for frequent use, was carried to an extent that we cannot properly appreciate in England. Our humid climate affords us but little means of estimating the exquisite luxury which a bath affords to dwellers in warm countries, where the powerful heat of the sun during the day would enervate the body, if not refreshed by a bath. As there was a great similarity among the dwellings of the ancients, a short description will suffice. Amongst the Jews, Greeks, and Romans, houses were flat at the top, so that persons might walk upon them; and usually had stairs on the outside, by which they might ascend and descend without coming into the house. Each house, in fact, was so laid out that it inclosed a quadrangular area or court; this court was exposed to the weather, and being open to the sky, gave light to the house. This was the place where company was received, and for that purpose it was covered with mats or carpets for their better accommodation. It was paved with marble or other materials, according to the owner's ability, and provided with an awning of cloth or vellum to shelter them from the heat and vicissitudes of the weather. This part of their houses, called by the Romans *impluvium* or *caes adium*, was provided with channels to carry off the water into the common sewers. The top of the house was level, and covered with a strong plaster by way of terrace.

2. HOUSES OF ENGLAND.

We shall now direct our attention to modern times, and take a rapid glance at the most striking differences that exist between the dwellings of different countries. We shall begin with our own country, as it will enable us better to understand the construction of others.

By dwelling in a house surrounded by other similar houses, we are not unlikely to forget altogether what are its principal features as compared with those of other countries:—there is no lack of instances in which extreme familiarity with a subject induces a sort of ignorance of it. Let us then examine the dwelling of an Englishman in moderate circumstances. In the first place we find that,—unlike the houses of old,—there is no central court surrounded by buildings: ground is too valuable to allow space for such a form of houses. The roof is not flat: our rainy climate presents us with but few inducements to visit the house-top. The windows are not concealed from without, and made to open into the central court: jealousy and suspicion are not English characteristics in these matters. If we were to go on, step by step, making comparisons thus between an English house and an Oriental one, (for the latter at the present day very much resemble what the houses of the ancients used to be,) we should find that those differences are not the result of mere caprice, but have a foundation in the habits of the people, the extent of room compared with the number of inhabitants, or the climate of the country.

A modern London private house is generally built of brick, and has four or five distinct stories, with one staircase common to them all. These houses are not detached, but, from the value of land, are built adjoining one another; sometimes thirty or forty without any interruption. In the outskirts of London, where land is not quite so valuable, the wealthy citizen builds his villa, detached from others of a similar kind, and surrounded by a little garden. These are often made to assume something like the appearance of cottages,—and "Rose Cottage,"—"Lavender Cottage,"—"Pleasant Retreat," &c., written up at the gate, indicates that the owner wishes to console himself in the country. It must be owned that in many instances there is a good deal of the "pride of humility" in these mock cottages; although in others, much taste and good arrangements are displayed.

The superior classes of shops in our large towns do not greatly differ from private houses, for all except the ground-floor is arranged as in a private house. The commercial

establishments connected with wholesale trade are altogether different buildings. The domestic rooms are few in number, and principally devoted to the junior partners of a firm; for it is one of the points of ambition in a wholesale trader to have a country house (or cottage) to retire to when the business of the day is concluded. Such is the case to a remarkable extent in the city of London: foreigners would be surprised, did they know how few wealthy families have their home,—their living and sleeping rooms,—within the boundaries of the city.

When we leave the busy scenes of our great towns and extend our view to the country, we find every kind of dwelling, from the palace-like Chatsworth downward, including the manor house of the "country squire,"—the newly sprung-up country house of the merchant,—and the substantial and old English dwelling of the farmer. In Loudon's *Encyclopædia of Cottage Architecture* is given a *beau idéal* of an English country house,—that is, a detailed description of a country residence for an English gentleman, comprising the principal features which distinguish the best kind of country villas in this country. We cannot do better, perhaps, than give an outline of this description,—premising, that the house is not so much the palatial mansion of a peer, as the villa or mansion house of a "country gentleman."

The style of such a villa is the "old English," as being more picturesque and ornamental,—as according best with rural scenery,—and as admitting of any form most suitable for the various offices and servants' apartments:—the Grecian style, adopted under such circumstances, would be an application of architectural rules to purposes for which they were not intended. The villa is therefore in the Elizabeth style, and the ground-plan somewhat in the form of the letter H. The front presents a centre and two projecting wings: the centre containing the hall and dining-room, with a gallery and staircase behind them. One wing is occupied by the drawing-room and library, with a saloon between them. The other wing contains a sitting room, and offices for the upper servants: the inferior offices being in the basement, or in a distinct part of the building. The principal front is ornamented: in the centre is a porch of two stories; and the wall on each side (broken into compartments by pilasters, &c.) contains large mullioned windows; with a battlement or parapet at the top, decorated with busts, urns, heraldic ornaments, &c. Each end of the projecting wings presents a bay window, square or semicircular in form, with balustrade or stone covering above. The high and steep roof is decked with chimneys of various forms and heights; and in the centre is the tower over the grand staircase; its cupola roof terminating in a rich lantern, and supporting a weathercock or dwarf spire.—The four distinguishing features of this exterior are, the projecting wings, the high roof, the numerous chimneys, and the lofty staircase tower.—Outside one of the wings of the house is a terrace, with a handsome balustrade, and an entrance is gained to this terrace by a door from the saloon.

The porch of the house is raised a step or two, and is ornamented in its principal parts, and contains seats for servants, &c. From the porch we proceed to the entrance hall, which corresponds in style with the size of the building, and is more lofty in English than in Grecian forms of villa. The hall looks as if meant for something more than the mere entrance to the house; for in the old English times, when the Baron was surrounded by his retainers, the hall was the apartment in which all dined,—high and low. The hall is furnished with old oak chairs and benches, a high table across the upper end, and other tables in other positions round the sides of the hall. This is the place, too, for the armour, the defensive arms, the hunting implements, the bows and arrows, the fishing tackle, the stags' horns and other trophies of the chase. The floor is of stone, not covered by any carpet: and the room is warmed either by hot air (a modern invention), or by heaping logs of wood on the large open fire-place at one side of the hall. From this hall there is a grand entrance to the principal apartments, and a humbler one to the servants' offices.

From the hall we proceed to the gallery beyond it. This gallery is a kind of passage leading to the principal apartments. On one side it leads to the saloon, dining-room, &c.: on another to the servants' offices: and in another to the grand staircase. The saloon is a sort of vestibule to the living rooms, having on one side a door leading to the dining-room, on another a door leading to the drawing-room, on another windows which open on to the terrace and gar-

den. The saloon is often used as a music room, and is therefore arranged appropriately, in being nearly divested of furniture: indeed if it were not so employed, its general use is not of a kind to render much furniture necessary.

The drawing-room is the most elegant apartment in the house, as may be expected from the mode in which it is employed. This room is of noble proportions, and has a bay or projecting window at one end: there are also windows on one of the other sides, looking out into the terrace and garden, and opposite these windows is the fire-place. The ceiling is of lace-work stucco, interspersed with shields of the family arms. This room contains such of the best pictures belonging to the family as may be of small size. In the pier between the windows is a large looking-glass, reaching nearly to the ceiling.

From the drawing-room we proceed across the saloon to the library, the general arrangement of which is more sombre and sedate than that of the drawing-room, but the size of the rooms is nearly equal. The walls are of course chiefly occupied by cases for books, maps, &c., and those parts which are not so occupied are painted or papered of some subdued colour, so as not to give a gaudy effect to a room devoted to study. A pair of globes, reading-desks, library table, &c., are arranged in this room. Such a room is a general place of reception for gentlemen during the earlier hours of the day.

The dining-room is situated near the hall. The walls are of old oak wainscot, and are nearly covered with pictures, this being the chief depository of the family pictures, unless a gallery be kept for their reception. The large fire-place is provided with "dogs" for the reception of the logs used as fuel. The tables, sideboards, cellarets, "dumb-waiters," &c., necessary to such an apartment, we need not descant upon. Except in very large houses, the dining-room is generally the breakfast room for the family.

The private study is a room differing from the library in this, that although both are intended for study or business, the library is open to the ladies as well as the gentlemen, whereas the study is the room in which the "squire" transacts his various affairs with steward, bailiff, &c., &c.

These are the principal apartments on the ground-floor: we will therefore proceed up stairs. The staircase is an important part of an old English house. The steps are either of stone or of polished oak, and the balustrades and rails are of carved oak. The staircase is lighted by a large mullioned window, filled with stained glass. This staircase leads up to the bed-rooms of the principal members of the family. A house of some pretension will often have a "state" bed-chamber, devoted especially to the use of such visitors as may be of consequence. This "state" room is furnished in a somewhat costly style, and is accompanied by two dressing-rooms. The other bed-rooms have one dressing room each attached to them.

The servants' bed-rooms are on the highest floor, and are approached by a separate staircase from another part of the house. The stairs are in connexion below with the house-keeper's room, the kitchen, and all the various offices appropriated to the duties and employments of the servants. These we need not describe in detail, but as an example of a kitchen fit for a large house, we may quote the following from the work last alluded to:—"I remember to have seen a kitchen, at a house in Warwickshire, which struck me particularly. The kitchen, scullery, larder, &c., formed a range of building on one side of the kitchen court, separate from the house, but there was a covered way between them. The building was of two stories, the kitchen occupying the centre. It was a large lofty room, of good proportions, as high as two stories of the building. You entered it at one end, by large folding doors, from a passage through the building: at the opposite end was the fire-place, with a screen before it, on one side of which was the door to the scullery and bakehouse, on the other side a range of set coopers of different sizes. On one side of the room were two rows of windows, and under the lower row a range of charcoal stoves and hot plates, the latter to keep things warm. The other side had only the upper row of windows, and against the wall was a dresser, above which the copper cooking utensils, &c., were ranged in a very ornamental way. A long table was in the centre of the room, and over the door a dial clock. The ceiling had a very handsome cornice, and a boss in the centre, from which hung a brass lamp. Opposite the entrance-door another door admitted you to a passage, on one side of which were the larders, on the other, salting-rooms, &c., and at the end a staircase led to the cook's apartments over." Such a kitchen is, however, of

rather a higher standard than would be required for an English country house.

The reader will understand that the above is not so much a description of a house actually existing as a means of conveying a general idea of most of our country villas.

If we visit our northern neighbours we shall not find a very striking distinction between their houses and those of the English. Indeed, so much are the habits and tastes of the wealthy classes in England, Scotland, and Ireland becoming assimilated by constant intercourse that their dwellings bear a very close resemblance to one another. We may, however, observe that one characteristic feature of the houses at Edinburgh is the enormous height to which they are built. No private houses are to be seen in London equal in height to many at Edinburgh, which extend sometimes to seven or eight stories, or "flats." These very lofty houses are, however, more prevalent in the trading parts of the city than in that part occupied by the genteel inhabitants. It is worthy of a passing remark that Scotland does not contain so many middle-class houses as England,—not so many manor-houses of moderately wealthy landowners, nor houses of retired tradesmen, nor substantial farm-buildings. This arises, not from any inferiority in the wealth or character of the people, but from the events of her history. It is not yet one hundred years since Scotland was a scene of rebellion and anarchy,—highlander despising lowlander, because the former had not yet learned to appreciate the advantages of social comfort, as enjoyed in the lowlands, and in England. But since that period an unprecedentedly rapid progress has been made in every part of Scotland, and her houses, as well as the spirit of her institutions, are becoming more and more like those of England. In Ireland, too, many circumstances have retarded the increase of a class of inhabitants between the very rich and the very poor.

3. HOUSES OF FRANCE, SWITZERLAND, AND GERMANY.

We must cross the Channel, to visit the houses of our neighbours, the French. These are generally speaking larger than the houses of English persons of equal rank. But this is partly accounted for by the different way in which the house is parcelled out. In England a respectable family will occupy a house of moderate size to themselves. In France they would occupy a portion of a very large house. Each floor contains a suite of rooms, and a house often contains as many respectable families as there are floors. We are here speaking not so much of large mansions as of respectable private houses.

In Paris, the large mansions generally obtain the name of *hotels*, a term which we apply to the highest class of houses for public accommodation. Mr. Cooper, in his *Residence in France*, has given some details respecting these Parisian mansions. He says,—“The private hotels are even more numerous than the private gardens, land not always having been attainable. Of course these buildings vary in size and magnificence, according to the rank and fortune of those who caused them to be constructed; but the very smallest are usually of greater dimensions than our (American) largest town-houses; though we have a finish in many of the minor articles, such as the hinges, locks, and the wood-work in general, and, latterly, in marbles, that is somewhat uncommon, even in the best houses of France; when the question, however, is of magnificence, we can lay no claim to it, for want of arrangement, magnitude, and space.” The hotels bear the names of their owners. The higher classes of the nobility were accustomed to build a smaller hotel near the principal structure, which was inhabited by the inferior branches of the family, and sometimes by favoured dependents,—this is called the *petit hôtel*. Our first apartments were in one of these *petits hôtels*, which had once belonged to the family of Montmorenci. The great hotel, which joined it, was inhabited, and I believe owned, by an American, who had reversed the usual order of things by coming to Europe to seek his fortune. Our next abode was the *Hôtel Journiliac*, in a small garden of a remote part of the Faubourg St. Germain. This was a hotel of the smaller size, and our apartments were chiefly on the second floor, or in what is called the third story in America, where we had six rooms besides the offices. Our saloon, dining-room, &c., had formerly been the bed-chamber, dressing-room, and ante-chamber of Madame la Marquise, and gave one a very respectful opinion of the state of a woman of quality, of a secondary class, though I believe that this family, too, was highly allied. We are now in a small hotel in the Rue St. Dominique,

where in some respects we are better lodged than ever, though compelled to occupy three floors. Here the saloon is nearly thirty feet in length, and seventeen high. It is panelled in wood, and above all the doors, of which, real and false, there are six, are allegories painted on canvas, and inclosed in wrought gilded frames. Four large mirrors are fixtures, and the windows are vast, and descend to the floor. The dining-room, which opens on a garden, is of the same size, but even loftier.”

On passing from France into Switzerland, we find that a marked change occurs in this respect:—that in the latter country each family, generally speaking, has a house to itself, whereas, as has been stated, in France each family frequently content themselves with a single floor. There are other differences, too. The French houses are mostly built of rough stone, and stuccoed; while those of Switzerland,—particularly if near the great pine forests,—are often log-houses, built almost wholly of wood, but finished very carefully, and constructed with great accuracy. The walls are formed of whole trees neatly squared and notched into each other at the ends where the walls cross. The roof is of wood; short pieces of pine split into thin layers are used as tiles, and held together by small spars laid across them, which are, in their turn, kept down by stones. Many of the cottages have wooden chimneys, the whole of the flue being formed of and lined with wood: the smoke and turpentine together produce a varnish, which preserves it from taking fire. The beams supporting the roof are ornamented at the ends; and the principal front is also carved, sometimes with elaborate ornaments, and inscriptions in German text are painted in several colours. These houses have altogether a picturesque appearance, and are much warmer than houses of stone or brick.

The houses of Germany may vary considerably according to the locality,—some bordering on the cold climate of the north of Europe, while others adjoin Switzerland and Italy. In some parts, such as North Prussia, the houses are framed of wood with bricks between; and the upper stories project over the lower, and are supported on columns generally of wood. In other parts the houses are of frame-work of wood, the interstices filled with unbaked bricks, and then plastered with clay. While in other parts, again, the arrangement of the houses nearly resembles that of the English. We may here briefly notice the character of the buildings in two or three of the principal cities of Germany.

The general nature of the better class of houses in Vienna is massive and imposing, rather than ornamental. The streets are generally narrow; and the houses lofty,—rising to four or five floors, which are all entered by a common stair. Some individual masses of building, in the heart of the city, are as populous as large villages. One dwelling-house containing ten large courts,—is peopled by more than twelve hundred inhabitants, and yields a yearly rental of 6500*l*. Another building contains no less than one hundred and fifty separate dwelling-houses. Even the ordinary buildings are generally in the form of a square, surrounding a small court; but the houses are so high, and the court is of such small dimensions, that it frequently has more the appearance of a well; and the staircase, which receives its light from it, is almost in darkness. Every house, whatever number of families it may contain in its several floors, is under the superintendence of a *haus-meister*, or house-master, who is a personage of much importance to the convenience of all who inhabit it. He is generally some humble person employed by the proprietor to take care of the house, and to lock up the outer door at a certain hour in the evening, after which neither ingress nor egress can be obtained without giving him a fee.

The arrangement of the large houses in Berlin is very different from those of Vienna. There is an imposing palace-like effect produced, on account of the general employment of an Ionic portico in front of most of the principal buildings. Sometimes three out of the four sides of a building are decorated with porticoes.

Dresden, the capital of Saxony, differs from both the foregoing cities. The general style of building is simple, austere, and imposing. The wealthy inhabitants, in their residences, thought chiefly of convenience and duration, not of pillared portals and airy verandahs. The houses are lofty and the streets narrow; but some of the principal streets are of ample breadth, and lined with stately, though unadorned buildings. Within the last few years, however, a tendency has shown itself to introduce more architectural regularity than was formerly displayed in the houses of Dresden.



GRENADA.

Mr. Cooper visited one of the baronial residences on the banks of the Rhine, at present occupied by a brother of the King of Prussia. A few words may be said respecting it here. The entrance is by a drawbridge. The court is narrow and inconvenient; but there are several little terraces which command views of the scenery of the Rhine. The Ritter Saal, or Knight's Hall, though not large, is a curious room. The fire-place is of an enormous size; and round the walls hang numerous pieces by ancient armour. The chandelier is a circle formed of uniting bucks' horns, from which lamps are suspended. In one corner of the hall is an ancient vessel to hold water, and beneath it a porcelain trough. The chairs, tables, settees, &c., are all of oak, and covered with armorial bearings. The stairs have a quaint and remarkable appearance, and in one instance they encircle the exterior of a tower, at a giddy elevation of nearly three hundred feet above the river, the tower itself being placed on the outermost verge of the precipice.

In Holland and Belgium, the houses do not possess a distinctive character. They are partly French, partly German, and partly English. But we may state generally, that they are very deficient in anything like architectural beauty.

4. HOUSES OF NORTHERN EUROPE.

In the colder climates, such as Denmark, Russia, Sweden, and Norway, we find precautions taken against the chilling blasts of winter, which are not called for in the southern countries of Europe. Denmark, Sweden, and Norway, particularly the latter two countries, are not so well provided with middle-class houses as most of the other European states. The peasants' houses are generally log-houses, but with a more highly pitched roof than those of Switzerland; and they are often covered with boards projecting six feet beyond the walls. A general custom in the middle-class houses in Russia is to cover the roof with sheet-iron, and paint them with vivid colours, mostly green and red. Another feature, (to which we shall presently further allude,) is that of having double windows to the principal rooms. In the villages, each house presents a bold projecting gable towards the street: the houses are of two or three stories with a balcony on the gable front.

Dr. Granville, during a residence of several months at St. Petersburg, had an opportunity of seeing the habitations of the wealthy classes in that capital, removed on the one hand, from the costly splendour of the Emperor's

palaces, and, on the other, from the more humble dwellings of the trading community.

The entrance to the St. Petersburg mansions is generally by a private door adjoining the carriage gate. Within is a spacious yard or court, in which enormous heaps of firewood are piled on one side, and around which are the four sides of the mansion. Under the great carriage gateway is generally a double glazed folding door, for receiving visitors on grand occasions, leading to the foot of the grand staircase; but the general daily entrance is by the private door: this door is glazed as well as the other, so that a liveried porter within sees visitors approaching and opens the door to them without any application to a bell or a knocker. The owner of the mansion generally occupies the ground floor, near the street door, with his study, receiving room, waiting room, private cabinet, &c. The stairs of the staircase leading to the upper stories are generally of coarsely-grained, unpolished granite: they are only occasionally scoured, and have seldom a strip of carpet laid on them. The staircase is square, with high walls, lighted by three or four windows, and decorated with statues, busts, and pictures; but they have seldom the light iron balustrade which gives such an elegance to the staircase of an English mansion.

At the top of the staircase we meet with an ante-room, generally occupied by lacqueys; from whence we enter a long suite of drawing rooms, which are fitted up with great magnificence, having costly furniture round the walls, but, like the Parisian mansions, having none in the centre of the room. The floor is inlaid with two or three differently coloured woods, which are kept highly polished. After the drawing rooms come the ladies' apartments, as they are termed, often twelve or fifteen in number, and including three or four state rooms. The fancy woods for the furniture are of a great variety of kinds, and are highly polished. There are rich silk draperies, and the walls are either painted in fresco or hung with silk. The ceiling is generally painted in distemper with an allegorical or other design. Chandeliers pendant from the ceiling are not much used; but almost every room has a magnificent looking-glass, the manufacture of which is conducted with much skill in Russia.

One of the most remarkable characteristics of these Russian mansions, is the swarm (for it is nothing less) of servants. The master and mistress, as well as the guests, go to the ante-room at the top of the staircase, to throw off their outer garments, such as cloaks, furs, flannel boots, &c., and numerous servants are there ready to receive them. At dinner, one servant stands behind the chair of every guest. But these instances are comparatively commendable: it is

stated by all travellers, that a large number of the servants have absolutely nothing to do. It is only partially that the use of *bells* has been adopted in the Russian mansions, and where they are not used, a servant stands in each room to receive orders, and one or two boys stand at every door of the suite of rooms, and thus convey orders from one to another. But the possession of more servants than are wanted, is only a part of the evil; for it is customary for each servant to have his wife and family in the house, and not unfrequently his relations and friends. A Russian officer told Dr. Granville, that when he married, he had determined to reduce the number of his household, to something like a moderate limit, and he retained forty: in three or four years afterwards, he found that he was supporting double that number, the wives and children included. It was stated that the Countess Orloff had at Moscow so many servants that she established a hospital for them when ill: their number was eight hundred. Yet it seems, that there is not one female servant whose duties are equivalent to those of an English housemaid;—bed-making, dusting, sweeping, &c., are all performed by men. The existence of this peculiarity in the domestic arrangements of the Russians depends on the state of society in general in that country, and is influenced by causes too intricate to be explained here.

We may here consistently allude to the precautions which the Russians take to adapt their dwellings to the nature of the climate. The winters are very severe, and the difference of the arrangements for summer and winter is greater than that which exists in England. When the winter season is approaching, the better sort of houses are provided with double windows, an extra entrance door, and a peculiar kind of close stove. The mode of doubling the windows is this:—A dry day is selected, when every part of the window is as free from damp as possible, an additional window is fixed within the common one, and a layer of sand is laid at the bottom between them. The object of this sand is to absorb the moisture which may be contained in the air between the two windows, else it might be deposited on the windows and dim the glass. Both windows are caulked round the edges with taw, and one square of glass in each window is made to open by means of a hinge, so as to admit fresh air when required. The extra door which is put up at the entrance of the principal apartments is thickly wadded with a kind of hair-cloth, so as to shut in a completely air-tight manner.

Dr. Granville considers a Russian stove, or *petch*, to be "one of the greatest luxuries of civilized life that can be found in cold climates. It is by far a more rational and effectual mode of warming a house, than either the coal-grate of England, the blazing hearth of France, or the iron-stove of Germany. It supplies the best substitute for the genial warmth of summer within doors, and affords an equable degree of heat so universally spread in every part of the room that when the external air has been at 20° Fahr., I have gladly remained without any other than the lightest dressing gown, in my room, taking my station indifferently in any part of it, far from the stove, and frequently near a window, without any other than the most pleasing sensation of an equal warmth."—So very equable, indeed, is the warmth of the apartments shut in by double windows and warmed by a stove, that the inhabitants frequently sleep with only a single sheet on them.

The *petch* forms a principal article of furniture in each room. Frequently the stove is placed in the centre of the wall separating the two rooms, so as to warm both. The stoves are built of stone or brick, and cased with white porcelain: they are of great size, and extend to the ceiling. The internal arrangement is this:—There is a fire chamber occupying the lower part, and extends from front to back, being about a foot and a half wide, and two feet high; in this the wood is burned; and it is closed by an iron door. A tube within carries off the smoke and soot of the burning wood, and other tubes convey the heated air round every part of the surface of the *petch*, so as greatly to heat the brick and porcelain. The mode of "keeping the fire in," is totally different from ours. Twelve or fourteen large billets of elm, two feet long and three inches thick, are put into the fire-chamber and kindled. The iron door being left open, a most intense combustion of the billets takes place, during which the pipe, serving as a chimney, is left open. When all the wood is burned away, the chimney is closed, the iron door is closed, and the highly heated air is completely shut in. So excellent are these arrangements, that the heated porcelain, brick, air, &c., of the stove, will im-

part an agreeable warmth to the apartment for forty-eight hours after the fire is completely extinguished. There is a small door communicating from the air of the room to the heated air in the stove; this door is kept open or shut, according to the temperature required.

Such is the general nature of the Russian stove,—an arrangement so remarkably different from the open fireplace of an English house, that we could scarcely conceive the effects of it, were it not that within the last few years many improvements have taken place in the modes of warming English dwellings, chiefly through the philanthropic exertions of Dr. Arnott.

If we proceed onwards to Moscow, we find the character of the dwellings much changed. Although still in European Russia, Moscow presents many of the features peculiar to Asia. It is situated more completely inland than almost any large city in the world, and is so far removed from the countries of western Europe, that it partakes of but few of their characteristics. Its palaces are of immense size and grandeur, as this city is the principal residence of the great Russian nobles. The houses of the mercantile classes present a singular mixture of Asiatic and European construction, for Moscow is the mart through which the treasures of the East are diffused over Russia generally. The Chinese, the Turk, the Greek, the Tartar, the Calmuck, the Persian,—all visit and inhabit Moscow, for commercial purposes.

A few more words, and we must then quit the countries of Northern Europe. Mr. Laing gives a graphic picture of the domestic arrangements and modes of employment, in the houses of the respectable inhabitants of Norway. The family room, or hall, is sprinkled with fresh bright green leaves, which have a lively effect: everything is clean and shining: an eight-day clock stands in one corner, and a cupboard in another; benches and straight-backed wooden chairs are arranged round the room; and all the family occupations are going on, and exhibit curious and interesting contrasts of ancient manners with modern refinements. The process of carding wool and flax is conducted in one corner: two or three spinning wheels are at work near the stove; and a young lady will get up from these old-fashioned occupations, take her guitar in the window seat, and play and sing, or gallopade the length of the room with her sister. The breakfast is laid out on a tray at one end of this apartment, which is usually spacious, occupying the breadth of the house, and lighted from both sides. This meal is taken, standing: it consists of slices of bread and butter, smoked meat, sausages, dried fish, with the family tankard, generally of massive silver, full of ale, and with decanters of French and Norwegian brandy,—the latter being drunk only by the gentlemen. While the gentlemen are walking about, conversing and taking breakfast, the mistress is going in and out on her family affairs, servants enter for orders, neighbours drop in to hear or tell news, the children are learning their catechism, or playing about; and the whole is such a lively animated scene, everything is so clean and orderly, and the manners of the people towards each other in familiar intercourse are so amiable, that the traveller who wishes to be acquainted with the domestic life of the Norwegians, will pass an hour very agreeably in the family room. Coffee, if drunk in the morning, is generally taken an hour before the family breakfast, and in the bed room.

5. ITALIAN AND SPANISH HOUSES.

In leaving the climes of Russia and Norway for that of "Sunny Italy," we may naturally expect that the dwellings of the inhabitants, as well as the national character, present many marked features, arising partly from the early civilization and refinement of that people. The houses of the wealthy classes in Italy vary greatly with the position and nature of the towns. Under the general term, "Italy" we include the cities of Venice, Genoa, Milan, Florence, Rome, Naples, &c., although those cities belong to separate states, and are situated under different circumstances. We will therefore take a rapid glance at some of them in succession.

The mansions of the nobility at Venice, Forsyth tells us, are as various in their architecture as in their architects. Some display the light elegance of Sansovino; others the exuberant ornament of Loughina; and a few, the correct beauty of Palladio. They in general affect too many orders in front: each order has, absurdly enough, its full entablature; the lower cornices are as prominent as the upper, and

appear in profile so many separate roofs. In fact, the Grecian orders, being foreign to the manners and wants of a city built on the edge of the water, will never enter into its accommodation but at the expense of half their beauty and all their consistency. Most of the mansions have two gates, some three, in the middle of their fronts. On each side are two ranges of equal windows in the basement alone. Over the gates is a stately and decorated superstructure of balconies, arcades, and gigantic windows, contrived for Venetian pageantry, and set in studied opposition to the general style of the front, which this wide vertical breach divides into two. The windows are generally arched: in some mansions this arch is circular: in others it forms arabesque curves of contrary flexion, which finely contrast with the flat mass of wall. In some, even the Gothic church-window has been adopted. A great disfigurement to these mansions are the chimneys which are made prominent objects on the top. In former times the outsides of the Venetian houses were painted: even such men as Paul Veronese and Tintoretto were employed in that mode of decorating the houses: but in later times this custom has disappeared. The ceilings of the apartments are always decorated. But since the downfall of the Venetian republic, many circumstances have tended to reduce the splendour of the city. The large mansions, palaces, indeed as they may be termed, have many of them been deserted, sold, and dismantled, during the present century.

Let us now cross the north of Italy to *Turin*. This city is the capital of Piedmont, and is more regularly built than the generality of Italian cities; it has rather a modern appearance, and is very clean, an advantage gained by the flowing of much clean water through the streets. No mean suburbs, and no mouldering walls, deform its entrance. It contains spacious and regular streets, which intersect each other at right angles, and which lead to a grand square or *piazza* in the middle. Through the principal streets, each side exhibits a long and regular line of porticoes, presenting many beautiful specimens of architecture; while the balconies above them, canopied with light draperies, have a very pleasing appearance. The houses and hotels generally are said to present a very elegant appearance. It has been stated, however, as a strange instance of carelessness, that in many façades of very handsome architecture, the holes are still left gaping, which supported the scaffolding at the time of their erection.

Proceeding to the southward, we come to the famed city of *Florence*, the mansions of whose wealthy inhabitants are distinguished for much splendour. It has been observed by Mr. Bell, that in the best streets "each house is a palace; and a palace in Florence, is a magnificent pile, of a square bulky form, with a plain front, extending from two to three hundred feet, built of huge dark-grey stones, each measuring three or four feet." The general structure of these mansions is this coarse rubble work rising to a height of twenty or thirty feet from the ground. A stone seat runs the whole length of the front, which used, in former times, to be occupied by the dependants of the family, who frequently slept there, sheltered from the sun by an overhanging cornice. Large iron rings are sometimes seen fixed into the wall: these were formerly used to contain the banners of the owner,—to hold flaming torches,—and to fasten horses to. The lower range of windows are grated and barred with massive iron frames, which present much of the melancholy effect produced by prison windows. On the second story is a plain and simple architrave: the windows are high and arched, placed at a considerable distance apart, and from ten to fifteen in number, according to the width of the building. The third story resembles the second in its plainness, and in the number of its windows. The roof is flat, with deep cornice, and bold projecting soffits, which give a grand and magnificent effect to the whole edifice. The chimneys are grouped into stacks, the tops of which, increasing in bulk as they rise in height, resemble a crown. The slates with which the chimneys are built are ranged so as to act as ventilators. Two or three steps lead up to the porch of the mansion, the doors of which are studded with iron, both for the sake of strength and of ornament, and the entrance is an arched massive iron gate. The gates open into a court, the base of which is surrounded by a high arched colonnade, supported by marble columns. Entering from the court, a great staircase leads to a suite of noble chambers, halls, and saloons, hung with silks, and richly adorned. The ceilings are lofty and finely painted; the beams being displayed, and carved, ornamented and gilt. The arcades of the court support the galleries,

which, in former times, were generally filled with fine paintings, statues, and vases.

"In such palaces," says Mr. Bell, "the rulers, the magistrate, the noble, and the merchant dined, surrounded by their family and dependants. The manner of the times bore a character of manly simplicity, which, singularly contrasted with the splendour of the rich possessions, and the importance of their political sway among nations. Their guests were seated, not by rule, rank, or birth, but in the order in which they happened to arrive. At the board of Lorenzo the Magnificent, whose court was adorned by the most distinguished men of the age, as well in letters and science as in rank, Michel Angelo and other celebrated artists were often seated next to himself. Nor did these habits lessen the respect or deference of the dependants, as we may judge by the picture given by Cellini and other writers of those days. From this combination of princely power and primitive simplicity, inducing that familiar intercourse of lord and dependants, rich and poor, arose those friendly greetings, those salutations in the streets, which to this day excite the admiration of strangers."

Proceeding southward from Florence, the two great cities which present themselves on the western edge of Italy are Rome and Naples,—two cities which have scarcely one feature in common,—which differ indeed as much as if they belonged to countries altogether different. At Rome there is a sober grandeur pervading everything. The visitor is in the heart of the Roman world, surrounded by innumerable evidences of past ages. There may be, and are, bigotry and superstition at Rome, but there is very little frivolity. The character of the inhabitants, and the nature of their houses, have a kind of gravity about them that does not fail to strike a stranger. In Naples it is altogether different: the fronts of their houses, like their hearts, are all window: all is light, joyous, frivolous, and—vicious. The Neapolitans, unlike other people, do not attempt to conceal their vices: they make fun of everything; they manage to extract a laugh from subjects which to others would seem to demand serious attention. The fine arts are at a lower ebb in Naples than at any other city in Italy, so that what refining influence there may be in such arts is lost to the Neapolitans. In Naples, says Mr. Forsyth, "even the lowest class enjoy every blessing that can make the *animal* happy,—a delicious climate, high spirits, a facility of satisfying every appetite, a conscience which gives no pain, a convenient ignorance of their duty, and a church which ensures heaven to every ruffian that pretends to faith. Here tatters are not misery, for the climate requires little covering; filth is not misery to them who are born to it; and a few fingerings of macaroni can wind up the rattling machine for the day." The inhabitants of Florence stand midway between those of Rome and of Naples, and perhaps avoid many of the vices of both. And in that particular feature in which we have at present to do with them,—their dwelling,—the same will apply. Give a little more sombreness to the mansions of Florence, and you have those of Rome: give them more frivolity, and you have those of Naples.

The houses of Spain present that mixed character which is likely to result from the successive conquest of a country by different nations. Spain is one of the countries in Europe (the other being Turkey) which have been under the Mohammedan yoke, and this circumstance has not failed to impart to the dwellings of some parts of Spain that peculiarity which is seen in most Mohammedan dwellings;—we mean, a large central court surrounded by buildings on every side. As we shall shortly describe these courts somewhat minutely, we will not dwell on them here. Those parts of Spain which were able to resist the Moorish invaders, have retained most of the features which distinguish Italian and French houses of the middle class,—with the addition of a gloomy appendage called a *jalousy*, the nature of which we shall hereafter describe.

The houses of Seville are thus described by Standish:—"The houses of this town are perhaps the most picturesque in the world. You enter them from a porch, or zaguan, to a court, round which are marble columns, and these are found not only in the principal, but even ordinary habitations. The arches between the columns support galleries or rooms above. It is usual to inhabit the ground-floor in summer time and the upper story in winter. In the former season a canvass veil is placed over the whole court during the heat of the day, and removed at night, when the family collect together, to receive friends under the galleries, or in the courts, whilst flowers are placed round a fountain, which generally plays in the centre, the courts being often paved

with marble. The lamps which hang around the walls in symmetrical arrangement, the bubbling of the water, the fragrance of the flowers, the mystical green branches which spring up in every direction from large earthen pots, give an appearance of romance, which, added to the broken lights, the irregular architecture of the buildings, and the white Ionic columns of marble, present, in every house, a varying subject for the draftsman or the painter. To the sides of the walls are attached mirrors, which reflect all around, and pictures, amongst which were once works of art that would delight the connoisseur. It has been calculated that eighty thousand marble columns exist in Seville, but there assuredly must be a much larger number, for many are buried in the walls, others covered with plaster, and on an average every house possesses six."

From Spain we proceed to that country of Europe which approaches nearest to an Asiatic character, we mean Turkey. By speaking of the capital, Constantinople, we shall form a sufficient idea of other parts.

6. HOUSES OF CONSTANTINOPLE.

Constantinople, like most Mohammedan cities, is more distinguished for its mosques than for its private dwellings. The general character of its streets is narrowness and meanness; but the nature of the houses depends on the locality. The houses in the suburbs called Galata and Pera, in which most foreigners who visit the city take up their residence, are inhabited by the foreign ambassadors and other distinguished strangers, and are of course built in a style somewhat worthy of their reception. But the generality of the houses are said by Wheler to be low, and to be built of wood, so that fire frequently makes much devastation among them, especially from a custom which the Turks have of smoking in bed; and it is also said that these fires are not unfrequently the work of incendiaries, who are actuated by the hope of pilfering. The destruction of the houses themselves is no great matter, for the rebuilding costs but little, and the supply of timber is very abundant; but the burning of merchandize which often accompanies that of the house, is a distressing disaster to numerous families. When a fire commences, the Turks are frequently obliged either to pull down or to blow up several houses, in order to break the communication from one part of the town to another; otherwise the whole would be destroyed.

A curious class of houses in Constantinople are the *hans*, of which there are about two hundred. These hans are a kind of large lodging house. They are immense stone

buildings, inclosing a central square. The court is often ornamented with a grove of trees and fountains. The building, besides warehouses and stables on the ground floor, has three stories or galleries, one above the other, with ranges of small chambers, each of which is kept neat and clean by the servants of the *han*, and fitted up for the time with the carpets and slender wardrobe of the several occupiers. These *hans* are usually for travelling merchants; but are sometimes occupied as counting-houses by Turks who reside at Galata, Pera, or other suburbs of the city. What would appear remarkable to an Englishman accustomed to the commercial arrangements of hiring dwellings, &c., is that these *hans* are open to all strangers free, with the exception of a small fee to the servants. They are for men of all countries, and of every religion,—the poor and the rich,—and they have had the good effect of drawing merchants and merchandize to Constantinople. They belong to the Sultan, and the expense is defrayed by him. The private dwellings in Constantinople are not of such a description as to merit much notice here. They are chiefly distinguished for their flat roofs, by which they are known at a distance from the mosques, chapels, hans, bazaars, and baths, almost all of which have domes or cupolas. Adrianople, another city of the Empire, is the principal place of intercourse with merchants from Northern Europe, and the dwellings present that mixed character which almost inevitably results from such intercourse.

We have now conducted the reader to warm climates, among whose natives the industrious habits of Europeans are but little exercised; where the light of Christianity has as yet but dimly shone; where woman is known only to be degraded; and where polygamy has severed the lovely ties which join man, wife, and children in domestic union. These features of national character are observable in a fearful degree throughout the whole extent of Northern Africa, from Morocco to the Isthmus of Suez;—throughout Asia Minor, Syria, Arabia, Persia, Georgia, Circassia,—and indeed, we may almost say, throughout the whole of Asia southward of the cold regions of Siberia. In nearly all these countries, the houses of the inhabitants of higher and middle rank have this peculiarity which distinguishes them from the houses of Europe, that the apartments for the females,—called collectively the harem, or haareem,—are situated in a distinct part of the house, and are usually secluded with a jealousy which makes their inmates completely prisoners.

In another Supplement we will, endeavour to convey a general notion of the dwellings in these countries.



PETRARCH'S HOUSE AT ARQUA.

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THE MILK-GIRL, FROM A PICTURE BY GAINSBOROUGH.

GAINSBOROUGH AND HIS WORKS.

I.

THOMAS GAINSBOROUGH, who so greatly excelled among artists in the department of landscape-painting; was born in the year 1727, at Sudbury, in Suffolk. His personal history is, however, very defective, though his works are full of the truest nature, and the purest fancy.

Like the best of the poets, he was born a painter. He has said of himself, that during his boyhood, though he had no idea of becoming a painter, yet there was not a picturesque clump of trees, a single beautiful tree, hedge-row, stone, or post, for some miles round about the place of his nativity, that he could not well and perfectly delineate with his pencil.

Thus, the love of his art led him constantly among the ancient trees, the winding glades, and the sunny nooks. Scenes are still pointed out where he used to sit and fill his copy-books with pencillings of flowers and trees, and whatever struck his fancy; and it is said that those early attempts of the child bore a distinct resemblance to the mature works of the man. At ten years old he had made some progress in sketching, and at twelve he was a confirmed painter.

We are here tempted to narrate a story of one of his early works. On one occasion he was concealed among some bushes in his father's garden, making a sketch of an old fantastic tree, when he observed a man looking very wistfully over the wall at some pears, which were hanging ripe and tempting. The slanting light of the sun happened to throw the eager face into a highly picturesque mixture of light and shade: the young artist immediately drew a likeness of him, much to the poor man's consternation afterwards, and much to the amusement of his father, when the man was charged with the design of robbing the garden, and shown how he looked at the time. Gainsborough long afterwards made a finished painting of this Sudbury rustic,—a work much admired among artists under the name of Tom Peartree's portrait.

Though his early sketches made in the woods of Sudbury were numerous, few of them are now known to exist. As his reputation increased, he became less satisfied with such early proofs of talent, and gave them liberally away among friends and visitors. To one lady, we are told, he gave twenty of them: she pasted them on the walls of her apartment, and, on her leaving London, they became the property of the next inhabitant.

His talents being now universally acknowledged, his father was persuaded to send him to town. It appears that he was not more than fourteen years of age when he left Sudbury for the metropolis, and that he studied under Hayman, one of the companions of Hogarth. In the course of time he seemed to feel that no landscapes worthy of the art had yet made their appearance, and that his own works were essentially different from those on which the other artists were engaged. This consideration probably induced him to devote himself rather to landscapes. He remained in London four years, and acquired skill and experience in the management of colours.

Being now in his eighteenth year, he is spoken of as having acquired reputation by his talents, as evincing a modest gaiety in his conversation, and extreme elegance of person. It happened in one of his pictorial excursions among the woods of Suffolk, that he sat down to make a sketch of some fine trees, with sheep reposing below, and wood-doves roosting above, when a young woman entered unexpectedly, but very *à propos*, upon the scene, and was at once admitted into the landscape and the feelings of the artist. This young lady was Margaret Burr, of Scottish extraction, and then about sixteen years old, who not long afterwards became his wife.

Soon after this event Gainsborough removed to Ipswich, where he became acquainted with Thicknesse, the governor of Landguard Fort, in the following curious manner: The governor was walking in the garden of a friend, when he perceived a melancholy-faced countryman, with his arms locked together, leaning over the garden wall. He pointed out the man to his friend, who, with assumed gravity, observed that the fellow had been there all day, that he was to be pitied, as being either mad or miserable. The governor then stepped forward, with an intention to speak to the madman, and did not perceive till he had got close up, that it was only a wooden man, painted upon a shaped board.

The governor was informed that many had been equally deceived, and was subsequently introduced to the painter of it. Gainsborough received him in his painting room, where, he says, he found many so-so portraits, but some charming landscapes. George the Second, visiting Harwich shortly after, our artist was employed by Thicknesse to paint a view of a yacht regatta scene. The picture was engraved, and contributed to make the name of the artist known. Soon after this he went to Bath, where he chiefly occupied himself with portrait-painting, for the sake of a ready means of livelihood. He got a considerable quantity of employment. His portraits were executed at first for five, and then for eight guineas each,—afterwards forty for a half-length, and a hundred for a full-length. He was occasionally very fond of fun. Once a rich citizen sat to him for his portrait, "with a new five guinea powdered bob-wig on." Gainsborough found something so comical in the look of the citizen, that he burst out into a roar of laughter, of course gave offence, and lost his commission.

Before his arrival at Bath he had been employed by the governor to paint Landguard Fort, including the neighbouring hills, and the port of Harwich. An engraving of this picture spread abroad the name and fame of Gainsborough: Of the original painting of the fort nothing now remains: it was hung on a wall built with mortar mixed with sea-water, and so perished.

Gainsborough and the governor were both of them fond of music, as well as of painting, so that, during the years of their early acquaintance, they seem to have been mutually pleased with each other's company,—the patron being kind and the painter obliging; but, when the fame of the latter began to draw the attention and favour of the public, he scrupled less to let loose his natural disposition, which was of an independent and impetuous cast. The consequence of this spirit was, that the governor soon took offence, and the painter was less and less anxious to soften down the causes of offence. Governor Thicknesse has been accused of misrepresenting and villifying our artist in his memoirs of his early friend, but in the following paragraph, at least, we look in vain for the spirit of detraction:—

Nature sat to Mr. Gainsborough in all her attractive attitudes of beauty, and his pencil traced with peculiar and matchless felicity her knees and most delicate limbs, whether it was the sturdy oak, the twisted yew, the mower whetting his scythe, the whistling ploughboy, or the shepherd under the hawthorn in the dale,—all came forth equally chaste from his inimitable and fanciful pencil.

When the common topic of the weather is introduced in conversation, or presented to the mind, the agriculturist will naturally refer to its influence on vegetation; the physician to its effects on the health of the community; the man of pleasure may think only of its reference to the sports of the field; the philosopher may endeavour to seek for its cause in some preceding atmospheric phenomena; and another person of certain habits of observation may compare or contrast it with the weather of the same period in a preceding year. Thus, in five individuals the same topic may give rise to five trains of thought, perfectly distinct from each other, yet each depending upon a very natural and obvious principle of suggestion.

BRUNELLESCHI,
AND
THE CATHEDRAL OF S. MARIA DEL FIORE,
AT FLORENCE.

II.

IN 1420, the most celebrated architects of Europe again assembled at Florence. Brunelleschi was included in the number, and he flattered himself with the idea, that this grand convocation would supply him not so much with competitors, as with worthy witnesses of his triumph.

Whoever will reflect (says Quatremère de Quincy) on the existing state of the building art, reduced by all Europe to the conceptions and processes of the Gothic, to the entire exclusion of the architecture of ancient Greece and Rome; whoever will think of the novelty of a vault of such lofty dimensions, and of such a diameter, that it has never since been surpassed, need not be astonished at the weakness, or the absurdity of the projects which were presented to this numerous assembly; it seemed like a struggle for superiority in ignorance and marvellousness. Some proposed to raise up pillars, whence should branch off arcs as supports to the timber work destined to bear the weight of the cupola: others advised a great pillar in the middle as a central support: some recommended them to build up a mountain of earth by way of scaffold: they were to mix a large number of pieces of money in this earth, and when the work was finished, they might trust to the cupidity of the multitude to carry off this natural scaffold.

Brunelleschi had not foreseen that true knowledge, if put upon its trial before ignorant judges, must be condemned: since, if it gained the cause, the judges would condemn themselves. When he presented his project, they smiled at it as absurd: they did not understand him when he proposed to erect two cupolas, the one within the other, so as to leave a large empty space between them; but they laughed outright and called him *madman*, when he declared that he would employ no interior support,—no timber-work, to centre these immense vaults.

Brunelleschi believed for a moment that the fruit of so many years of toil was all lost. This assembly had only multiplied the doubts, and augmented the irresolution of the judges. Brunelleschi saw that nothing was to be gained by stormy debate: his strength lay in his own and true genius; and he declined further to risk the exposure of the one and the ridicule of the other, before the prejudices of blind and partial judges. He therefore began to attack separately those members of this assembly, which as a united body he could not move. He encouraged some; persuaded others; and half revealed to all the secret of a very simple method, which no one suspected on account of its simplicity. At the next meeting he experienced no more taunts and contradictions.

The elements of Brunelleschi's scheme were quite unknown to his competitors. Accustomed to the lightness of form, and construction of the Gothic, they only knew how to raise to a great height, by means of buttresses, walls hollowed out in a variety of ways; and croined vaults formed of small courses of masonry, where the whole thrust was divided and received by many points of support. But it was above all things necessary, in the erection of the projected cupola, to establish a new system of construction, to employ more powerful materials, more massive and simple points of support; so to act, that the construction, in this vast circumference, should of itself act as scaffold and point of support. Brunelleschi's model would have proved how all this could be done; but he was content to silence his opponents by argument alone: he did silence them, and obtained the suffrages of his judges; but his employers, in the absence of his model, would not allow him to proceed with the work to a greater height than twelve fathoms.

When truth is once established it is firm and immovable: truth cannot be in opposition to itself, but envy and detraction often exert their nefarious powers to obscure it. It was whispered about that the glory of Florence was sullied by intrusting so magnificent a work

to one single architect. A colleague was, therefore associated with him: this was Lorenzo Ghiberti, of whom Brunelleschi had formerly been the rival, was still the enemy, and had refused to become the associate. This man accepted the inglorious participation in a work to which he had contributed nothing, and from which his incapacity alone would have been sufficient to exclude him.

Brunelleschi became furious: the first impulse of his indignation prompted him to abandon the work and his native city for ever; his friends, however, managed to pacify him, and when he had cooled down, his course of action again showed his sagacity. He feigned illness, and thus left Ghiberti sole master of the works, in which situation Brunelleschi well knew that his incapacity for the task would quickly be displayed. Nor was he deceived. The frequent embarrassment and indecision of Ghiberti soon betrayed his ignorance, and some great and palpable errors into which he fell, opened all eyes to the perception of it. After great turmoil and difficulty, therefore, Brunelleschi was nominated sole architect and director in chief of the whole edifice.

From this moment he devoted his whole energy to the work. The smallest details did not escape his vigilant foresight. He directed each workman, but kept in his own hands the choice and destination of materials for his work. Not a stone, not a brick, was placed, without having been first examined by him. Each day he invented new machines, in order to simplify the work of building, or to abridge its operations. He saw, that in proportion as the building rose in height, the workmen lost their time, and expended their strength in fatiguing journeys. He remedied this inconvenience by establishing upon the vault of the church commodious shelters, and furnishing them with all the necessaries of life.

He had by this time displayed his model, by means of which his secret became universally known. No one was weary of admiring the rare skill with which the artist had comprehended all the details, small as well as great, of the construction; the foresight with which he had calculated the internal communications and supports, the openings for the admission of light, the ascending slope, the balustrades, the conduits for carrying off the rain, &c.; yea the minutest details did not escape him. But the greatest admiration was excited by the form and distribution of his materials, and by the mode of their combination, whereby that just system of equilibrium was established which, by mutual pressure produced mutual support, and united the several parts of this splendid dome into one grand whole.

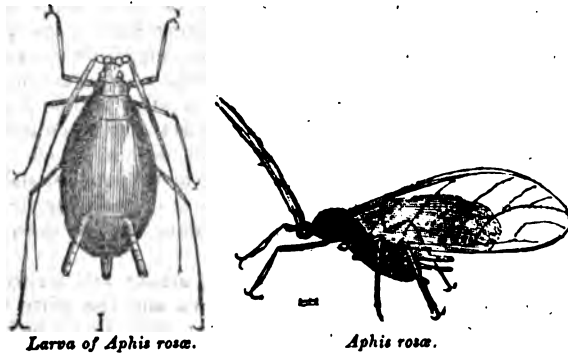
Brunelleschi had the satisfaction before his death to see his cupola completed, with the exception of the external tambour, and a few ornamental details, which he could afford to leave another less gifted individual to complete.

This great and celebrated enterprise, in spite of the multiplied embarrassments and cares which it procured him, was far from occupying the entire life of Brunelleschi. His celebrity caused his assistance to be sought for in many of the great works which were executed in his time, both in civil and in military architecture. Among other productions, we may mention the church of San Lorenzo, and the celebrated Pitti palace, both at Florence.

Brunelleschi died in the year 1444. His remains were interred in Santa Maria del Fiore, with much pomp and ceremony; a monument rising high above his remains that will perpetuate his name, and give to his memory the celebrity which that splendid edifice, after the lapse of nearly four hundred years, still continues to enjoy.

A COUNTRYMAN was shown Gainshorough's celebrated picture of *The Pigs*—"To be sure," said he, "they be deadly-l-ké pigs, but nobody ever saw three pigs feeding together but what one on 'em had a foot in the trough."—*Jesse's Gleanings*.

WHAT IS BLIGHT?

Larva of *Aphis rosa*.*Aphis rosa*.

The pursuits of the farmer, the gardener, and all those who are engaged in rural occupations bring them so much in contact with the productions of nature, that just in proportion as they are interested in understanding their qualities, should we imagine them to be acquainted with the different vegetables grown or reared for economic purposes; to understand the cause of the injuries they are subject to; and to devise efficient remedies for those injuries. But it happens unfortunately that these persons are for the most part quite ignorant of the natural history of the objects of their care; they adopt a certain routine of practice which they have been taught; but, as they are ignorant of the science of their processes, they cannot vary them to suit the exigencies of varying circumstances; and thus they are exposed to frequent loss and inconvenience. If they gather in an abundant crop, they are satisfied, and seek not to inquire why it was more or less abundant than that of succeeding years: but, if the crop fail, they attribute the loss to the attacks of birds, of insects, and above all to the influence of *blighting* winds.

In rural pursuits there is probably no word so much used as *blight*. When the wind is easterly and the country clothed in blue mist the farmer looks anxiously towards his crops and says, there is "a *blight* about." The gardener looks at the yellow sickly appearance of his fruit trees, their leaves or blossoms curled up and destroyed and refers this to the effects of *blight*. The hop grower sees his expectations defeated by myriads upon myriads of green insects which completely overrun and desolate his grounds, and he calls this a *blight*. The planter perceives innumerable small caterpillars swarming on his trees where the day before not one was visible: he remembers that an easterly wind has arisen, and calls it a *blight*. Since these and other similar misfortunes receive the indefinite and mysterious name of *blight*, it may be useful, as far as our present knowledge of the subject extends, to afford a full answer to the question *What is blight?*

The notion that certain small insects, such as caterpillars, aphides or plant-lice, are propagated or at least diffused by certain winds or states of the air, called *blight*, has been generally credited not only by intelligent persons but also by many good naturalists up to a very recent period. Mr. Main says, that when there is an easterly wind, attended by a blue mist, the latter is called a *blight*, "and many people imagine that the aphides are wafted through the air by this same mist." Mr. Keith says, "The farmer supposes these insects are wafted to him on the east wind, while they are only generated in the extravasated juices, as forming a proper nidus for their eggs." Dr. Mason Good says, "That the atmosphere is freighted with myriads of insect eggs that elude our search, and that such eggs, when they meet with a proper bed, are hatched in a few hours into a perfect form, is clear to any one who has attended to the rapid and wonderful effects of what, in common language, is called a *blight* upon plantations and gardens."

It seems to be generally admitted that insects are connected with *blight*, and that these insects appear only during certain states of the air. If, therefore, it be admitted that the wind has any thing to do in the production of *blight*, one of three things must occur: (1,) the wind must produce this *blight* spontaneously: (2,) the eggs from which the *blights* proceed must be wafted by the wind to a given spot: (3,) the prevalence of certain winds must have an influence in giving birth to certain insects inclosed in eggs previously deposited by parent insects upon the spot where the *blight* is seen.

That any state of the air or wind is adequate to the production of animal life, is a proposition so absurd in the present state of our knowledge, that we pass it by as altogether unworthy of serious notice. But that plants may be *blighted* or withered up by dry parching winds is fully admitted, for when a plant first produces its young branches and leaves, these parts are tender and succulent, and lose their moisture very readily, so that a certain state of moisture and warmth in the air is necessary to effect the solidification of the newly-formed tissue; and if this state be maintained the branches and leaves become fully formed, and no *blight* appears. But if, as it often happens in this country, a dry easterly wind prevails, the young plants part with their moisture so rapidly that their roots cannot maintain a proper supply, and the tissue becomes dried up and scorched. Such is *blight*. The only apparent remedy is to supply moisture to the plants so attacked by washing them frequently with a syringe. Under such circumstances of *blight* it is not uncommon to burn large quantities of wet litter to the windward of the *blighted* plants, under the supposition that the smoke will destroy the insects which are the imaginary cause of the mischief. We need hardly say that if any good arises from this practice, it must be attributed to the moist warm smoke which envelopes the plants, most probably without destroying a single insect.

We have the evidence of the microscope to assure us that every drop of water teems with life; but it is only a fancy, quite destitute of such ocular evidence, which encourages us to believe the air to be equally prolific. It is difficult to imagine how the eggs of insects can be found in the air, for those of every known species are much heavier than air, and moreover the parent insects display the greatest anxiety to place their eggs upon or near the proper food of the young progeny. "To commit them to the winds," says an accurate observer "would be a complete dereliction of this invariable law of insect economy." And supposing we admit that the eggs are dropped by the mother insects while on the wing,

We must also admit (for there is no avoiding it,) that they continue to float about, unhatched, from the end of the summer till the commencement of spring, at which time only the broods make their appearance. Yet when we consider the rains, snows, and winds to which they must be exposed for six or nine months, we think the hardiest theorist would scarcely maintain that a single egg could outweather these vicissitudes, and continue to float in the air.

Nor is it possible that these eggs can be taken up simultaneously by a strong east wind, and deposited on plants, trees, or other objects where a *blight* suddenly appears, because when the eggs are deposited, they are, with very few exceptions, enveloped in an adhesive cement which glues them to the spot where they were first placed by the parent insect. It follows, therefore, from the statement of these few simple and well-attested facts that the second proposition must be dismissed as untenable.

We now come to the third proposition, and admit at once that the action of certain winds, influenced by variations in temperature, and other meteorological changes, seems to be capable of calling into life and activity, as it were in an instant, innumerable insects, which, one hour

were concealed each within its minute egg, and in the next hour burst forth to join myriads of its kind in the work of destruction. It is generally considered by naturalists, that the eggs deposited in the preceding autumn, having been laid at the same time, and exposed to similar atmospheric changes, are necessarily hatched at the same time in the spring, when, in fact, intelligence is obtained by the inclosed grubs, from the peculiar state of the air, that the fitting time for bursting forth from the egg is arrived. We propose to speak of the aphides or plant-lice more particularly in a subsequent article; but should the reader find it difficult to believe that the vast numbers of blighting insects often observable on plants have proceeded from the eggs deposited the preceding autumn, we may state, that, in the case of the aphides, the fecundity is almost incalculable. Réaumur proved by experiment that one aphid may be the progenitor of 5,904,900,000 descendants during its life; that in one year there may be twenty generations. Mr. Rennie has counted more than a thousand aphides on a single leaf of the hop; and in seasons when they are abundant—when every hop-leaf is peopled with a similar swarm—the number of eggs laid in autumn must be, to use the words of Dr. Good, “myriads of myriads.”

The reader will now have no difficulty in finding an answer to the question, “What is blight?” but we shall not perform our duty satisfactorily unless we enable him to convince himself that blight proceeds from insects the eggs of which were deposited by their parents the preceding autumn, by searching for and finding such eggs during the winter months, so as to be able to watch the phenomena of blight during the following spring, or to apply a timely remedy to its destructive effects.

The word blight is often applied to the mischief done by all such insects as are injurious to vegetation: and therefore includes many insects of various genera. It will be impossible to speak of these within the short limits of the present article, but on future occasions we may notice them. At present we shall restrict our notice to the history of one species only, which has been carefully studied by Mr. Lewis, and detailed in the *Transactions of the Entomological Society*.

If during the winter months the young branches of the apple tree or the hawthorn be carefully examined, certain small round and slightly convex patches will be discovered. These patches are somewhat less than the sixth of an inch in diameter, and are usually attached to the outside of the branches. Each of these little patches is the work of a small white or lead-coloured moth, studded all over with black spots, popularly called “the small ermine.” Each patch consists of a number of eggs, deposited in the month of June, covered with a glutinous substance which when newly applied is of a pale yellow colour, but from exposure to the weather becomes dark, and nearly resembles the bark of the branch. The eggs hatch in the early part of autumn, and the grubs remain confined during winter, at which time if the case be opened, a number of these little grubs, which are of a yellow colour, may be readily seen with the aid of a small magnifying glass. As soon as the trees begin to put forth their leaves, the grubs make their escape, and as they are yet in a feeble condition, and cannot eat the outer skin of the leaves, they burrow into them, where they are protected from the weather, and feed upon the pulp of the leaf. As they grow stronger, and perhaps also during some state of the air which is favourable to them, they gnaw their way out, and the anxious gardener, who has hitherto observed only the brownness of the leaves, caused by the burrowing of the insects within, but which he attributes to the withering effect of an easterly wind, is astounded when he perceives myriads of caterpillars swarming on the trees, and proceeding with alarming rapidity in their devastating course. The fact of their burrowing sufficiently explains the reason of this sudden appearance: it shows how one day not a

single caterpillar may be visible on the trees, and the next, they may be swarming with larvæ of so large a size as so forbid the idea of their having been recently hatched. The webs so often seen covering the branches of apple trees, and the hawthorn of the hedges, are the work of this little caterpillar; which after a time becomes of a lead colour spotted with black, and when full grown spins an oblong white cocoon, within which it turns to the pupa; soon after, the moth hatches, and generally about the month of June, if it be a female, deposits her eggs in the way we have already mentioned.

The cuts which accompany this article are highly magnified representations of the larva and the perfect insect of the rose-plant aphid: the small line which accompanies each figure is the actual size of the insect.

Among the various remedies for blight the application of the spirit of tar to the bark has been greatly commended; but Sir Joseph Banks found it sufficient for the protection of his apple-trees simply to remove the rugged and dead old bark, and then scrub the trunk and branches with a hard brush.

PRAYER IN CHILDHOOD

KNEELING in the congregation,
Bending at the lonely shrine,
To the Lord of all creation,

Saviour of the world, and mine—
Though his mercies well may raise
Man to loftiest heights of praise,
And the sins of man should be
Seals of man's humility—
Yet how oft I find I'm still
Strong in a rebellious will,
High in pride, in fervour low—
Wherefore, wherefore is it so!

Thoughts, whose incense should aspire
From the altar of the heart,

Kindled at the sacred fire,
Faith, and Hope, and Love impart,—
Thoughts, to which celestial birth
In the spirit's depths seemed given,
With the grosser fumes of earth
Mixed, and marred, ascend to heaven,
Cold and lifeless, dull and slow—
Wherefore, wherefore is it so!

I can bend my backward gaze
To the dream of childish days;—
Oh! what else can childhood seem
Than a swift and happy dream,
Bright—while yet our sorrows sleep—
Whence at length we wake, and weep?—
Yes! I can point to early years
Memory's glass, though dimmed with tears,
And in thought once more survey
Times, when I was wont to pray
By the evening star's first shining,
Ere upon my bed reclining,
And when morn, with radiant finger
Smiting soft the curtained pane,
Bade those “slumbers light” not linger,
Which shall ne'er be mine again.—
Then indeed I *listened* my prayer,
Yet my spirit seemed to share
Twice the warmth it now doth know—
Wherefore, wherefore is it so?

'Tis, when the heart is soft and young
That most to heavenly strains 'tis strung—
Ere yet the world's rude discord grieves
The song of heavenward hope it weaves;
Ere yet the world's cold fetter flings
Its burden on the spirit's wings,
And down with deadening influence weighs
The upward flight of prayer and praise;
Or thoughts that bind the soul in sin
Are fortress'd into strength within;
Or idle sneer and impious doubt
In secret ambush lurk without,
And with a fiendish joy efface
The tender growth of early grace!—J. S. B.

THE STONE-QUARRIES OF EGYPT.

WE give this article the foregoing title, because it is our object to point attention to the localities which gave birth to those enormous masses of stone which have been, during former ages, distributed over the land of the Nile from south to north. These still remain; but, for the most part, show no relation to the soil where they are now found to exist. The enterprise and research of modern travellers have, however, discovered rational means of accounting for most of the works of art and might, by which any of the ancient nations of the world have signalized themselves in the view of the people of succeeding ages.

It is, for our present purpose, more correct and comprehensive to speak of the *land of the Nile* than merely of *Egypt*. The "valley of the Nile" is another elegant term for this wonderful region, which comprehends the countries of Egypt, Nubia, and Abyssinia. The river may be said to flow down from the Mountains of the Moon through Abyssinia, Nubia, and Egypt, into the Mediterranean Sea, or from south to north. Nubia and Abyssinia formed the Western Ethiopia of the ancients; and Egypt has always been considered to be divided into Upper and Lower; the Upper being southward and the Lower to the north; the latter comprising the Delta, near the sea.

Having thus spoken of the geographical character of the countries under our notice, we will now consider them in a geological point of view, restraining our observations, however, to the region properly receiving the name of EGYPT.

The land of Egypt affords to the notice of the geologist four distinct regions; three in the Upper Egypt, and one in the Lower.

1. The most southern, the *Granite* region, which extends from Philæ, through the cataract district to Syene. It affords besides granite, also *Syenite*, and some other crystalline primitive rocks. The finest granites and syenites, are red and highly crystallized; and are remarkable for their durability and the fine polish which they are capable of receiving. Colossal statues, pillars, obelisks, and even whole temples, are constructed of these beautiful rocks. Some of the pyramids are said to have been originally cased with slabs of granite.

2. The next, or *Sandstone* region, lies to the north of the granite, and extends from Syene, (Assouan,) northwards to Esneh, or over about one degree of latitude. This sandstone is by some authors referred to the *grès*, or sandstone of Fontainebleau, the paving-stone of Paris; by others, to the *molasse de Genève* of Switzerland; but all are agreed in considering it as a comparatively recent deposit. Its colours are white, grey, and yellow; it is very soft and easily worked, and the buildings constructed of it would probably not have long resisted the weather, had they not been covered with a coloured varnish. The great temples, and many pillars and obelisks, are of this sandstone; but it does not appear ever to have been used in building private houses.

3. To the north of the sandstone, but to the south of Thebes, is the *Limestone* region. This substance was formerly much used as a building material. The catacombs of Thebes are situated in this limestone.

4. The whole of Egypt to the north of the limestone, that is, the *Delta* region, is principally composed of *alluvium* (floating mud) deposited from the waters of the Nile.

It will be seen that the first three geological regions here spoken of belong to Upper Egypt, as likewise a part of the fourth.

Before speaking more directly of the quarries of Egypt, it may be well to observe that a quarry is an excavation in the ground, from whence are extracted marble, stone, or chalk, for the purposes chiefly of

sculpture and architecture. The name appears to have been applied to such excavations from the circumstance that the materials obtained from them, are there *quadrated*, or formed into rectangular blocks.

All the materials before-mentioned have been employed in the formation of the massive works which yet remain to attest the magnificence of the ancient people of this country. The walls of most of the temples were constructed of sandstone, which appears to have been chiefly obtained from the quarries stretching along the banks of the Nile, in the mountains of Belseleh; but the obelisks and statues which adorned those temples are formed of Syenite or Oriental granite, drawn from the quarries in the islands of Philæ and Elephantine, and particularly from those vast excavations in the mountain-terraces about Syene. At Saïs, in the Delta, we are told, there once stood a temple, formed of a single block of granite, which had been floated down the Nile on a raft from the quarry in Elephantine. Two thousand men were engaged for three years in the removal of this temple, which was more than thirty feet in length, twenty in breadth, and twelve in height; the stone was, on the average, about five feet in thickness. One of the pyramids is formed of limestone; a carbonate of lime, of a light gray colour; and the same kind of stone forms the interior mass of another pyramid, while the outside is covered with red granite.

The region of the granite, which may be distinguished by referring to the modern town of Assouan, extends from west to east, on both sides of the river; but the best specimens lie near the stream, and the granite loses its beautiful appearance the further we recede from the east bank towards the Desert. The red granite thus occupies only a small space, forming a kind of portal, or entrance, through which the Nile bursts into Egypt, forcing its way amidst innumerable isolated cliffs, which consist of the most beautiful rose-coloured granite. This red granite is known by its excellent colour, the magnitude of its crystallized component parts, and its hardness; owing to which last quality, it receives an exquisite polish. The rose-coloured feldspath, which sometimes approaches to a brick-red, forms about two-thirds of the mass: the intermediate spaces are filled with the sparkling mica and the glassy transparent-looking quartz. Hornblende is seldom found mixed with it. The Theban obelisks, and many other works of art, were made of this material.

In Upper Egypt, the dryness of the atmosphere, and the general steadiness of the temperature, have contributed, with the hardness of the material, to preserve the polished surfaces of the obelisks, and their more delicate sculptures, uninjured during the lapse of centuries: but those near the sea coast have had their surfaces decomposed by the action of the moist atmosphere.

Near the limits of the red granite are found several varieties, occupying a still more limited space, and forming a transition-series between this and the common granite. They differ from the red granite and from one another, both in colour, component parts, and the size of these component parts, some of which are very coarse, and others small and fine. We see in the existing specimens of Egyptian sculpture, that they often selected some of these varieties in preference to the red-coloured one.

The stone-quarries of Egypt and Nubia shew distinctly to the present day, the mode in which the stones were got out. In the face of the rock are seen a number of long horizontal lines, one above another: the vertical distance between any two adjoining lines shews the thickness of the piece cut out; while the length is clearly marked in several cases, either by the termination of the face of the rock on each side, or by a vertical mark on it, extending from one horizontal line to the next. The stones were taken out of the quarry just in the shape and size required, and were detached from the

mass one after another, by means of little wedges inserted in holes made on the two faces of the stone. Though this is a slow process, it is economical as far as the material of the rock is concerned, and was employed both in the granite quarries of Syene, and in those of Carrara, in the time of the Romans. At the latter place, it is the practice, at present, to blast the marble, by which about three-fourths of the material are wasted. The wedges used in Egypt were either iron ones struck all at once, or wooden ones which were moistened, so as to swell and start the stone from its position.

It appears that the catacombs and excavated temples, which are numerous in Upper Egypt, are, for the most part, the results of the quarries of which we have been hitherto speaking; that is to say, the quarried excavation became a catacomb or a temple:—both being alike devoted to the interment of the dead.

At the quarry of Gartaas, in Nubia, about twenty-five miles south of Assouan, is a small chapel, supposed to have been for the use of the workmen. The doorway, as in the case of most of the quarries in these parts of the Nile, fronts the river, and forms the entrance to the long open galleries which conduct to the excavations. The quarries on the east side of the river, at Hadjar Selseleh, contain representations, cut in the stone, of the implements used in quarrying: two of them look like wedges, but differ somewhat in shape; and another is in form precisely like the modern lever, which is used by masons for raising stones. It has a circular top, which might be a kind of ring, then a horizontal bar or bolt; while the lower part is a truncated triangle, with the base forming the lowest part of the instrument. From the numerous inscriptions existing in these quarries, it is evident that they were worked likewise by the Greeks and Romans.

The sandstone quarries of Hadjar Selseleh furnished the chief materials for the temples, as the granite quarries of Syene (Assouan) did for the obelisks and colossal statues. The Egyptians were careful to cut out such pieces as suited their purpose best, from among the several varieties of sandstone; and it is as easy to find large unbroken masses of this substance as in the quarries of Syene. Beams for architraves, to the length of twenty-five or thirty feet, and large pieces suitable for colossal sphinxes of nearly equal length, were easily procured in these quarries. The stone is soft and very easily worked. This is shown in the case of the colossal sphinx-head of the British Museum, which suffers considerably from the damp atmosphere of our climate.

The vast sizes of the stones that were transported from the quarries of Syene, to the most remote parts of Egypt, may be inferred from the huge statues, obelisks, and monolith† temples, of which specimens now exist. At the present day, there is a large cubical block lying in the road, between the granite quarries and Syene, which, from some cause or other, has never reached its destination. It has sculptures on two of its vertical faces, and is more than thirty feet every way. In another place was observed a block for a colossus, about sixty-eight feet high. It is supposed that the larger masses of rock used in constructing temples, &c., were taken in the rough to the place where they were to stand, and there received their full shape and decoration; at that the smaller members of the architecture were completed, or nearly so, in the quarry.

The ancient Egyptian method of producing the obelisk was as follows: They marked out in a hill aatum for the purpose; levelled the surface with digging tools; and then, with a chisel, cut some furrows or channels to define the opposite sides. These being excavated to a certain depth, they tore the obelisk from

the rock by the aid of the wedges, of which, vestiges now remain. In a similar way are still cut in France pieces of granite, forty-five feet long and eighteen broad. It was easier to seat a colossus on its pedestal, than to deal with an obelisk; the former having a comparatively large base, and being less liable to snap asunder. The obelisks when cut were placed upon sledges, and drawn to the river, where, a vessel or raft, purposely constructed, was firmly tied to the shore; and a bridge being made out of strong beams, from the edge of the shore, or from steps cut in the bank, and being made to project as far as the raft, any weight, by means of rollers, could be transferred to it. The stone was thus conveyed by the river to any part of Egypt.

The Egyptians being contented with low plinths instead of stylobates, the obelisks were thus erected; they were dragged from the river along a causeway made of earth or stones, until the base of the obelisk impinged over a hole made in the plinth. A tower of beams was then constructed, ropes tied round the top of the stone, and engines so disposed that it could be elevated. When it was raised to the perpendicular, it subsided into the cavity of the plinth by its own weight. In carving the figures the Egyptians seem to have used the same tools as the moderns; and they seldom used a pedestal for the obelisk.

UNINVITED GUESTS IN THE DESERT.

ALL was activity and bustle to prepare the coming feast. The kid was killed and dressed with great dexterity and despatch; and its still quivering members were laid upon the fire and began to emit savoury odours, particularly gratifying to Arab nostrils. But now a change came over the fair scene. The Arabs of whom we had bought the kid had, in some way, learned that we were to encamp near; and, naturally enough, concluding that the kid was bought in order to be eaten, they thought good to honour our Arabs with a visit, to the number of five or six persons. Now the stern law of Bedawin hospitality demands that, whenever a guest is present at a meal, whether there be much or little, the first and best portion must be laid before the stranger. In this instance the five or six guests attained their object, and had not only the selling of the kid, but also the eating of it; while our poor Arabs, whose mouths had long been watering with expectation, were forced to take up with the fragments. Besharah, who played the host, fared worst of all; and came afterwards to beg for a biscuit, saying, he had lost the whole of his dinner.—ROBINSON'S *Palestine*.

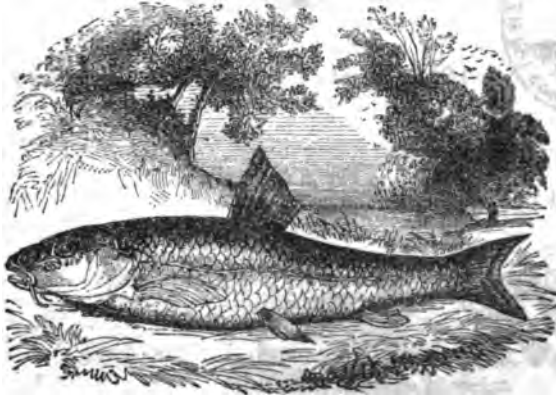
CANADIAN FOLIAGE.

BOTH the spring and autumnal colouring of the vegetable world are richer and fresher here than at home. Vegetation, long oppressed by a severe winter, bursts at once into luxuriance and liberty, with the apparent gusto of animal sensation, as if determined to enjoy the genial but transient summer to the utmost. In the autumn the juices are not dried up in the leaves by a slow sereing process, as in England, before they fall off shrivelled and discoloured, but the first smart night-frost in September changes the foliage at once, with much sap still circulating vigorously, into red, brown, yellow, or other tints, as if by a direct chemical or dyeing operation. All shall be green during our evening walk, and in the morning the aspect of the forest may be entirely metamorphosed, and we are presented with the most rich and varied picture of different but harmonious hues according to the nature of the leaf, its smoothness of surface, strength of texture, and the age of the branch from which it proceeds. The woods, at this season, present one magnificent and unrivalled mosaic painting. The birch and the white ash turn brown and yellow in a night; the butter-nut tree adopts a buff livery; the maple becomes of a rich blood red—every family has its own peculiar colouring, while the hardy pine tribe leaf defies the cold, and preserves its green unaltered amidst the general change. The nice grades of colour vary infinitely, according to the age and position of the trees, the quality of the soil, the earlier or later cold weather, the severity of the frost, with many other causes that have hitherto escaped observation.—*Trifles from my Portfolio*.

† See two interesting articles on *Cavern Temples and Tombs*.—Nos. 61 and 64 of this work.

† The word "monolith" is from the Greek, and implies the being made of a single stone.

FRESH-WATER FISH. IX
THE GUDGEON, (*Cyprinus Gobio*.)



Lee, in a little boat where one doth stand,
That to a willow bough the while is tied,
And with a pole doth stir and raise the sand,
Whereas the gentle streame doth softly slide,
And then with slender line and rod in hand,
The eager bite not long he doth abide.
Well loaded is his line, his hooke but small,
A good big cork to bear the stream with all.
His bait the least red worme that may be found,
And at the bottome it doth alwayes lie;
Whereat the greedy gudgeon bites so sound,
That hooke and all he swalloweth by and by.
See how he strikes, and puls them up as round
As if new store the place did still supply;
And when the bit doth die, or bad doth prove,
Then to another place he doth remove.

The present method of fishing for gudgeons is very similar to the picturesque description contained in the above lines quoted from *The Secrets of Angling*, a poem in three books by John Davers, or John Dennys, Esq., for it is uncertain to which of these gentlemen the poem is to be ascribed. The entry at Stationers' Hall, February 28, 1612, has only the initials J. D. attached to it; but Walton has no doubt that Davers is the real author.

The gudgeon is sometimes called the silvery olive carp: its upper lip is furnished with barbs, and the dorsal fin and tail spotted with black. One species only is known in this country, but probably another may exist. It is common in many parts of Europe and exhibits a striking instance of the power of fishes to accommodate their habits to various climates. This faculty is not so remarkable in marine fish because the temperature of the sea does not greatly vary in different latitudes; but the temperature of rivers must correspond with that of the soil and atmosphere through which they flow. Dr. Russell met with gudgeons in Syria; and Aristotle mentions them as being natives of Greece. They are common in Germany, where a smaller variety, called wapper, is also found.

The gudgeon is very common in our rivers, canals and still waters: it is found in greatest perfection and most abundantly in moderately swift rivers which flow over a gravelly soil. Their numbers are so immense that some naturalists have imagined them to spawn twice a year. It is most probable, however, that they spawn only once, but the time of spawning is different in different waters. The gudgeon spawns about May, but does not deposit its ova at once, but at distant periods extending through the space of about a month.

Some waters are more favourable than others to the growth of gudgeons. They are generally small fishes, seldom exceeding eight inches in length. Occasionally however they have been taken of larger size. Mr. Penant notices one caught near Uxbridge that weighed half a pound. Mr. Daniel states that he had some in a pond of his own, and that their average weight was five or at most six to the pound. Gudgeons are often taken in the

extensive waters of some parts of England in nets, nullies, keils, &c., for the purpose of baiting other fish, or for the markets. They are greatly esteemed as food, especially for invalids, and are reckoned to be very easy of digestion.

"They be scattered up and down every river in the shallows, in the heat of summer; but in autumn, when the weeds begin to grow sour and rot, and the weather colder, then they gather together, and get into the deeper parts of the water."—WALTON. The gudgeon is a ground feeder, as its barbs imply;—its food is water insects, small mollusca, and the spawn and young fry of other fishes.

Gudgeons are usually found in shoals; and will take almost any bait; so much so that a person who is easily imposed on by shallow devices is often called a gudgeon. Perhaps the most tempting bait is a small red worm as noticed in our motto; where the raking or the stirring up of the bed of the river is also noticed and is still adopted as an essential process in gudgeon fishing. The object of raking is to disturb the caddies, and various minute worms, water snails, &c., which lurk among the stones and gravel at the bottom of the stream and on which the gudgeons feed. The disturbance causes the fish to hasten to the spot for the purpose of getting an easy supply of food. Mr. Blaine says, that in the Thames as many as fifty dozen of gudgeons have been taken in a day.

A FIRST LANDING IN THE WESTERN IND.

The charms of a tropical country, when novel, are calculated to make a delightful impression on the mind: and as we roamed along the lanes and cane-fields of Santa Cruz during the first few days after our arrival, we could easily conceive the pleasure enjoyed by Columbus and his followers, when the fertility and beauty of West Indian scenery first burst upon their view. Many beautiful productions of nature however, not indigenous, are now added to the catalogue of wonders which inflamed the imagination of Columbus.

Almost every plant we saw as we drove or rode about the country, from the largest tree to the smallest weed, was unknown to us, and formed the subject of a somewhat troublesome inquiry. It was a new world to us, as well as to its first discoverer; and several days must be passed amidst these scenes before one can obtain anything like a familiar acquaintance with the productions of nature. Splendid exotic plants, which would be regarded as rarities even in the green-houses of England and America, are cultivated in the little gardens of Santa Cruz; and the wild flowers are scarcely less attractive. Amongst them we observed large kinds of convolvulus, white and pink, yellow bell-flowers, scarlet creepers, bright blue peas of singular beauty; and, to crown all, the "Pride of Barbados," sometimes crimson, sometimes yellow, with butterfly petals, long pendant stamina, and acacia-like leaves, adorning the hedges in great profusion. The trees are for the most part bearers of fruit, and many of them are covered with luxuriant foliage. To select a few of the most remarkable, I would just mention the plantain and banana, (nearly the same in appearance,) with pendant leaves of vast dimension, and a profusion of finger-like fruit growing in clusters; the wild orange tree, covered at the same time with fruit and flowers; the lime, which lines the hedges, and is equally fragrant, producing in abundance a small kind of lemon; the guava, with pink blossoms and pear-like fruit, also frequent in the hedge-rows; the mango, heavily laden with foliage, and with fruit in its season; the maminee, growing to a great size, and profusely covered with glazed dark green foliage; lastly, the tamarind, with its light feathery leaves and long pods, which contain the fruit used for a preserve, spreading its branches far and wide, like the British oak.—GURNEY.

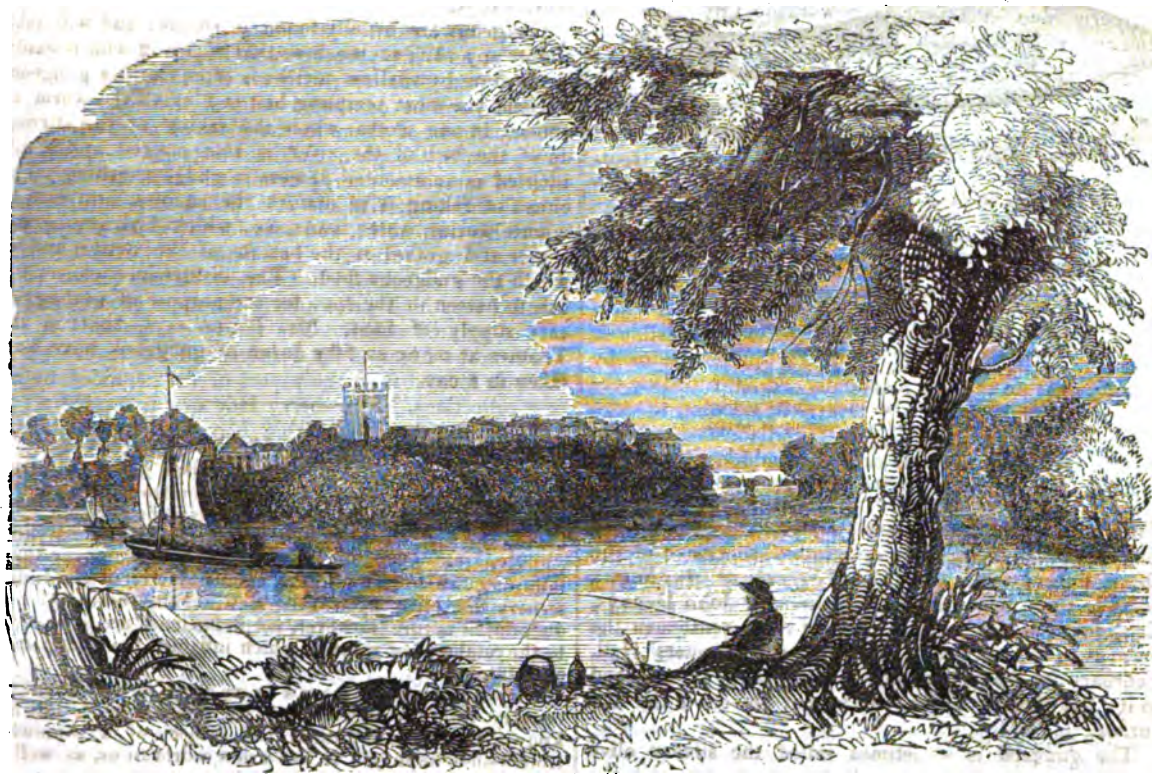
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THE BANKS OF THE THAMES. IX.



KINGSTON ON THAMES.

THE part of the river Thames to which we had conducted the reader in our last article, viz., the part contiguous to Hampton Court, presents a remarkably tortuous course, unfavourable to navigation, but greatly conducive to the picturesque appearance of its banks. A walk from Twickenham to Hampton, by the usual public road, would not exceed three miles, whereas by water the distance is seven or eight.

The portion of the river included between Hampton and Kingston is known to the lovers of poetry as the scene of one of Pope's finest poems. A lady of distinguished beauty, Mrs. Arabella Fermor, while being rowed along the river with a party of friends, had a lock of her hair stealthily cut off by a gallant who formed one of the party: the incident was trifling, and gave cause for offence to the family of the lady, but on this trifle Pope founded a poem of exquisite beauty.

Kingston, the next town to Hampton, but on the opposite side of the river, is one of the most ancient in this part of England. In the market-place of Kingston the Saxon monarchs of England used to be crowned, either on a raised platform in the open air, or in the church. Edward the elder, Athelstan, Edmund, Edred, Edwy, Edward the Martyr, and Ethelred, were thus crowned, between the years 900 and 978. Kingston was the scene of a romantic tale told by Hume the historian, relating to King Edwy and his Queen Elgiva, in which a knot of ambitious nobles effected the murder of the queen, after brutal violence, in revenge for a slight put upon them by the king and queen. Remote

as was the period of these events, there seems to be proof that Kingston is the site of a town many centuries older, or at least of an encampment; for, on digging the foundation for a new bridge, a few years ago, several Roman military weapons, consisting of spear-heads and swords, of beautiful workmanship and in a good state of preservation, were discovered. About the same time also several human skeletons, with Roman ornaments lying near them, were discovered in a neighbouring field on the Surrey side of the river. In a former article we alluded to the conjectures which have been made respecting the probable passage of Cæsar over the river near Weybridge; but these discoveries have given rise to the opinion, that Cæsar, on quitting his encampment on Wimbledon Common, crossed the Thames at Kingston; and that the skeletons were those of some of his troops that fell in endeavouring to force the passage of the river against the opposing Britons, whose slain are supposed to be interred in a tumulus (not yet opened) in a field called the Barrow field, on the Middlesex side of the river, and about half a mile from the spot where the weapons were found.

Over the Thames at Kingston was formerly one of the most ancient bridges on the river, it being mentioned in a record in the eighth year of Henry the Third. During the intestine commotions which from time to time disturbed the country, the bridge was frequently destroyed, to cut off the communication between Surrey and Middlesex. The bridge existing until about twelve or fourteen years ago was of wood, about five hundred

feet in length, and endowed with lands to keep it in repair. In the year 1828, however, it was replaced by an elegant structure of Portland stone, consisting of five spacious elliptical arches, and surmounted by a handsome cornice and balustrade, with galleries projecting over the piers: the expense being 40,000*l.* The town of Kingston carries on a considerable amount of trade; and since the opening of the London and South Western Railway, which passes close by Kingston, and which has a station at that place, the bustle of the town has considerably increased, and the route to many towns on the Middlesex side, which used to be followed on the northern side of the river, is now made through Kingston and over Kingston Bridge. With regard to the municipal affairs of the town, it is probable that the recent act has made some changes; but under the old system, the election of the members of the corporation was distinguished by a singular custom, said to be sanctioned by the ancient charter of the town. A match at football took place, in which the lower orders engaged with so much zeal and activity, that the inhabitants of the principal streets found it expedient to barricade all the windows in front of their houses.

Between Kingston and Twickenham the Thames presents a large number of swans, the conservancy of which is a curious part of the privileges of the Corporation of London. The Lord Mayor, either in person or by deputy, goes up the river annually, accompanied by the officers of the Vintners' and Dyers' Companies, to mark the young swans. By an act of parliament passed in the reign of Edward the Fourth, it was declared a felony, punishable with imprisonment for a year and a day, and a fine at the king's pleasure, to steal the swans' eggs. Coke mentions a curious law which was once in operation, for the punishment of any one who stole a lawfully marked swan from any open or common river. The swan was taken and hung by the beak from the roof of a house, so that the feet just touched the ground. Wheat was then poured over the head of the swan, until there was a pyramid of it from the floor sufficient to cover and hide the bird completely: this quantity of wheat was the fine paid by the culprit to the owner of the swan. The swans on the Thames have been alluded to by more than one of our poets, among whom is Spenser, who says:—

See the fair Swans on Thames' lovely side,
The which do trim their pennons silver bright;
In shining ranks they down the waters glide;
Oft have mine eyes devoured the gallant sight.

The part of the Thames at which we have now arrived is particularly rich in associations connected with our great writers and wits. Thomson, Pope, Horace Walpole, and many others whose names are known to every one, either lived or died in this immediate vicinity. Teddington, Twickenham, and Richmond, with the intervening country, form the locality to which we allude. Teddington is a small, quiet place, distinguished in a commercial sense as the spot to which the tides of the river ascend, but no higher. The little church at Teddington, with the surrounding villas and their ornamental gardens, presents a very pleasing scene as viewed from the river. Paul Whitehead, the poet laureate, and Dr. Hales, a man of scientific attainments, lie buried in the church. The Earl of Leicester, a favourite of Queen Elizabeth, and William Penn, the quaker, were residents at Teddington.

A little below Teddington we come to Strawberry Hill, a mansion celebrated as the residence of Horace Walpole, where he was visited by most of the poets and wits of the age. The site was originally occupied by a small house let out as a lodging-house. This passed into the hands of Colley Cibber, a dramatic writer, who penned some of his productions there. The third possessor was a Mr. Chenevix, from whom it passed into the hands of Horace Walpole, about a century ago. He

amused himself for many years in enlarging and beautifying the house and the grounds attached to it, and storing them with pictures, busts, and antiques of every description. In the architecture of the building, he borrowed specimens from the choir of the Cathedral Church at Rouen, from the tomb of Archbishop Warham at Canterbury, and from St. George's Chapel at Windsor. It has been well observed notwithstanding, that however elegant the internal decorations were, the place may be considered as a picture of the mind of him who formed it, in which there was nothing great. He was the son of a prime minister, Sir Robert Walpole, whose power was of long duration; his rank as Earl of Orford was among the higher orders of nobility; and his property was large. He was thence early inured to flattery, with all the indulgences of his situation, and he continued naturally enough to expect the enjoyment of them to the close of a very long life. His pursuits, though not without taste and elegance, had little of masculine energy or mental capaciousness. At Strawberry Hill, Walpole established a printing-press, where his own works, and occasionally a *jeu d'esprit* of a friend, were printed. The Strawberry-Hill editions, as they are called, which are now become scarce, command a very high price among the more curious collectors of printed works. The most distinguished of the works is the *Lives of the Painters and Engravers*, which Walpole formed from the papers of Vertue, aided by his own collections. Strawberry Hill was possessed a few years ago by the Honourable Mrs. Damer, to whom it was bequeathed by Horace Walpole.

The village of Twickenham, at which we next arrive, is more celebrated, perhaps, for having been the residence of Pope, than for all other circumstances put together. Who has not heard of "Pope's Villa at Twickenham"? The name of Pope's Villa is even now given to a building which is no more Pope's Villa than the Queen's Palace is the old Buckingham House. Pope built a villa which, after his death, passed into the hands of Sir William Stanhope; the third possessor was the Right Honourable Welbore Ellis, afterwards Lord Mendip; and the fourth was Lady Howe, who has replaced the old villa by one of more modern construction; so that the real villa of Pope does not now exist. Much indignation has been expressed by many writers at an act which tended so much to break up the local associations of the great poet, but Mr. Mackay remarks, that however much this lady may have destroyed of the poet's dwelling, she has left the *Grotto* for the reverence of posterity, by far the most valuable part of it, containing the rooms in which he was accustomed to study, and in which he entertained the poets and wits of his day.

The grotto here alluded to was made by Pope, about the year 1715, as a subterraneous passage to a garden on the other side of the road; and in a letter which he wrote to his friend Edward Blount, he gives an animated description of the manner in which he had planned and laid out this favourite retreat.

A little cell, on the left hand side of the grotto, used to be Pope's study, on almost every stone of which visitors have scratched their names. A cell on the right hand side was formerly occupied as a kitchen.

"Pope's willow" is almost as well known to fame as "Pope's Villa." The poet planted a weeping willow in his grounds, which was considered one of the finest specimens of that tree ever seen, and was protected and propped in its old age with great care by those who succeeded in the possession of the estate. Some stanzas were addressed to this tree by an admirer of Pope, of which we will here give two:—

Weep, verdant willow, ever weep,
And spread thy pendant branches round:—
Oh! may no gaudy flow'ret creep
Along the consecrated ground;
Thou art the Muses' favourite tree—
They loved the bard who planted thee.

But all the Muses' tender care
 Cannot prolong the fatal date :
 Rude Time will strip thy branches bare,
 And thou must feel the stroke of Fate :—
 E'en thou, the Muses' favourite tree,
 Must fall, like him who planted thee.

But "rude time" was not the only one who stripped the branches bare. The tree was almost *picked to death*, and then rooted up, a fate which has made many admirers of the poet very indignant against the proprietress of the grounds. But Mr. Mackay has, we think, stated the matter in a fair and just form, in the following remarks :—

There was formerly a willow-tree overhanging the river, which has also been removed ; but with the destruction of this Lady Howe is not chargeable. So numerous were the visitors, and such pilferers were they, where a relic was concerned, that the tree was soon stripped both of leaves and branches. Slips of it were sent for from all parts of the world ; and the owner was at last so pestered, that she was obliged, in self-defence, to uproot the tree, and make a relic of it, which would not entail so much trouble upon its possessor. Nothing but the root now remains, which is safely housed in the grotto ; forming a substance too hard to be taken away in little bits by the pen-knife of the visitor, and too bulky to be carried off entire. Visitors used formerly to play the same tricks with the very stones and spars of the grotto ; but, upon inquiry of our guide, we were informed that such was not the case now to any great extent, although occasionally a person is detected trying to notch off a flint or a shell, and a lady holding an open reticule ready to receive it.

The same gentleman, who visited the grotto at Twickenham a year or two ago, said that he apprehended the grotto would exist but a little time longer ; as the villa was advertised for sale, and there were rumours of an intention to pull down the grotto. In allusion to the manner in which local memorials of our poets and philosophers are gradually destroyed, he said that it is in vain to hope, unless Pope's Villa falls into the hands of an enlightened purchaser, that the grotto will be preserved, or that even a stone will be erected to mark the spot, and to say "HERE POPE SUNG."

Of the Thames in the vicinity of Twickenham, it has been remarked by writers of all grades, poets, painters, and topographers, that it presents scenes of extraordinary beauty. The river rolls on through meadows of the richest verdure, while its banks are adorned with the contrasted beauty of the villa and the cottage, in a long succession of edifices, which mark the taste and the opulence of those who possess them. In the middle of the river is a little island called Twickenham Ait, or more commonly "The Eel-pie Island," upon which there was until very lately a tavern famous for the mode adopted there in dressing the eels caught in the river.

HOPE ! of all ills that men endure,
 The only cheap and universal cure !
 Thou captive's freedom, and thou sick man's health !
 Thou loser's victory, and thou beggar's wealth !
 Thou manna, which from heaven we eat,
 To every taste a several meat !
 Thou strong retreat ! thou sure-entail'd estate,
 Which nought has power to alienate !
 Thou pleasant, honest flatterer ! for none
 Flatter unhappy men, but thou alone !—COWLEY.

In the Church of St. Peter at Cologne, the altar-piece is a large and valuable picture by Rubens, representing the martyrdom of the Apostle. This picture having been carried away by the French in 1805, to the great regret of the inhabitants, a painter of that city undertook to make a copy of it from recollection ; and succeeded in such a manner, that the most delicate tints of the original are preserved with the most minute accuracy. The original painting has now been restored, but the copy is preserved with it ; and even when they are rigidly compared, it is scarcely possible to distinguish the one from the other.

ON THE
 METHODS USED BY THE ANCIENT EGYPTIANS
 FOR TRANSPORTING AND ERECTING
 LARGE MASSES OF STONE.

THE character of the old Egyptian architecture is massy grandeur, adapted to giants rather than men. Hence it becomes a curious matter of speculation to refer to the means which we may suppose the ancient denizens of the Valley of the Nile to have employed, for *removing* from the quarries to their due locality the enormous stones which are scattered over the face of the country, and then for *erecting* them in a state of apparently imperishable firmness.

The extent of the quarries at Selseh, in Upper Egypt, which we have noticed in a former paper, is very great ; they are, in fact, of such an extent that masses of any dimensions might be hewn from them. In one of the quarries at El-Maasara the mode of transporting the stone is represented. It is placed on a sledge drawn by oxen, and is supposed to be on its way to the inclined plane that led to the river, vestiges of which may still be seen a little to the south of the modern village.

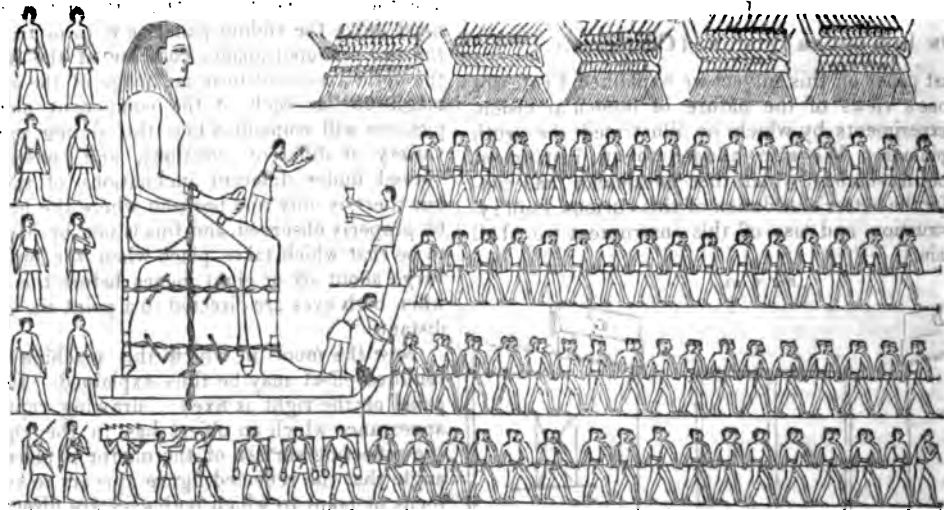
Sometimes, and particularly when the blocks were large and ponderous, men were employed to drag them. and those who were condemned to hard labour in the quarries as a punishment appear to have been required to assist in moving a certain number of stones, according to the extent of their offences, ere they were liberated. This seems to be confirmed by the following inscription, found in one of the quarries of Gertassy, in Nubia : "I have dragged 110 stones for the building of Isis at Philæ." In order to keep an account of their progress, they frequently cut the initials of their names, or some private mark, with the number, on the rock whence the stone was taken, as soon as it was removed, many of which signs occur at the quarries of Fateereh.

The blocks were taken from the quarry on sledges, and in a grotto behind E'Dayr, a Christian village between Antinoë and El Bersheh, was first discovered by Captains Irby and Mangles the representation of a colossus, which a number of men are employed in dragging with ropes. This colossus was probably not hewn in the hill of El Bersheh, but it is exceedingly interesting, from its being of a very early age, and one of the very few paintings which throw any light on the method employed by the Egyptians for moving weights, for it is singular that we find no illustration of the mechanical means of a people who have left so many unquestionable proofs of skill or capacity in these matters.

An engraving of this picture, which represents the transportation of a colossus, accompanies the present article. In the original picture 172 men, in four rows of 43 each, pull the ropes attached to the front of the sledge. The number may be indefinite, and it is probable that more were really employed than are indicated in the painting. In order to obtain a more convenient size for engraving we have diminished the number of men in each row before and behind ; otherwise we have given a fair representation of the Egyptian artist's work. A liquid, probably grease, is poured from a vase, by a person standing on the pedestal of the statue, in order to facilitate its progress as it slides over the ground, which was probably covered with a bed of planks, though they are not indicated in the painting.

Some of the persons employed in this laborious duty appear to be Egyptians ; the others are foreign slaves, who are clad in the costume of their country ; behind are four rows of men, who, though only twelve in number in the original, and diminished by us to *eight*, may be intended to represent the sets which relieved the others when fatigued.

Below are persons carrying vases of liquid, perhaps water, for the use of the workmen, and others with implements connected with the transport of the statue, followed by taskmasters, with their wands of office. On



TRANSPORTATION OF A COLOSSUS BY THE ANCIENT EGYPTIANS.

the knee of the figure stands a man who claps his hands to the measured cadence of a song, to mark the time, and ensure simultaneous draught, for it is evident that in order that the whole power of the drawers might be applied at the same instant, a signal of this kind was necessary.

The height of the statue appears to have been about twenty-four feet, including the pedestal. It was of limestone, and was bound to the sledge by double ropes, which were tightened by means of long pegs inserted between them, and twisted round until completely braced, and to prevent injury from the friction of the ropes upon the stone, a compress of leather or other substance was introduced at the part where they touched the statue. In the present instance the ropes attached for moving the mass are confined to one place, at the front of the statue, but in blocks of very great length certain pieces of stone were left, projecting from the sides like the trunnions of a cannon, to which several ropes were attached, each pulled by its own set of men.

We are given to understand that small blocks of stone were sent from the quarries by water to their different places of destination, either in boats or on rafts; but that those of very large dimensions were dragged by men, overland, in the manner already represented; and the immense weight of some of them shows that the Egyptians were well acquainted with mechanical powers, and the mode of applying a locomotive force with the most wonderful success. Their skill, however, was not confined to the mere moving of immense weights: their wonderful knowledge of mechanism is shown in the erection of obelisks, and in the position of large stones, raised to a considerable height, and adjusted with the utmost precision; sometimes, too, in situations where the space will not admit the introduction of the inclined plane.

Pliny, who lived about a century after the birth of Christ, describes a method of transporting obelisks from the quarries down the river, by lashing two flat-bottomed boats together side by side, which were admitted into a trench, cut from the Nile to the place where the stone lay, laden with a quantity of ballast exactly equal to the weight of the obelisk; which, so soon as they had been introduced beneath the transverse block, was all taken out; and the boats rising, as they were lightened, bore away the obelisk in lieu of their previous burthen.

However imperfect may be our knowledge of the means which the ancient Egyptians used for transporting the material of their buildings, we know perhaps still less of their methods of erecting them. Tradition had preserved to the time of Herodotus, who lived in the fifth century B.C., an account of the simple contrivance

used in building the Pyramids; which contrivance may have been also followed in the construction of other edifices. The pyramid was built in receding stages, the area of each stage being less than that below it. When the first level was finished, the stones intended for the second course were lifted upon it by means of cranes, or levers, and then removed to the proper distance from the edge of the platform. In the same way, the stones intended for the third level were raised upon the first step, and from that transferred to the next above it; and so on to the top of the pyramid. The peculiar advantage of this method consists in the small height to which each stone was to be raised at once.

It seems probable, in the case of other Egyptian buildings, that banks of earth in the form of inclined planes, or some such simple contrivances, were employed, rather than more complicated mechanical powers, for raising and adjusting great weights. It was probably easier for them to raise their stones by a frame-work and earth with receding stages, than to trust the prodigious masses of their architraves and cornices to any mechanical power which they could command. It was often the practice in Egyptian buildings to fasten the stones together by clamps of various kinds, as was once observed to have been done in the buildings of Memphis.

No insight, as has been already observed, is afforded us into the secrets of the mechanical knowledge of the old inhabitants of the Nile, from the sculptures or the paintings of the tombs, though so many and such varied subjects are there introduced. Our information connected with this point, is confined to the use of levers, and a sort of crane, as mentioned by Herodotus; but it is, however, certain that the ancients did raise enormous masses, apparently with a facility unknown to the moderns. This is proved by the ingenious experiments of Archimedes, who lived in the third century before the Christian era. Some suppose that it was this philosopher who raised the site of the towns and villages of Egypt, and began those mounds of earth by means of which communication is kept up from town to town during the inundations of the Nile.

We have nothing further to add to the foregoing remarks, than the presumption, that the main part of the secret of the mechanical means of the old Egyptians consisted in their almost unlimited command of human labour. By such means as this, most of the weighty works of building in former ages were probably effected; works which still continue, as they have done throughout so many generations, to surprise and delight the traveller in these latter times.

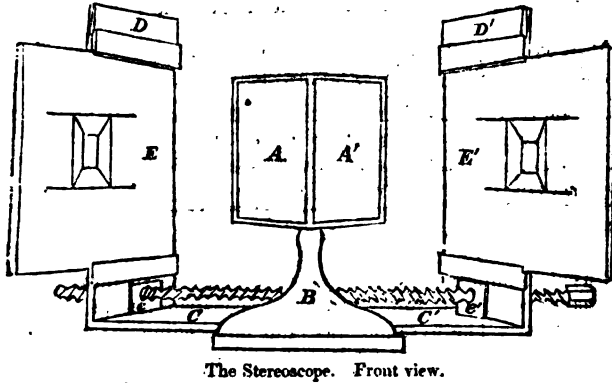
OPTICAL ILLUSIONS.

VIII.

ON BINOCULAR VISION. (Continued.)

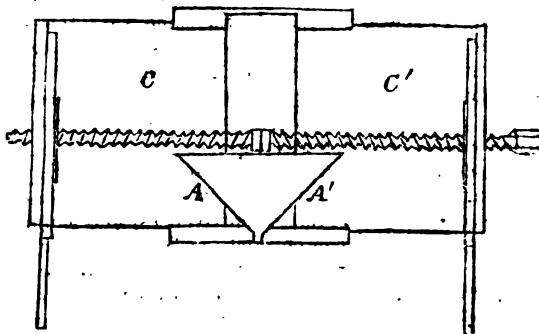
IN our last paper on this subject we explained Professor Wheatstone's views of the nature of binocular vision, and the experiments by which he illustrated the truth of his opinions. We also alluded to an instrument termed the *stereoscope*, which that gentleman had constructed for the better elucidation of this curious inquiry. The construction and use of this instrument we shall now explain.

Fig. 4 (a).



The Stereoscope. Front view.

Fig. 4 (b).



The Stereoscope. Plan.

Fig. 4 (a) represents the front view; and fig. 4 (b) the plan of the instrument, the same letters of reference being used in both. A A' are two plane mirrors, about four inches square, inserted in frames, and so adjusted that their backs form an angle of 90° with each other. These mirrors are fixed by their common edge against an upright, s, or else against the middle line of a vertical board, cut away in such a manner as to allow the eyes to be placed before the two mirrors. c c' are two sliding boards, to which are attached the upright boards D D', which may thus be removed to different distances from the mirrors. As it is necessary in most of the experiments that each upright board shall be at the same distance from the mirror which is opposite to it, this adjustment is effected by a right and left-handed wooden screw. The two ends of this compound screw pass through the nuts e e', which are fixed to the lower parts of the upright boards D D', so that by turning the screw pin one way the two boards will approach, and by turning it the other they will recede from each other, one always preserving the same distance as the other from the middle line. E E' are panels to which the pictures are fixed, in such a manner that their corresponding horizontal lines shall be in the same level: these panels are capable of sliding backwards and forwards in grooves on the upright boards D D'.

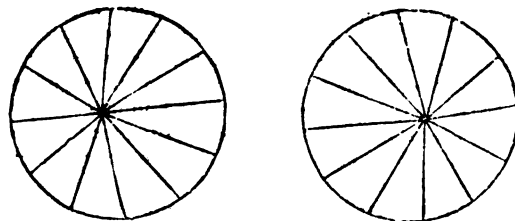
This being the nature of the apparatus, the mode in which Mr. Wheatstone directs it to be used is as follows: The observer must place his eyes as near as possible to

the mirrors, the right eye before the right-hand mirror, and the left eye before the left-hand mirror, and he must move the sliding panels E E' to or from him, until the two reflected images coincide at the intersection of the optic axes, and form an image of the same apparent magnitude as each of the component pictures. The pictures will coincide when the sliding panels are in a variety of different positions, and consequently when viewed under different inclinations of the optic axes, but there is only one position where the phenomena can be properly observed, and this is said by Mr. Wheatstone to be that which takes place when the optic axes converge about six or eight inches before the eyes, that is, when both eyes are directed to a point six or eight inches distant.

Now the mode in which this machine produces the required effect may be thus explained. In the sliding panel on the right is fixed a drawing representing the appearance which an object has to the right eye, and the reflecting surface of the mirror is placed at such an angle that the reflected figure appears to come from the focus or point to which both eyes are directed. By substituting the word "left" for "right," the same remark applies to the other half of the machine, and the effect is as if both drawings were placed at the point of convergence towards which both eyes are directed. The effect then is found to be, that the two drawings combined, one seen by one eye and the other by the other, give an image almost exactly resembling the solid object itself, with an appearance of relief, of solidity, of length, depth, and width, such as no single drawing, however, skillfully executed, could give. The two eyes, when looking at a near object, do not perceive it under exactly the same circumstances, or of the same form, and our notions of that object are derived from the combination of these two separate appearances: so in the *stereoscope*, (a term derived from two Greek words, which signify to "see a solid,") the two pictures presented by reflection to the two eyes, are not exactly alike, but by the proper focalization the combined effect of both is that of a solid body. The difference between the appearance of an object to the two eyes, or between the two drawings made in conformity thereto, is just this, that they are two different projections of the same object seen from two points of sight, the distance between which is equal to the interval between the pupils of the eyes of the observer, which interval is generally about two inches and a half.

The following are three of the arrangements which Mr. Wheatstone employed. In fig. 5 (a) are two cir-

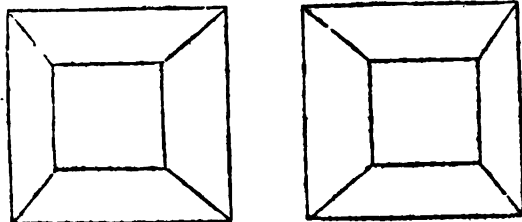
Fig. 5 (a).



cles, with lines drawn from the circumference to a point near, but not quite, at the centre: in one the point is nearest to the right-hand side, while in the other it is nearest to the left, and when both are placed in the stereoscope, one in the right-hand panel and one in the left, the combined image of both presents the appearance of a cone, with its axis perpendicular to the drawing, and its vertex towards the observer. The two drawings are, in fact, copies of the appearance which a small cone would present to the two eyes, with the apex towards the observer, and the effect of the instrument is to re-combine them, and produce the *relief* which the images of objects seen with two eyes are

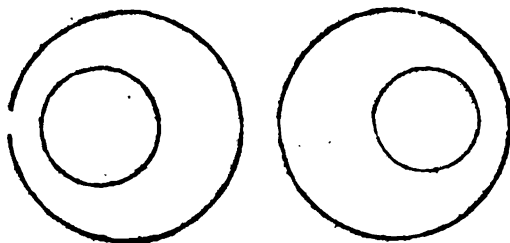
accustomed to present. In like manner the two drawings of fig. 5 (b) present in combination the appearance of

Fig. 5 (b).



the frustrum of a square pyramid, with its axis perpendicular to the picture, and its base farthest from the eye, and the two drawings in fig. 5 (c) give the appearance of two circles at different distances from the eyes, their centres in the same perpendicular, forming the outline of the frustrum of a cone.

Fig. 5 (c).



Mr. Wheatstone states, and a little consideration must show the necessity of the circumstance, that a remarkable inversion of the effect is produced when the drawing originally intended to be seen by the right eye is placed at the left hand side of the stereoscope, and that designed to be seen by the left eye is placed on its right hand side. A figure of three dimensions, as bold in relief as before, is perceived, but it has a different form from that which is seen when the drawings are in their proper places: it is in fact a converse figure. Those points which are nearest the observer in the proper figure are the most remote from him in the converse figure, and *vice versa*, so that the figure is, as it were, inverted; but it is not an exact inversion, for the near parts of the converse figure appear smaller, and the remote parts larger, than the same parts before the inversion. Hence the drawings which, properly placed, occasion a cube to be perceived, when changed in the manner described, represent the frustrum of a square pyramid, with its base remote from the eye. In many instances of this kind, when the regular figure presents an exterior or convex appearance, the converse will present an interior or a concave.

As a means of proving whether the binocular effects were produced in the manner supposed, Mr. Wheatstone procured several pairs of little outline or skeleton solids, that is, cubes, octohedrons, &c., formed of pieces of wire; and placed each pair successively on stands before the two mirrors. The effect produced may be illustrated by that of a pair of cubes. When they were so placed that the pictures which their reflected images projected on the two retinas were precisely the same as those which would have been projected by a cube, placed at the point of convergence of the optic axes, a cube in relief appeared before the eyes; when they were so placed that their reflected images projected exactly similar pictures on the two retinas, all effect of relief was destroyed, and the compound appearance was that of an outline representation on a plane surface; lastly, when the cubes were so placed that the reflected image of one projected on the left retina the same picture as in the first case was projected on the right retina, and *vice versa*, the converse figure in relief appeared.

In these experiments outline figures or models, uncoloured, were employed, in order to simplify the results;

for had either shading or colouring been introduced, it might be supposed that the effect was wholly or partly due to these circumstances; whereas by leaving them out of consideration, Mr. Wheatstone distinctly saw that the entire effect of relief is owing to the simultaneous perception of the two monocular projections, one on each retina. He thinks that, "if it be required to obtain the most faithful resemblances of real objects, shadowing and colouring may properly be employed to heighten the effects. Careful attention would enable an artist to draw and paint the two component pictures, so as to present to the mind of the observer, in the resultant perception, perfect identity with the object represented. Flowers, crystals, busts, vases, instruments of various kinds, &c., might thus be represented so as not to be distinguished by sight from the real objects themselves.

There is a singular confusion often presented by the geometrical figures contained in books of geometry. Whoever has paid any attention to this subject, is aware that figures of triangles, squares, circles, spheres, polygons, polyhedrons, &c., occur at every few lines in a geometrical treatise; and that such of these as pertain to solid geometry are intended to represent figures of which some of the angles, edges, or sides, are farther from the eye than others. Now it very frequently happens, that the parts which are supposed to be most distant, suddenly start up as it were into prominence, and appear nearest to the eye; and were it not that the engravers are accustomed to represent by *dotted* lines the parts most remote from the eye, this confusion would arise yet more frequently. Professor Neckar of Geneva notices this circumstance, and endeavoured to explain it by deferring it to an involuntary change in the adjustment of the eye for obtaining distinct vision. But Mr. Wheatstone attributes it to the uncertainty of the evidence presented to the eye by a mere picture, especially when entirely unaided by shadow or colour.

In one more article we shall conclude our notice of this very interesting series of experiments.

TURN on the prudent and thy heedless eyes,
Observe her labours, sluggard! and be wise.
No stern command, no monitory voice,
Prescribes her duties or directs her choice;
Yet timely providence she hastens away,
To snatch the blessings of a plentiful day;
When fruitful Summer loads the teeming plain,
She crops the harvest, and she stores the grain.
How long shall sloth usurp thy useless hours,
Unnerve thy vigour, and enchain thy powers,
While artful shades thy downy couch enclose,
And soft solicitation courts repose,
Amidst the drowsy charms of dull delight,
Year chases year with unremitted flight,
Till want now following, fraudulent and slow,
Shall spring to seize thee like an ambushed foe.—
DR. JOHNSON.

I HAVE thought the perusal of fine authors is like traversing the different regions of the earth: some glow with a pleasant and refreshing warmth, whilst others kindle with a fierce and fiery heat; in one we meet with scenes of elegance and art, where all is regular, and a thousand beautiful objects spread their colours to the eye, and regale the senses; in another, we behold nature in an unadorned majestic simplicity, scouring the plain with a tempest, sitting upon a rock, or walking upon the wings of the wind. Here we meet with a Sterne, who fans us with the softest delicacies; and there a Rousseau, who hurries us along in whirlwind and tempest. Hence that delightful succession of emotions which is felt in the bosom of sensibility. We feel the empire of genius, we imbibe the impression, and the mind resembles an enchanted mansion, which, at the touch of some superior hand, at one time brightens into beauty, and at another darkens into horror.—ROBERT HALL.

ON CHESS. XXI.

ORIGIN OF THE POWERS OF THE PIECES.

In our last article we noticed the attempt made to connect chess with two very ancient games. It is probable that a patient investigation of the subject would lead to the conclusion, that from the elements of those two games draughts was invented, and that the game represented on the Egyptian monuments (see *Sat. Mag.* vol. xviii. p. 20) was the offspring of Merelles and Petreia.

The moves of the pieces and pawns in modern chess appear so complicated, that at first view it would be thought hopeless to look to such a game as draughts for their origin. But an attentive analysis of the moves at chess reduces them to a very simple character, and it is not improbable that the moves of the pieces in a simpler and more ancient game, were similar in effect to the shortest move of the Rook together with the shortest move of the Bishop, and that these may now be taken as the type of the moves of all the pieces in the game of chess.

The Knight's move may be immediately cited as an objection to this supposition. If we bear in mind only the shortest moves of the rook and bishop, and then examine the mode by which the squares of the chess board are attached one to another, we shall see that they are connected either by an angle, which forms a path from square to square, by the contact of the diagonals,—or by a side, which forms a path from square to square between two parallels. The first of these movements belongs to the bishop; the second to the rook. Now the one of these movements seems to have been combined with the other, in order to give a move to the knight, and the combination was of the simplest kind, viz., a compound of the shortest path of the bishop with the shortest path of the rook; or *vice versa*: hence the path of the knight is always of the same dimensions. Geometrically, the knight's leap is always the hypotenuse of a right-angle triangle, of which the base equals twice the perpendicular, the latter being equal to the side of one square*.

From the limited information that we have been able to collect on the origin of the moves at chess, we are led to suppose that, at an early period in the history of the game, the moves of some of the pieces were limited to a single square at a time; that by a subsequent privilege each player was allowed to make several moves at once before his antagonist moved; and that, in the present state of the game, whenever a move is made by certain pieces of more than one square at a time, it is to be deemed as the result of such privilege now lost and forgotten.

But this privilege is to a certain extent preserved in the Hindostanee game, at the beginning of which four or eight moves, as may be agreed upon, are played upon both sides. In this game also the two royal pawns and those of the two rooks are allowed to move two squares each at first, so long as their pieces remain at their squares. The other pawns move only one square at a time. Some of the peculiarities of the Hindostanee game are still preserved at Ströbeck. Mr. Lewis says, "The pieces being placed as usual, each party is obliged to play his king's rook's pawn, queen's rook's pawn, and queen's pawn, two squares, and the queen to her third square." After this the other pawns can move but one square.

We are not aware of the precise powers of the pieces at the time of the introduction of chess into Europe; but we have abundant evidence to prove that they were very different to those exhibited on the modern chess board. In the thirteenth and fourteenth centuries, the powers of the rook, the knight, and the pawn, were the

same as at present; but many remarkable peculiarities belonged to the other pieces, which we will state at some length.

1. THE SHAH, REY, OR KING. The Eastern name given to this piece was *Shah*, equivalent to our European word *Rey* or *King*, and it is from this piece that the game derives its name. The original movement of the rey appears to have been extremely confined, he being incapacitated from moving, except when absolutely forced to do so by an adverse check; this may in some measure be accounted for by reflecting that, as the value of the king at this game is beyond calculation (since the instant he is mated the contest is decided), they were therefore the less willing to risk his person in the field. About the commencement of the thirteenth century the rey was allowed the shortest move of the rook, and the reason why he was not allowed to move nor to take angularly seems to be found in the taste that predominated in the twelfth and thirteenth centuries of moralizing almost every subject, viz., that the king ought to take everything justly and not in an oblique, i. e. indirect, manner. This restriction, however, was soon removed, and the rey had the power of moving and taking as well angularly as directly; but his range of action never extended beyond one square.

2. THE FERCE OR QUEEN. The name of this piece in Persian is *Phers*, which signifies a wise and learned man, capable of giving counsel to the Shah. We have already stated that, on the introduction of chess into Europe, the word *Ferce* was by an easy mutation corrupted into *Vierge*, a virgin, and afterwards into *Reyne*, a queen, though the old term *Ferce* still continued to be used, and the piece retained its originally limited movements of one square at a time, and that angularly, and never directly. The substitution of a female at this game, instead of the vizier of the Orientals, has been thus ingeniously explained: "Men are soon persuaded that the picture of human life, under which they represented chess, would be very imperfect without a woman; that sex plays too important a part not to have a place in the game; and hence they changed the minister into a queen, the similarity of the words *Fierce* and *Vierge* facilitating the change." The gallantry natural to an age of chivalry and politeness, subsequently converted the *Ferce* from the least considerable of the chess pieces to the most powerful in the game; but this gallantry introduced that strange anomaly into the game which destroyed its military character: a pawn or foot soldier having pierced through the enemy's battalions, was rewarded for his valour by promotion to the rank of vizier, minister of state, or general; but it is absurd to make the pawn change his sex, and from a foot soldier become a queen. This point is quite sufficient to prove that the second piece at chess has been improperly named *Virgin*, or *Queen*. The ancient writers on the game, to get rid of this anomaly, endeavour to insinuate that such pawns as are made *ferces*, were always females; but they explain this so very awkwardly, that the point is left precisely where it is taken up. Thus, in an early MS. quoted by Mr. Lake Allsp, the following lines occur in French:

Les damoiselles me vnt requies.
Ke leur guy ne eyst oblis.
E pur lamour qe a sus ay.
Leur guy en ceste cas' mettray.
Seygnours il pou' cos meot ayra.
Signifient meschines de pris.
Kar reynes faimes de pounes.
E de'kes ferces les appellomes.
E pur ceo damoiselles signef'nt
Non pas garconnes cu' les vnes di'nt.
Kar si il pou' males estoit.
Jumes femelles ne demerroyt.

The damaisls have requested me,
That their game be not forgotten.
And for the esteem that I bear to them
I will here describe their game.
My lords the pawns, as I think,
Signify ladies of value;
For pawns which become queens,
Then we call *Ferces*;
And because they signify damaisls,
They are not boys as some say,
For if the pawns were males,
They would never become females.

By means of such reasoning as this the author concludes,

E pur ceo ke ceste guy est ou pou'
Le guy de damoiselles appellom.

And because this is a game with
PAWNS,
The game of Damaisls we will th

* This ingenious theory of the origin of the knight's move is due to Feodoro Ciccolini, Marquis di Guardagnolo, whose work, "Del Cavallo degli Scacchi," appeared at Paris a few years ago.

3. **THE ALFYN OR BISHOP.** We have already spoken of the mutations to which the phil, or elephant (the Eastern name of this piece), has been subject in Europe. It was evidently as much at variance with the character of the game for us to name this piece the Bishop, as for the French to call it the Fool.

In the thirteenth century the alfyne had the diagonal move of our bishop, restricted in its range of action to the third square from which it stood. So that, in order to capture an adverse piece, it was necessary that the alfyne should be distant from it one clear square: thus, suppose a white alfyne to be on the fourth square of his rey, he could then capture any pawn or piece standing, 1, on the adverse rey's chivalier's *third* square; 2, reyne's alfyne's *third* square; 3, his own rey's chivalier's *second* square; and 4, his reyne's alfyne's *second* square. But as he was always incapacitated from moving to a greater or less number of squares, no piece could be either captured or considered *en prise*, if situated close to it, or removed at a greater distance than the *third* square. As a compensation for so confined an action on the board, the alfyne was allowed the vaulting power of the chivalier. Thus, if a white alfyne be on his rey's fourth square, a black or white rok on the adverse reyne's fourth square, and a black poun on his reyne's alfyne's third square, the white alfyne could capture the black poun, notwithstanding the interposition of the rok. The subsequent extension of the range of action of the alfyne deprived him, in the course of time, of this vaulting motion.

4. **The Asp or Horseman, Chivalier or Knight.** 5. **The Ruch, Ruk, Roc, or Rook,** that is, the camel or dromedary. 6. **The Beidak Poun, Pawn, or Foot-soldier.** The powers of moving and other prerogatives of these pieces have not varied since the introduction of the game into Europe. We need only remark, that to represent the swiftest piece on the board (as the roc was at one time), by a castle, is another strange anomaly in the game.

By referring to Caxton's *Treatise on Chess*, published in 1474, we find that the powers of some of the pieces had, at that time, become remarkably changed. The king, for his first move, was allowed to leap over the pawns, and pass to any one of the five squares, viz., king's knight's third, king's bishop's third, king's third, queen's third, and queen's bishop's third. Two out of these five moves are peculiar to the knight, and the other three are not recognised in modern chess. These two knight's moves were not permitted to the queen, because "it is not fitting ne convenable thing for a woman to go to battle, for the fragility and feebleness of her." The queen's first move could be made to her third square, to her knight's third, or to the king's bishop's third. After the king and queen had each been moved once, their moves were restricted to one square at a time: the former having the shortest move of the rook, and the latter the shortest move of the bishop.

The bishop had a prescribed move of two diagonal squares at once, as before noticed; one effect of this move being, as Caxton says, "that the alphin goeth in six draughts all the chequer round about, and that he cometh again into his own place."

The limited power of the king is ingeniously explained by reference to the power of the rook: "Forasmuch as the king holdeth the dignity above all other, therefore it appertaineth not that he absent himself long, ne withdraw him far by space of time from the master seat of his kingdom." The restricted power of the queen in this early state of the game is explained on the ground that "the king and queen be conjoined together by marriage, and be one thing, as one flesh and blood." It will be remembered that, at this time, the rooks were the most powerful pieces, but—

Forasmuch as they be vicars, lieutenants, or commissioners of the king, their authority is of none effect before they issue out; for as long as they be within the palace of the

king, so long may they not use ne execute their commission. But anon, as they issue they may use their authority. And ye shall understand that their authority is great, for they represent the person of the king, and therefore, when the tablier is wide, they may run all the tablier. In likewise as they go through the kingdom, and they may go as well white as black, as well on the right side and left, as forwards as backwards, and as far may they run as they find the tablier void, whether it be of his adversarie's as of his own fellowship. And when the rook is in the middle of the tablier, he may go which way he will, into four right lines on every side; and it is to wit that *he may in no wise go cornerwise*, but alway right forth. Wherefore all the subjects of the king, as well good as evil, ought to know by their moving that the authority of the vicars and commissioners ought to be very true, righteous, and just.

The powers of the knight and pawn seem to have been the same as in modern chess. When a pawn, however, arrived at the adversary's royal line, its promotion was modified by the singular powers of the queen. If the pawn reached the royal line on a black square, it then had the power of a queen placed on a black square, viz., to move on the black squares diagonally and one square at a time. If the pawn became a queen on a white square, then it could move only on the white diagonals one square at a time.

Our information does not allow us to trace the progress of the game from the time of Caxton, so as to shew the gradual steps by which the pieces became invested with their present powers. But we have said enough to show that chess, like all other human inventions, has been subject to progressive change and improvement; for notwithstanding the many anomalies in the modern game, its character is far more scientific and valuable than the game of the 13th, 14th, and 15th centuries. The powers of the pieces, as they at present exist, may be accounted for on very simple principles, if we are allowed to take the bishop and rook as types of all the rest. The diagonal move of the bishop seems to have been borrowed from the ancient game of merelles (to which draughts may also with great probability be traced), and the move of the rook may similarly owe its origin to the *verpue*, or game of pebbles. Now, granting this to be the case, we arrive at a very remarkable result by comparing the powers of the king, the queen, the knight, and the pawn with those of the rook and the bishop:

1. The king may make the shortest rook's move, or the shortest bishop's move; *but not both at once.*
2. The queen may make an optional rook's move, or an optional bishop's move; *but not both at once.*
3. The knight may make the shortest rook's move, and the shortest bishop's move, *both at once.*
4. The pawn may make the shortest rook's move forward, when it does not capture; and the shortest bishop's move forward, when it does capture.

We are disposed, therefore, to think it probable that the moves of the bishop and rook were derived from some game or games more ancient than chess, and that by certain simple extensions, modifications, or combinations of the moves of these two pieces, were derived the moves of the other pieces in the game of chess.

THE Dead are like the stars by day;
Withdrawn from mortal eye,
But not extinct, they hold their way,
In glory through the sky;
Spirits from bondage thus set free,
Vanish amidst immensity,
Where human thought, like human sight,
Fails to pursue their trackless flight.

JAMES MONTGOMERY.

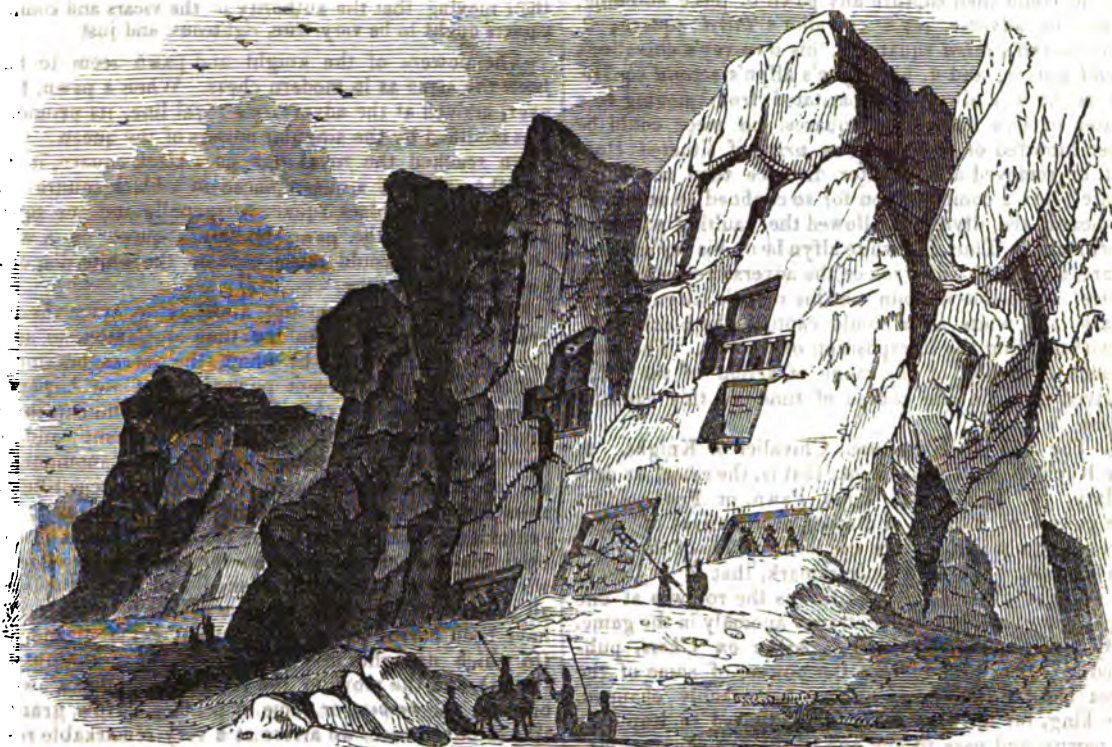
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NAKSHI-ROUSTAM, OR THE MOUNTAIN OF SEPULCHRES



MOUNTAIN OF SEPULCHRES.

THE extensive ruins of Persepolis, together with the mention made of that city by Greek writers, are sufficient to convince us that it was one of the most important cities in ancient Persia; and yet, owing apparently to its never having been the residence of the Persian kings, we meet with little to elucidate its history, or to satisfy the curiosity which is naturally excited by its magnificent and interesting remains.

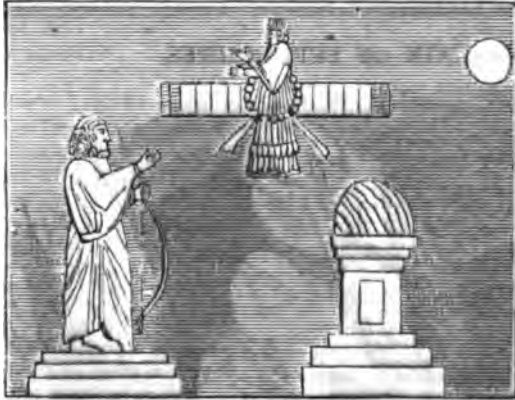
Independently of the objects of attraction presented by the site of the city itself, there is a curious specimen of the ancient grandeur of the Persians, situated to the north of Persepolis, and called NAKSHI-ROUSTAM, or the MOUNTAIN OF SEPULCHRES. This mountain abounds in sculptures and excavations, which have long excited the attention of the traveller, the artist, and the antiquary: it rises to an elevation of about three hundred yards, and is composed of a whitish kind of marble, in which the figures and excavations have been cut. At the upper part of the mountain are four excavations which seem intended for tombs. Sir Robert Ker Porter says they are "evidently of a date coeval with the splendour of Persepolis."

The external appearance of the four sepulchres is similar, and their internal structure probably presents no variety. The excavation examined by Sir Robert Ker Porter is cut about fourteen feet into the solid rock, somewhat in the form of a Greek cross: the upright division of it cannot be less than a hundred feet from end to end. The front of the tomb is ornamented with four round pilasters, distant from each other about seven feet, and as far from the caverned sides of the excavation: their

bases terminate by a tor on a plinth, projecting from the face of the tomb one foot six inches: their shafts are crowned by double bulls. An additional capital (composed of three square stones piled on each other, the smallest and lowest fitting into the cavity between the bulls' necks, with the largest stone at the top) supports a plain architrave. The entrance is between the two centre pilasters: the door frame is finely proportioned, with a carved projecting architrave nicely fluted and divided into leaves: but the greater part of the apparent door is only marked to resemble one; the actual entrance being comprised within a square space of four feet six inches.

The division above the front of the tomb is an excavation containing sculptured figures, and is made to resemble a sort of framework for the purpose of inclosing them. The figures are represented with their hands raised, and supporting two beautifully friezed cornices. The drapery of these figures is a short tunic; the waists of some are bound with a simple belt, and of others with a dagger hanging therefrom on the right hip; all are bare-headed, but the bushy appearance of the hair makes it resemble a wig. These figures, together with the cornices they support, form the face of a sort of elevated platform, something like the flat table-tombs of England; but the dimensions are very different. Each side of the structure is finished by a pillar of extraordinary shape. If it be divided into four parts,—the base resembles an urn, on which rests the huge paw and limb of a lion descending from the columnar part of the pillar, which is fluted horizontally half-way up; and from

its summit there issues the head and shoulders of the unicorn-bull, but without ornaments. The back of the neck unites it with the highest cornice, which forms the top of the structure; so that the heads of the two bulls which form the pillars at each end, rise higher than the plane they support. On this plane stands the group shewn in the accompanying illustration. A figure (most



probably representing the *archimagus*, or high-priest,) is elevated on a pedestal of three steps; he is dressed in an ample robe flowing down to his ankles; his left hand grasps a strung bow; his right arm is half extended with the hand quite open; his wrists are ornamented with bracelets; his head is bare, the hair bushy behind and neatly curled; his beard falls to the breast: opposite to him rises another pedestal of three steps upon which is placed an altar, probably containing the sacred fire, a huge flame of which appears at the top. High over it to the right, is a globular figure representing the sun, of which the fire below was esteemed the offspring and the emblem. These altars always stood towards the east, so that the worshipper might face the point of the horizon whence the great source of light ascended; and we here find the orb in such a direction. Another figure floats aloft in the air, between the altar and the archimagus, appearing as if it had issued from the sun; it approaches the man from that point. This aerial personage seems supported by something like a collection of sun-beams, thickly carved in waving, horizontal, and perpendicular lines, interspersed with several divisions of narrow cloud-shaped masses of stone. The radiation is not circular, but forms three distinct collections of rays, pointing east, west, and downwards; they diverge from a ring or halo, out of the midst of which rises the figure; it being entirely above this "beamy chariot," from the waist upwards. It is dressed in a similar robe to that of the priest, with the hair and beard in the same fashion: but the head is covered with a fluted crown; the left hand holds a large and massy ring; the right is elevated and open, as if in the act of admonition; a couple of bands, apparently the ends of his girdle, flow down through the circle, and the beams in which the figure appears, thus proving the aerial texture of the seeming vehicle. "But when we compare its forms, and the workmanship of its details, and its position with regard to its occupier, with the wings and finely-wrought feathers of the bas-relief at Pasargadae*, we can be in no doubt," says Sir Robert Ker Porter, "from the entire difference between them, that the radii we have been describing, form a means of passing through the air totally distinct from the personage that uses it."

The monumental elevation of which we are speaking, with its altar and other appendages, is comprised within a square frame of stone. On the four external surfaces at the front and the sides, our distinguished traveller found figures three deep, stationed one above the other;

* See the account of a remarkable Persian idol, in No. 814 of the *Saturday Magazine*.

those to the right of the altar, and with their faces towards the back of the man on the pedestal, are clothed in robes similar to his: and they have bonnets on their wig-like hair, resembling in shape the crown on the head of the aerial being, but with this difference, that they are not fluted; these figures are armed with spears; there are three of them in a perpendicular line on the front of the western aspect of the frame; and six rank and file on the side. In the opposite direction, on that part of the frame which is to the left of the altar, in the front is a perpendicular line three deep, of figures in precisely the same sort of dress as the spearmen, excepting that they are quite unarmed. These also look towards the altar, and appear as mourners; their left hands being raised to their faces, and holding a part of their garments, as if to wipe away their tears. Another line of figures is sculptured on the side of the frame, of which the mourning figures form the front; but here only one in three is in a weeping attitude.

To penetrate into the interior of the tombs was a work of no little personal danger as well as fatigues. The only means by which a stranger to these heights could reach them was by attaching a rope to his waist, and suffering some strong arms above to haul him upwards.

My mehmander was at his stories and forebodings again, (says our traveller,) for tempting such demon-wrought places. But the peasantry of this district seemed to know better than to have fear of either deed or difficulty; and one of them more active and sinewy than the rest, managed to scramble up the perpendicular cliff, like a rat hanging by a wall; and gaining the ledge of the platform, or vestibule to the tomb, he lowered down a rope, by which some of his nimble companions assisted themselves in ascending. I followed the example by fastening the rope round my waist, and by their united exertions was speedily drawn up to the place of rendezvous. The distance was sufficiently high from the ground to give me time for thought; and during my ascent, in a manner so totally dependent on the dexterity of others, I could not but recollect the fate of half a dozen kinsmen of Darius Hystaspes, who had all perished at once in the very same expedition. Ctesias relates, that this great Persian monarch 'caused a tomb to be dug for him while he yet lived, in the double mountain; but when it was completed, the Chaldean soothsayers forbade him to enter it during his life, under a penalty of some terrible danger. Darius was intimidated; but some princes of his family could not resist a strong curiosity which impelled them to view its interior. They went to the mountain, and by their desire were to be drawn up by the priests who officiated there; but in the act, while they yet hung between earth and air, the sudden appearance of some serpents on the rock so terrified the people above, that they let go the ropes, and the princes were dashed to pieces.' On this very spot, more than two thousand years ago, the catastrophe happened. Certainly being in any noted place, has a most amazing power in bringing two far distant points of time to meet; at least in the mind that contemplates them. I should have read the history on this disaster at home with almost as little concern as if the people had never existed; here I was on the spot where it happened, and the scene was realized; the persons seemed present with me, and I shuddered for them, while I rejoiced in my own safety. To incur the least possible danger to myself and my assistants, I had selected the tomb that was nearest the ground; but even that was upwards of sixty feet above its level; and I came off with not a few bruises, from hard knocks against the rock, in my swinging ascent.

After this perilous ascent our traveller made his way through a low and narrow entrance into a vaulted chamber, completely blackened all over by smoke of some kind, either from lamps or other fires: the place was stifling and gloomy; at its farther extremity were three arched recesses: each contained a trough-like cavity cut down into the rock, and covered with a stone of corresponding dimensions. Every one of these covers had been broken near the corners, evidently to give a view of the contents of the sarcophagus. A light was introduced into the recesses, by which the remotest cranny was seen, and all were found to be alike empty: not even any loose dust was present that might have formerly

belonged to some mouldered inhabitant. If these covers were at any time ever removed, they must have been very carefully replaced. The open space of the chamber between the catacombs and the door is about five feet; the entrance had been originally closed by a block or blocks of stone, the deep holes being visible on each side which received their pivots:—

I observed, (says our traveller,) some vestiges within, of the mode of hanging so ponderous a security; but the avidity of the spoilers for lead and iron has injured every part where the objects of their cupidity could be rent away. The surface of the door, as it appears without, is divided into four compartments; the lower one is entirely taken away, being now quite open to the air, with a small part also of the second division broken off, which probably happened when the passage was forced. When we look on these violences, committed on the last resting-places of the great, we cannot but be sensible that the humblest graves are the securest.

Every charity school for the instruction of the poor in the principles of our Church, and for their discipline in habits of industry and godliness, is to be considered as one of the bulwarks of our country; as a fortress, which it would be madness not to keep in repair; as a monument of the zeal and piety of our forefathers, which cannot, without sacrilegious neglect, be suffered to decay.—LE BAS.

WHAT IS HONEY-DEW?

In the summer months, when the weather is hot and dry, the foliage of trees and plants is often found covered with and rendered glossy by a sweet clammy substance known to persons resident in the country by the name of *honey-dew*; they regard it as a sweet substance falling from the atmosphere. The production of this substance has led to as many conjectures as that of Blight, notice in a former article. Dr. Mason Good says:—

I have seen a hop-ground completely over-run and desolated by the *Aphis humuli*, or hop green-louse, within twelve hours after a honey-dew (which is a peculiar haze or mist loaded with poisonous miasm) has slowly swept through the plantation, and stimulated the leaves of the hop to the morbid secretion of a saccharine and viscid juice, which, while it destroys the young shoots by exhaustion, renders them a favourite resort for this insect, and a cherishing nidus for myriads of little dots that are its eggs. The latter are hatched within eight and forty hours after their deposit, and succeeded by hosts of other insects of the same kind.

It has often happened to writers on natural history, that, while they successfully oppose those prejudices of opinion or vulgar errors which, from being constantly admitted without dispute, have obtained the strong hold of habit on the mind, yet fall into other prejudices, namely, those of sense or personal observation, and thus explode one error by the introduction of another which is more dangerous than the first because it receives the support of a learned man. Sir John Herschel says:—

Our resistance against the destruction of the other class of prejudices, those of sense, is commonly more violent at first, but less persistent, than in the case of those of opinion. Not to trust the evidence of our senses, seems, indeed, a hard condition, and one which, if proposed, none would comply with. But it is not the direct evidence of our senses that we are in any case called upon to reject, but only the erroneous judgments we unconsciously form from them, and this only when they can be shown to be so by *counter-evidence of the same sort*; when one sense is brought to testify against another, for instance, or the same sense against itself, and the obvious conclusions in the two cases disagree, so as to compel us to acknowledge that one of them must be wrong.

The short extract we have given from Dr. Good, contains several prejudices both of opinion and of sense. The entomologist is peculiarly liable to error, not only from the minuteness of the objects observed, but from the difficulty which often exists of distinguishing between a cause and an effect. The following details will enable the reader to trace to their source the errors contained

in the quotation, and to furnish an answer to the question, "What is honey-dew?"

During summer, if we examine almost any species of plant, an immense number of small insects will be found placed side by side, in large masses, upon the stalks and leaves. These insects are called *APHIDES*, *puosrons*, or *plant-lice*. The history of these little animals has been written with great care by some of the most celebrated naturalists; and many truly remarkable details have been supplied, which are too well authenticated to admit of dispute. But as the nature of these details renders them unfit for our pages, we pass on to the more immediate subject of the present article.

The aphides on the leaves or stems of trees appear to be in a state of total inaction; but they are in fact busily occupied in extracting the juices of the plant with their proboscs. Their punctures frequently cause sensible alterations and damage to the leaves, and even to the stems of trees, which become bent and contorted on the side attacked by the insects.

The curvings thus effected, (says Mr. Rennie,) become very advantageous to the insects, for the leaves, sprouting from the twig, which naturally grow at a distance from each other, are brought close together in a bunch, forming a kind of nosegay, that conceals all the contour of the sprig, as well as the insects which are embowered under it, protecting them against the rain and the sun, and at the same time hiding them from observation. It is only requisite, however, wherever they have formed bowers of this description, to raise the leaves, in order to see the little colony of the aphides, or the remains of those habitations which they have abandoned. We have sometimes observed sprigs of the lime tree, of a thumb's thickness, portions of which resembled spiral screws, but we could not certainly have assigned the true cause for this twisting, had we not been acquainted with the manner in which aphides contort the young shoots of this tree.

The leaves of gooseberry, currant bushes, apple trees, &c. are often seen covered with tuberosities; and on examining the under side of the leaf, a crowd of small insects will be seen feeding on the juices of the leaf and shielded from the weather and many of their enemies. On the leaves of the elm, the aphides produce vesicles, or hollow galls of about the size of a walnut and sometimes larger, within which a whole colony resides and the female deposits her eggs.

Most of the aphides are covered more or less with a cotton-like down. In those which infest the plum-tree and the cabbage this covering resembles flour. Those which live in the vesicles of the elm are entirely covered with this substance. In the aphides of the poplar it is in the form of cotton threads; but it exists in largest quantity on the aphides of the beech tree, on which species the threads are sometimes an inch in length; they are but slightly attached, and may easily be removed.

Were it not that the aphides are frequently exposed to the attacks of powerful enemies, it is probable that they would multiply to such an extent as totally to destroy the plants whose juices they suck. The various species of lady-birds, both in the larva and perfect state, feed entirely on aphides. They place their eggs on a leaf where aphides abound, and when the young are hatched they find themselves surrounded by their prey. The larvae of many species of two-winged flies (*Syrphidae*) also commit great havoc among the aphides. Mr. Kirby, in speaking of one of these larvae, says:—

When disposed to feed he fixes himself by his tail, and being blind, gropes about on every side, as the Cyclops did for Ulysses and his companions, till he touches one, which he immediately transfixes with his trident, elevates into the air, that he may not be disturbed with its struggles, and soon devours. The havoc which these grubs make amongst the aphides is astonishing.

The larvae of the lace-winged flies are such enemies to the aphides, that Reaumur called them "the lions of the aphides." The horticulturist removes large numbers of these destroyers of vegetables by means of a moistened

brush, or by burning sulphur or tobacco and conducting the vapours or the smoke by means of a bellows or a funnel to the parts affected.

So vast and so rapid is the increase of aphides, and so constantly are they engaged in sucking the juices of plants, that the reader need not be startled with the assurance that these little insects are the sole cause of the honey-dew which is often found so abundantly on the foliage of plants during summer. This fact is now established by the repeated observations of eminent naturalists; but for the sake of brevity, we propose to follow the details of Mr. Curtis on this curious subject.

Were a person accidentally to take up a book in which it was gravely asserted that in some countries there were animals that ejected from their bodies liquid sugar, he would soon lay it down, regarding it as a fabulous tale calculated to impose on the credulity of the ignorant; and yet such is literally the truth. The superior size of the *Aphis salicis* will enable the most common observer to satisfy himself on this head. On looking steadfastly for a few minutes on a group of these insects, while feeding on the bark of the willow, one perceives a few of them elevate their bodies, and a transparent substance is evidently ejected from the two horns which the aphides have at the hinder part of the body: this is immediately followed by a similar motion and discharge, like a small shower, from a great number of others.

On placing a piece of writing paper under a mass of these insects, it soon became thickly spotted. Holding it a longer time the spots united, from the addition of others, and the whole surface assumed a glossy appearance. I tasted this substance, and found it as sweet as sugar. I had the less hesitation in doing this, as I had observed that wasps, flies, ants, and insects without number, devoured it as quickly as it was produced: but were it not for these it might no doubt be collected in considerable quantities, and if subjected to the processes used with other saccharine juices, might be converted into the choicest sugar or sugar-candy.—CURTIS.

The aphides produce this substance in so large a quantity that the vesicles of the elm and the tuberosities of the gooseberry and currant-bushes often contain globules as large as a pea. It is at first limpid and transparent, but becomes thick by exposure to the air.

The origin of honey-dew is now completely established; but as the notion that this substance is formed in the atmosphere is still a favourite mode of accounting for its production, we will say a few words on the subject: and we may also notice another opinion, that honey-dew is an exudation from the plant itself.

If honey-dew fell from the atmosphere it would cover everything indiscriminately: whereas it is never found except on certain living trees and plants. It is also found on plants confined within hot-houses and green-houses. It is found more abundantly on healthy than on sickly trees, because the aphides select only the youngest and most healthy shoots. If the honey-dew exuded from the plant, it would present certain general and uniform appearances on all the leaves; but its appearance is very irregular, not being alike on any two leaves, some leaves having none of it, and others being only partially covered. Mr. Murray, who ascribes honey-dew to an electric change in the air, opposes the now received opinion of its production by aphides, on the ground that the substance "was very abundant on those plants that were entirely free from aphides;" but these little insects are very likely to escape notice unless we look in the right place: they are careful to eject the honey-dew to a distance from where they may be feeding. The source of the honey-dew on certain leaves must often be looked for in the leaves above, in the under surfaces of which myriads of aphides may lie hid. If anything should intervene between the aphides and the leaf next between them, there will be no honey-dew on that leaf.

Mr. Curtis has noticed, that where the saccharine substance has dropped from the aphides for a length of

time, as from the *Aphis salicis* in particular, it gives to the surface of the bark, foliage, or whatever it has dropped on, that sooty kind of appearance which arises from the explosion of gunpowder, which greatly disfigures the foliage, &c., of plants. It is often mistaken for a kind of black mildew, which it greatly resembles.

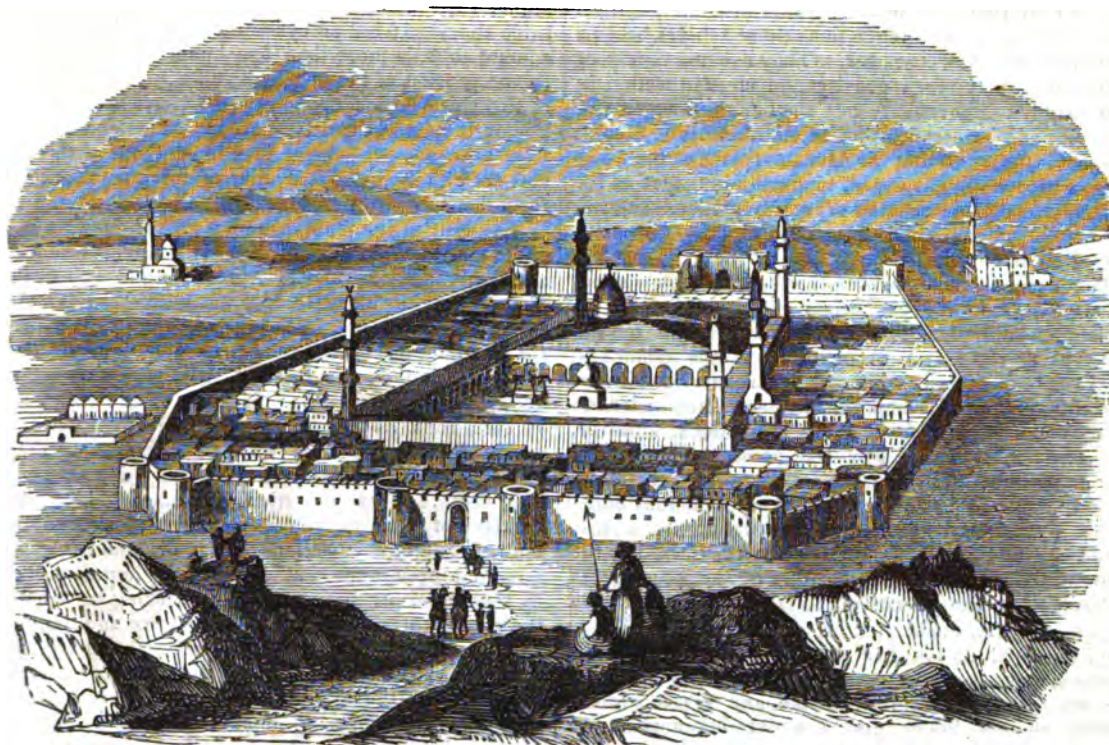


A BLIGHTED BRANCH.

TRULY it is difficult, in passing along the countries of which I am speaking (the neighbourhood of the Rhone), if we will but use our eyes at all, not to be forced to confess the irresistible and abundantly sufficient power of the agencies in daily operation to explain the dissolution which everything on the earth is undergoing. This progress may indeed be called slow in comparison to the quick march of our petty span of life; but the wear and tear of the mountains, and their final extinction, is no less a matter of physical fact than our own mortality is. It cannot, indeed, be denied that the Alps and Andes are longer-lived than we,—but even their age,—that of the hoariest-headed peak among them, Mont Blanc or Chimborazo, or the blushing Monte Rosa,—is really but an instant of time—a mere fraction—an infinitesimal moment—a single beat of the great clock of time, to say nothing of eternity! It is just the same when we come to speak of distances, since our longest stretch on earth, "from China to Peru," from "Indus to the Pole," or even our longest measurable spaces in the heavens, the aphelion of our most eccentric comet, lying millions of millions of miles beyond the orbit of Uranus,—what are they but insignificant portions of space, mere hair-breadths in the vast scale of even the visible or conceivable parts of astronomy?

To some minds these speculations, or, to speak more properly, these absolute certainties, are sources of pain and bewilderment rather than of pleasure. But it appears to me that, if well conducted, they are adapted to do good, by rendering us more contented with our lot, and more earnest in the performance of our duty, by filling our lives with more lofty and more cheerful objects of pursuit. It is surely a delightful reflection, and one filled with the brightest hopes, that, insignificant as we are, we are still capable of seeing and understanding so much of these things, and that we are permitted to reason upon them to a great extent, though we can see neither their beginning nor their end, nor can we interrogate their purpose. When rightly employed such speculations give, if anything on earth can, a foretaste of immortality, and tell, both to the reason and to the imagination, that the soul is not perishable: and thus, all such pursuits as geology and astronomy, properly carried on, do essentially contribute to fortify our faith in Revelation, by inculcating, or as it were enforcing the grand doctrine of dependence, and making us feel, at every turn, how powerless we are, and how powerful is our Maker, and yet how beneficent, and, above all, how uniform and how admirably consistent in all his operations.—CARLTON BASIL HALL.

TURKEY AND THE TURKISH PROVINCES.



MEDINA, THE BURIAL-PLACE OF MOHAMMED

HAVING already given a brief account of Mecca, we proceed to offer a similar notice of Medina, which is also one of the holy places of the Mohammedans. It may be well to glance at the geographical position of Medina, with respect to surrounding places.

In following the course of the Mediterranean from west to east, our progress is finally arrested by the coast of Syria, which forms its eastern termination; and at the southern corner of this coast, forming the south-eastern extremity or corner of the Mediterranean, we meet with a spot which is a boundary between Syria, Arabia, and Egypt, and also an isthmus of separation between the Mediterranean and Red Seas. From this isthmus the Red Sea extends, nearly in a south-eastern direction, for a distance of two thousand miles, till it joins the Indian Ocean. The coast then trends round towards the north-east, till we arrive at the entrance of the Persian Gulf, up which we ascend nearly in a parallel direction to the Red Sea. Now all the immense country bounded by these coasts,—the Red Sea on the west, the Indian Ocean on the south, and the Persian Gulf on the east, comprising an extent of territory more than three times as large as that of France,—is known by the general name of Arabia.

It is towards the western coast of this large peninsula that we must look for the city of Medina. It lies at a few days' journey from the coast (estimated, as "days' journeys" are in the East, by the rate of a camel's progress,) at about one third of the length of the Red Sea from its upper end, that is, about twice as far from the Straits of Bab-el-Mandeb on the south, as from the Isthmus of Suez on the north. On the western shore of the Red Sea, opposite Medina, we meet with the sandy desert which separates that sea from the fertile valley of the Nile; and eastward of Medina, we likewise meet with sandy deserts, so that were it not for the intervention of the Red Sea, the town would seem to be in the heart of a desert. We now proceed to speak of the town itself, and its inhabitants.

Medina (the ancient *Yathreb*), although the place of burial of the prophet Mohammed, is neither so cele-

brated as Mecca, nor is it considered so much an act of duty to make pilgrimages thither. A considerable number, however, of those who have gone through all the ceremonies and observances at Mecca which are necessary for their attainment of the title of hajjis, usually join the Syrian caravan, or form themselves into small detachments, in order to visit the tomb of their prophet. The distance between these two cities is about two hundred and seventy miles; and the time occupied by the journey is ten or eleven days, during which the pilgrims must be content to undergo many inconveniences and dangers; there being no public khan or place of accommodation for travellers through the whole route, and the depredations of Arab robbers being frequent and daring.

The city of Medina is situated on the edge of the Great Arabian Desert. A circle of twelve miles round the place was originally considered as holy ground, in accordance with the strict injunctions of Mohammed himself; but this precept is forgotten or entirely unobserved. The town is tolerably well built; the houses are for the most part two stories high, and entirely of stone. The principal streets are paved; but the rest are poor and narrow, only measuring two or three paces across. The city is surrounded by a wall, and on a small rocky elevation stands the castle, inclosed by a thick stone rampart, between thirty-five and forty feet high, flanked by towers, and defended by a ditch.

Unlike Mecca, the city of Medina is well supplied with water by means of wells and subterraneous canals, which are scattered throughout its extent; and in consequence it is not so entirely bereft of vegetation, or so dependant on other places for its supplies, as the former city. The suburbs extend to the south and west, and occupy a larger space of ground than the city itself, from which they are separated by an open space containing gardens, markets, and a few huts. There are very few public edifices at Medina; and for such as there are, the city is indebted to the Sultans of Egypt and Constantinople.

The inhabitants of Medina are a mixed race, the

greater part of whom derive their origin from foreigners who have been induced to settle in the city, with the hope of acquiring gain, in their traffic with the pilgrims. In the course of a few generations these settlers become Arabs in feature and character. They live in a very poor style, and display much gravity and circumspection in their outward deportment; but they are not more free from vice and immorality than the inhabitants of Mecca; indeed it is notorious that the Mohammedans of these two cities, where we might expect to see the influence of the better part of their religion especially predominant, are more depraved and immoral than those of any other city or country in the world.

The mosque which contains the tomb of Mohammed, and which is the principal means of support of the inhabitants of Medina, is situated towards the eastern extremity of the town. It bears some resemblance to the Temple of Mecca, being an open square, divided by a partition into two compartments, and surrounded on all sides by covered arcades; its dimensions, however, are considerably less, being 165 paces in length, and 130 in breadth. This mosque was greatly improved by the Caliphs, who bestowed on it many generous donations; and after its complete destruction by a fire, occasioned by lightning, when nothing remained but the tomb of the prophet, the restoration of the mosque was undertaken by the Sultan of Egypt, who erected it in its present form, in the year of our Lord 1487. There are five minarets, and four gates to this mosque; the principal entrance is extremely handsome; the sides of the gate being inlaid with marble and glazed tiles of various colours, which give it a dazzling appearance. At this gate the hajjis are obliged to enter when they first arrive at this city of the prophet, and at a fountain immediately in front of it, they are expected to perform their ablutions, ere they advance into the sacred area. In the northern division of the square stands a small building, in which are deposited lamps for the use of the mosque. The situation of the famous sepulchre of the prophet, is indicated in our engraving by the cupola, which surmounts the roof of the mosque, near one of the minarets. To preserve this venerated tomb from the too near approach of the devotees, it is surrounded by an inclosure called *El Hejra*, consisting of many columns supporting an arched roof; and these again are encircled by an iron railing thirty feet high, of so close a texture and so thickly interwoven with inscriptions, as effectually to hide the interior. There are several small windows in this iron screen, and at the principal of these the pilgrims offer their devotions. The glimpse which is obtained of the space inclosed by the railing, merely informs the worshipper that a rich curtain is carried round on all sides, resembling that of a bed, and that it is of the same height as the railing itself. The curtain or veil is of silk brocade of various colours, interwoven with silver flowers, and having a band of inscriptions in gold characters, running across the middle, like that of the covering of the Kaaba. Within this curtain no persons are allowed to enter, except those whose peculiar privilege it is to take care of the tomb, and to put on the fresh curtain on the accession of a new Sultan to the throne of Constantinople; for, as in the case of Mecca the splendid covering of the interior of the walls of the Kaaba is provided by the new Sultan, so here, the curtain for the prophet's tomb is received as a donation from the same hand. The remnants of this sacred brocade are sent back to Constantinople, and are used as a covering to the tombs of the sovereigns and princes there.

It is not the tomb of Mohammed alone, which occupies the space within this double inclosure; for there also are deposited the remains of his two friends, Abu Beker and Omar. The three tombs are said to be of plain mason work, covered with precious stuffs; but the accounts of different authors vary considerably, as to

their form and position. Lamps are suspended all around the curtain and are kept burning during the night; their number has been extravagantly stated at three thousand; but an eye-witness has declared them to amount to little more than one hundred. The story of the suspension of the prophet's coffin in the air by means of two powerful magnets, appears to have been an invention of the Greeks and Latins. The Moslems are so far from acknowledging themselves the authors of this fable, that they smile at the credulity of foreigners, at having for a moment given credence to the tale.

The visit to the mosque and tomb of Medina is not obligatory on "the faithful;" yet it is thought to be an act highly pleasing to the Almighty, and expiatory of many sins, while it entitles the pilgrim to claim as a right, the patronage of the prophet in heaven. So anxious are the inhabitants of Medina to confer importance on their city and on the tomb of their prophet, that they declare one prayer said within sight of the Hejra to be as efficacious as a thousand said in any other place except Mecca; and that whoever repeats forty prayers in this mosque will be saved from the pains of hell-fire after death. These assertions are calculated to attract numbers of poor misguided devotees, who, ignorant of the true and only expiation for sin, or unable clearly to discern it through the cloud of traditions imposed on them by their false prophet, are eagerly seeking to atone for the sins of their past lives, by a toilsome and dangerous pilgrimage, and an empty round of observances, which are little calculated to give peace to the conscience or satisfaction to the mind. Medina is reported to have been the depository of immense treasures in former days; but these accounts are probably much exaggerated; and though in the sanctuary of this mosque the precious things of Hejaz were certainly kept at one time, and formed no doubt a collection of great value, yet we are not to believe implicitly the stories of its vastness and immense extent. Notwithstanding the splendid exterior of the mosque, and the gay colours with which it is decorated, there is no appearance of real riches there at the present day.

It will bear no comparison (says Burchhardt) with the shrine of the most insignificant Catholic saint in Europe, and may serve as a convincing proof, that, whatever may be their superstition and fanaticism, the Moslems are not disposed to make the same pecuniary sacrifices to their religious foundations, as the Popish, or even the Protestant Christians do for theirs.

Medina is, or was lately, under the government and authority of a Turkish commander, who takes the management of the pecuniary affairs of the mosque, and of all other ecclesiastical matters. Next to him in importance is the Cadi; and many of the native Sheiks are held in great respect.

To have no assistance from other minds in resolving doubts in opposing scruples, in balancing deliberations, is a wretched destitution.—DR. JOHNSON.

LINES BY DR. SOUTHBY ON HIS LIBRARY.

My days among the dead are passed,
Around me I behold
Where'er these casual eyes are cast,
The mighty minds of old;
My never-failing friends are they
With whom I commune day by day
With them I take delight in woe,
And seek relief in woe;
And while I understand and feel
How much to them I owe,
My cheeks have often been bedew'd
With tears of thoughtful gratitude,
And from their lessons seek and find
Instruction with an humble mind

OLD ENGLISH NAVIGATORS.

WILLOUGHBY, CHANCELOR, AND BURROUGHS. I.

It is our intention to devote the present and one other paper to the lives of the naval commanders whose names are given above, because they may be called the friends and disciples of the illustrious Cabot, and because their labours were, for the most part, exerted jointly in the prosecution of a very memorable polar voyage.

Sebastian Cabot, as we have already observed (p. 12), was driven to the necessity of soliciting employment from the court of Spain, in consequence of the temporary abandonment of maritime enterprise on the part of the English. It so happened, however, in the year 1553, in the reign of Edward the Sixth, that the merchants of London projected a voyage, having in view to reach, by way of the north and north-east, the opulent and celebrated regions of India and China, and that Cabot was now in London again, having been created grand pilot of England, and constituted "governour of the mysterie and companie of the marchants adventurers for the discoverie of regions, dominions, islands, and places unknownen." The merchants, having consulted with Cabot, resolved upon the expedition, and an association was formed, by which the undertaking was carried on in shares of 25*l.*, so that the sum of 6000*l.* was soon raised, which was expended in the construction and equipment of three vessels fitted for northern and tropical navigation. The youthful monarch favoured the design, and lent his countenance to the undertaking.

As the promoters of this expedition had no doubt of its success, and made sure of reaching the Indian seas by way of the pole, they omitted none of those precautions which were deemed necessary for the safety of vessels navigating the tropical seas,—hence they caused the ships to be sheathed with lead, thinly laid on, in order to defend them from the worms that were found to be destructive to wooden sheathing in warm climates. This is the first account we have of ships coated in England with a metallic substance, though the practice had been long familiar to the Spaniards.

The ships being provisioned for eighteen months, Sir Hugh Willoughby was appointed captain-general of the expedition; Richard Chancellor was made pilot-major of the fleet, and nominated to the command of the "Edward Bonadventure;" and Stephen Burroughs acted as master of Chancellor's vessel.

It was probably owing to his advanced age that Cabot himself did not accompany the expedition, but he drew out a series of instructions, in which the whole conduct to be observed by the officers and crew is carefully laid down. We will here give a slight sketch of these rules, which, though generally good and useful, are not, as the reader will see, perfectly unexceptionable.

Strict attention is enjoined to private conduct and morals: prayers are directed to be read morning and evening on board each ship, either by the chaplain or master, and no "ribaldry or ungodly talk, dicing, carding, tabling, nor other devilish games," are permitted.

All acts tending to a breach of discipline are prohibited, "conspiracies, part-takings, factions, false tales, which be the very seeds and fruits of contention."

The steering of the ship was to be regulated by a council of twelve, the captain having only a double vote. A daily record of the course of navigation was ordered to be taken, together with celestial observations, the aspect of the lands along which they sailed, and any other interesting occurrence. The masters of the different ships were to meet weekly, compare these records, and enter the result into a common ledger.

Various regulations are drawn up for keeping weekly accounts, maintaining the cook-room, and other parts of the ship clean, and preventing any liquor from being spilled upon them.

The mariners were directed to treat the natives of the

countries which they visited with consideration, gentleness, and courtesy; and without any disdain, laughing, or contempt. All fair means were to be used for alluring them on board, where they were to be well-treated and clothed, in order to attract others:—it was intimated that it would be well to intoxicate them, in order to get at their secrets. They were to use great circumspection in their dealings with strangers; and, if invited to dine with any lord or ruler, to go well-armed, and in a posture of defence.

The sailors' uniforms were to be worn only on particular occasions, when it was desirable to show them off "in good array for the advancement and honour of the voyage." They are warned not to be alarmed when they saw the natives of any place dressed in lions' and bears' skins, with long bows and arrows, as this formidable appearance was often assumed merely to inspire terror. The shark and the alligator were probably alluded to, when the sailors were told that there were persons armed with bows, who swam naked, in various seas, havens, and rivers, "desirous of the bodies of men, which they covet for meat," and against whom it was necessary to keep diligent watch night and day.

The principal recommendations for the election of Sir Hugh Willoughby to the supreme direction of the enterprise, seem to have consisted in his high birth, his tall and handsome person, his valour and skill in war, and his heroic disposition: these qualities seem to have been regarded over and above nautical experience, which essential requisite is not even mentioned.

When the ships lay at Greenwich, where the court at that time resided, the mariners received every mark of royal favour, which could cheer and encourage men embarking on a dangerous and important enterprise. King Edward addressed a circular letter to all "kings, princes, rulers, judges, and governors of the earth;"—he spoke of the benefits of universal friendship;—the duty of showing kindness to strangers, and particularly to merchants;—he desired free passage for Sir Hugh Willoughby and the others with him, promising to make a suitable return, whenever the occasion of foreigners visiting England might occur. The ships set sail from Greenwich on the 10th of May, in order to have some fine summer weather before them. The king himself was confined by illness at this time; but the principal courtiers stood at the palace-windows, the rest of the household mounted the towers, while the people in crowds lined the shore. The ships fired their guns, causing the hills and valleys to resound; and "the mariners shouted in such sort that the sky rung with the noise thereof. In short, it was a very triumph."

After stopping a few days at Blackwall, the expedition sailed down to Woolwich and Gravesend, and thence to the coast of Essex, where contrary winds unfortunately detained them till the 23rd. Then, with a favouring gale, they quitted England, and directed their course into the expanse of the German Ocean. Their commander was desirous of touching at the coast of Scotland; but this was rendered impossible by contrary winds, which obliged him also to make frequent changes of course, "traversing and tracing the sea." On the 14th of July they got among the islands which fringe the coast of Norway, and at length arrived at the larger range of the Loffoden Isles, whence they sailed to the large island of Senjan, where, finding themselves ignorant of the relative situations of the islands and the coast, they endeavoured in vain to procure a pilot. As they approached the northern cape of Europe, Sir Hugh assembled the commanders and exhorted them to keep close together; but in case of separation, he appointed a rendezvous at Wardhuys, understood to be the principal port of Finmark. The weather soon became rough in the extreme; and, being obliged to stand out to sea, amid the thick mist of a stormy night, the vessels of Willoughby and Chancellor separated, and never again met.

According to the account of Clement Adams, who was with Chancelor, it appears that, as they were driving before the gale, the admiral loudly and earnestly called upon them to keep close to him; but that he himself carried so much sail, and his vessel was so superior, that Chancelor could not possibly obey the order. The other ship was called the "Bona Confidentia," with which the commander continued his voyage; but was astonished and bewildered at not discovering any symptom of land; whence it appeared that "the land lay not as the globe made mention." The maps of those days were, as we may naturally suppose, exceedingly imperfect; so that, after sailing about in various directions for very many days, towards the pole,—eastward and westward,—and then looking for land towards the south, and having in vain attempted to land at Nova Zembla, they proceeded upon a new tack, and at length saw the coast of Russian Lapland. Here they must have been very near the opening into the White Sea, into which had they entered, they might have reached Archangel, and spent the winter in comfort and security with Chancelor and the others, who had reached that place in safety, as we shall relate in our next article. Unfortunately, however, instead of keeping southward when out at the mouth of Waranger Fiord (or gulf), they sailed away again to the west, in the hope probably of reaching Wardhuys, which they missed, and which was the only point in those immense seas of which they had any distinct knowledge. The coast was naked, uninhabited, and destitute of shelter, except at one point, where they found a shore bold and rocky, but with some good harbours. Here, though it was only the middle of September, they began to feel the premature rigours of a northern season; intense frost, snow, and ice, driving through the air as though it had been the depth of winter. On these desolate shores, therefore, they settled down to wait for the ensuing spring; while rein-deer, foxes, Polar bears, and "divers beasts to them unknown, and therefore wonderful," haunted their settlement, as if surprised by the novelty of the fresh tenants of the soil.

Nothing more was heard of Sir Hugh Willoughby and his brave associates, until, a long time after, tidings reached England, that some Russian sailors, as they wandered along these dreary boundaries the year after, had been astonished by the view of two large ships, which they entered, and found the crews all lifeless, to the number of about seventy persons, whom they judged to have perished from cold and hunger. The remains of the unhappy sufferers were found on a barren and uninhabited part of the eastern coast of Lapland, at the mouth of a river called Arzina, not far from the harbour of Kegor. From papers found in the admiral's ship, and especially by the date of his will, it appeared that most of the company of the two ships were alive in Januarv, 1554. They had entered the river on the 8th of September preceding. The journal of Sir Hugh Willoughby contains the following reference to their distressed situation—

Thus remaining in this haven the space of a weeke, seeing the yeere farre spent, and also very evil wether, as frost, snowe, and haile, as though it had been the deepe of winter, we thought it best to winter there. Wherefore we sent out three men south-south-west, to search if they could find people; who went three dayes journey, but could find none. After that we sent out other three westward, four dayes journey, which also returned without finding any people. Then sent we three men south-east, three dayes journey, who in like sorte returned without finding of people or any similitude of habitation.

The unhappy fate of Willoughby and these early English navigators is thus finely, but pathetically, alluded to by Thomson:—

Miserable they
Who here entangled in the gathering ice
Take their last look of the descending sun;

While, full of death, and fierce with tenfold frost,
The long long night, incumbent o'er their heads,
Falls horrible. Such was the Briton's fate,
As with first prow, (what have not Britons dared!)
He for the passage sought, attempted since
So much in vain, and seeming to be shut
By jealous Nature with eternal bars.
In these fell regions, in Arzina caught,
And to the stony deep his idle ship
Immediate sealed, he with his hapless crew
Each full exerted at his several task,
Fruze into statues; to the cordage glued
The sailor, and the pilot to the helm.

In our next paper we shall pursue the adventures of Chancelor and Burroughs, after their parting from Willoughby

THE LIBRARY.—Heinsius, keeper of the library at Leyden, was mewed up in it all the year long; and that which to thy thinking should have bred a loathing caused in him a greater liking. "I no sooner," saith he, "come into the library, but I bolt the door to me, excluding lust, ambition, avarice, and all such vices, whose nurse is Idleness, and their mother Ignorance, and in the very lap of eternity, amongst so many divine souls, I take my seat with so lofty a spirit and sweet content, that I pity all our great ones and rich men that know not this happiness."—Burton.

If a man were to apply all his strength directly to a rock or to a box of merchandise, which he wishes to elevate to some point, he might not be able to move it at all; or at least he might not be able to raise it to the required height. But with a lever, or with a wheel and axle, or a pulley, he effects his object with ease. Here he does not actually gain power: he gains the means of acting upon the resistance by degrees. It is like taking this rock to pieces, and carrying up the parts separately; and a little reflection must convince us, that when we employ a machine, we exert not only all the force that would be requisite in such a case, if we did not use the machine, but also as much more as is necessary to overcome the friction and weight of that machine. It is a great error to suppose that, by any mechanical device, force can be generated, or even augmented. Misled by such a notion, projectors have imagined that they could adjust levers, pendulums, &c., that would act with a power greater than that which they derived from any external source. It is obvious, and should ever be kept in mind, that the *inertia* of matter, in virtue of which, no particle of it ever moves except in obedience to some force impressed upon it, and in proportion to that force, renders all such projects entirely impracticable. Universally, to overcome a resistance, a force must be exerted equal to that resistance; and, as we have already said, if it be exerted through a machine, the force must be absolutely greater than that resistance. But, on the other hand, force is made up of velocity and the quantity of matter; and hence, if the mass to be moved, or the resistance to be overcome be much heavier than the moving power, we equalize them, if we can, by giving to the resistance a much slower motion than that which the power has; thus making the greater velocity of the power compensate for its inferior weight or mass. In all these cases, however, time must be lost; and it must be remembered, as a general principle, that whatever advantage is gained in respect to power is lost in respect to time. A man with a machine does no more than in the same time he would have done without a machine, provided he could have divided the resistance into separate parts. In many cases, however, this is impossible; and hence we are enabled, by the aid of machines, to effect what, without them, would have been altogether beyond our power.—*Science and the Arts of Industry.*

* Archimedes is said to have boasted, that, if he had a place on which to stand, he would move the earth. Had such a place been furnished him, and had he been able, moreover, to move with the velocity of a cannon ball, it would have taken him a million of years to have shifted the earth only the twenty-seventh hundred thousandth part of an inch.

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THE BANKS OF THE THAMES. X.



THE THAMES, FROM RICHMOND HILL.

Say, shall we wind
 Along the streams? or walk the silent mead?
 Or court the forest glades? or wander wild
 Among the waving harvests? or ascend,
 While radiant summer opens all its pride,
 Thy hill, delightful Sheen? Here let us sweep
 The boundless landscape: Now the raptur'd eye
 Exulting swift, to huge Augusta* send,
 Now to the sister hills† that skirt her plain,
 To lofty Harrow now, and now to where
 Majestic Windsor lifts his princely brow.
 In lovely contrast to this glorious view,
 Calmly magnificent, then will we turn
 To where the silver Thames first rural grows.
 There let the feasted eye unwearied stray;
 Luxurious, there, rove through the pendent woods,
 That nodding hang o'er Harrington's retreat;
 And stooping thence to Ham's embow'ring walks,
 Slow let us trace the matchless vale of Thames;
 Fair winding up to where the Muses haunt
 In Twickenham bowers, and for their Pope implore
 The healing god; to royal Hampton's pile;
 To Claremont's terraced height, and Esher's groves,
 Where in the sweetest solitude, embraced
 By the soft windings of the silent Mole,
 From courts and senates Pelham finds repose.
 Enchanting vale! beyond what'er the Muse
 Has of Achaia or Hesperia sung!
 O vale of bliss! O softly-swelling hills!
 On which the power of cultivation lies,
 And joys to see the wonders of his toil.—
 Heavens, what a goodly prospect spreads around,
 Of hills and dales, and woods, and lawns, and spires.
 And glittering towns and gilded streams, till all
 The stretching landscape into smoke decays.

In these beautiful lines—whose length will be pardoned on account of their beauty—does the poet Thomson speak of the far-famed view from Richmond Hill.

* Poetical writers often allude to London under the designation of *Augusta*, one of the names by which it was known in the times of the Romans. † Highgate and Hampstead.

The town of Richmond is but a mile or two distant from Twickenham, where we left the reader in our last article; yet the whole distance is so studded with attractive and picturesque objects, as to seem much more extensive than it is. Bolingbroke, Peterborough, Pope, Thomson, Reynolds, Horace Walpole, Garrick, Colman, and many other distinguished men, have given a never-dying celebrity to the very small district included within two or three miles of Twickenham, and of which Richmond forms a part; a celebrity arising either from their poetical and pictorial allusions to the scenery, or from their having dwelt on the banks of the Thames at this part.

The town of Richmond, containing about six thousand inhabitants, has been a good deal connected with the reigning families of England. The manor became the property of the Crown in the time of Edward the First, who, as well as his next two successors, resided here. The last-mentioned monarch built a palace here; and since his time, the manor has been the residence of many members of the royal family. Queen Ann, wife of Richard the Second, died here; an event which so affected the king, that he abandoned the palace and allowed it to become ruinous, but it was restored, with great splendour by Henry the Fifth. Having been destroyed by fire in 1498, the palace was rebuilt by Henry the Seventh, who changed the name from *Sheen*, which it had hitherto borne, to *Richmond*, from the place of that name in Yorkshire, the earldom of which was one of Henry's titles. Philip the First of Spain, and Charles the Fifth of Germany, were at different times entertained as guests at Richmond Palace. Queen Elizabeth, and afterwards Charles the First, frequently resided here. During the

troubles of the civil war, the palace was taken out of royal hands; but at the Restoration, it was delivered to the queen mother, though in a very dilapidated state; it was shortly afterwards pulled down, and private houses erected on the site, the owners of which hold a lease from the Crown. The building in which some branches of the royal family have since resided is the *Lodge*, and not the palace properly so called.

There are two parks belonging to Richmond, the Old or Little, and the New or Great Park. The Old Park extends along the banks of the Thames nearly from Kew to Richmond, and comprises the extensive gardens, dairy-farm, and grazing-farm, so much esteemed by George the Third. The New, or Great Park, enclosed by Charles the First (the older park having belonged to the palace of the early kings) is situated southward of Richmond, extending from the hill to the Kingston road. It is eight miles in circumference, and comprises an area of more than two thousand acres.

The elevated spot near the town, known as Richmond Hill, is the most attractive feature in the neighbourhood, on account of the view from its summit,—a view which embraces everything required to constitute a picturesque landscape, consisting of a fertile and richly-wooded plain, through which the Thames flows in a winding course, with its banks ornamented by numerous mansions and villas, and bounded by hills in the distance. Its proximity to the metropolis, combined with the attraction of scenery which it possesses, and the facility of conveyance both by land and water, cause it to be much resorted to.

Somewhat to the north-east of Richmond is the pretty little village of Kew, situated on the southern bank of the river, opposite Brentford. There is a royal palace and garden at Kew, which have been long celebrated for their beauty,—at least the garden. The palace is nominally occupied by the King of Hanover, as Duke of Cumberland. It was a private mansion until the time of King George the First, but it then came into the hands of the Crown. George the Second, when Prince of Wales, frequently resided there, and Thomson, the poet, who at that time inhabited a house at Richmond, was a frequent visitor at his table. The Princess Dowager of Wales, mother to King George the Third, ordered Sir William Chambers to lay out the grounds and form a conservatory and botanic garden. George the Third, who resided for a considerable time in a mansion since called the Nursery, in which most of the royal family were brought up, and in which his consort, Queen Charlotte, died, greatly improved and extended the gardens, which he united to those of Richmond, and began to erect a royal palace in the ancient style of English architecture, which, after remaining for several years in an unfinished state, was taken down in 1828. The royal gardens are tastefully laid out, and embellished with temples of the various orders of Grecian architecture, a Turkish mosque, and a Chinese pagoda of considerable elevation, from the summit of which a most extensive prospect is obtained of the scenery on the banks of the Thames, and of the surrounding country.

The botanic garden at Kew is in some respects distinct from the garden or pleasure-grounds attached to the palace. Its avowed purpose was to spread the knowledge of botany through the country, by collecting specimens of rare plants from all parts of the world, and supplying duplicate specimens to other gardens. It occupies about fifteen acres, of which a part is set off as an arboretum, for the reception of trees, and the remainder is occupied by stoves and greenhouses, borders of herbaceous plants, spaces left for the arrangement of greenhouse plants in the open air in summer, offices, yards, &c. The arboretum contains many very fine specimens of hardy exotic trees and shrubs, most of which are marked with labels, numbered, and referring to a private catalogue in the garden. Among the stoves and green-

houses is one filled with magnificent specimens of New Holland plants; a second with small plants from the Cape of Good Hope and New Holland, a third with succulent plants, and several others with stove plants of different kinds. From the peculiar manner in which the botanic garden is, on the one hand, connected with the palace at Kew, and, on the other, dependant on the nation for support, it is not easy to say whether it is a public or a private establishment. About three or four years ago a Committee appointed by the Lords of the Treasury commissioned Dr. Lindley to inspect the garden, with a view of reporting how far it answered the purpose for which it appears to have been established, and for which a portion of the national revenue is every year allotted. In his Report, Dr. Lindley makes the following statement:—

After all the explanation that has been offered; after allowing full weight to the assertion that the botanic garden at Kew has always been a private establishment; admitting, moreover, that a larger number of plants has been given away than is generally supposed, and that in many cases applications for plants have been liberally complied with, which is undoubtedly the fact; it really does seem impossible to say that it has been conducted with that liberality or anxiety to promote the ends of science, and to render it useful to the country, which it is usual to meet with in similar institutions elsewhere.

We may here remark that the public are admitted to the botanic garden daily; during certain hours in the afternoon.

The church of Kew is situated on a pleasant grassy spot called the "Green," between the bridge and the entrance to the botanical garden. It was erected in the reign of Queen Anne; and in the church-yard attached to it lie the remains of two celebrated English painters of the last century, Gainsborough and Zoffany, the former of whom died in 1788, and the latter in 1810. The scenery of Kew was celebrated by Thomson in the following lines:—

Fast by that shore where Thames' tributary stream
Reflects new glories in his breast;
Where splendid as the youthful poet's dream
He forms a scene beyond Elysium blest;
Where sculptured elegance and native grace
Unite to stamp the beauties of the place;
While sweetly blending, still are seen
The wavy lawn, the sloping green,
While novelty with cautious cunning
Through every maze of fancy running
From China borrows aid to deck the scene.

Let us now cross to the Middlesex side of the water. Immediately opposite a point of the river midway between Richmond and Kew, is the pleasant village of Isleworth. It consists of one principal street, filled with respectable and well-built houses. The environs are profusely rich in beautiful scenery, both banks of the river being adorned with elegant mansions and villas, with their annexed pleasure-grounds and shrubberies. A large portion of the land in the neighbourhood is cultivated by market-gardeners, who supply the London market; raspberries and strawberries are produced here in great beauty. It was at Isleworth that the insurgent barons held their head-quarters for a considerable time, in the reign of Henry the Third, under Simon de Montford, earl of Leicester. There was a palace at Isleworth belonging to the Earl of Cornwall, the king's brother; and during a contest between the king and the nobles, this palace was razed to the ground by a riotous mob, which proceeded from London for that purpose.

But by far the most interesting object near Isleworth is Sign House, the seat of the Duke of Northumberland. The history of this house, and the manor belonging to it, carries us back to the year 1414, when a splendid monastery was founded at Twickenham, for sixty sisters, thirteen priests, four deacons, and eight lay-brethren of the order of Saint Augustine. About

twenty years afterwards, the community removed to Isleworth, where a spacious edifice called the monastery of Sion was erected for their reception. At the dissolution of monasteries under Henry the Eighth, the site was granted to Sir Edward Seymour, afterwards Duke of Somerset, and Lord Protector, who built thereon the superb mansion since known as Sion House. After his fall it came into the hands of the Burys, earls of Northumberland.

The mansion, which underwent several alterations and additions in the seventeenth century, under Inigo Jones, is a spacious quadrangular and embattled structure, with towers at the angles. The entrance from the Western Road is through a handsome gateway, on each side of which is an open colonnade leading into a spacious lawn, ornamented with clusters of stately trees, and shelving to the margin of the Thames, which pursues its winding course along the border of the park and grounds. A noble flight of steps leads to the great hall, which is decorated with colossal statues, and a fine bronzed cast of the Dying Gladiator. The hall opens into a handsome vestibule, the floor of which is of scagliola marble, and the walls richly ornamented in relief, and embellished with gilt trophies. Twelve columns of verd antique, supporting gilt statues, and sixteen pilasters of the same rare and costly material, impart an air of sumptuous magnificence to this part of the building. The gallery, which contains the library and museum, is one hundred and thirty-three feet in length, and is finished after the antique style, in stucco, of the most light and elegant design. The ceiling of this gallery is embellished with paintings, and ornamented with various devices, harmonizing with the general character of the whole; and immediately below it are paintings in medallions, exhibiting a series of portraits of the Earls of Northumberland, of the Percy and Seymour families. To describe the apartments of such a building would be a useless task; for it may well be supposed that a residence of one of the highest and most ancient of our nobility exhibits all that wealth and taste can accumulate in the way of decoration.

A little northward of Sion House is "dirty Brentford," a town which more than one poet has signalized in a rather uncomplimentary manner; for Gay speaks of

Brentford, tedious town,
For dirty streets, and white-legged chickens known,
And Thomson has spoken of

Brentford town, or town of mud.

The town consists principally of one long street, upwards of a mile in length, which contains a few manufactories; but the chief source of employment to the inhabitants used formerly to be derived from the immense traffic along the Great Western Road, which passes through the town. But since the opening of the Great Western Railway, a considerable portion of this traffic has been removed from the high road, and Brentford has suffered in consequence. Brentford is considered the county town of Middlesex: as the elections for the county used to be held there, as are now the nominations of candidates. A neat stone bridge, erected in the year 1825, connects Brentford with Kew.

Though religion in its ordinary mode of exhibition commands but little respect, when it rises to the sublime, and is perceived to tincture and pervade the whole character, it seldom fails to draw forth the homage of mankind. The most hardened impiety and daring profligacy will find it difficult to despise the man who manifestly appears to walk with God, whose whole system of life is evidently influenced and directed by the power of the world to come. The ridicule cast on religious characters, is not always directed towards their religion, but more often perhaps to the little it performs, contrasted with the loftiness of its pretensions; a ridicule which derives its force from the very sublimity of the principles which the profession of piety assumes.—
ROBERT HALL.

THE DEAD SWALLOW.

A BIRD—but 'tis a foolish thought—
To me doth seem as though it were
A little spirit of the air,
Too happy to be killed or caught;
And I could weep to see a thing,
So joyous in its volant mirth,
Dashed rudely down from sky to earth
With bleeding breast and broken wing.
Thou did'st not deem, an hour ago,
Poor bird! when in yon azure height
Thy taper wings were twinkling bright,
Of lying here so cold and low!—
When morn hung glimmering o'er the plain,
Thy breast was wet with twilight dew—
But now, the life-blood oozing through
Hath dyed it with a darker stain;
And now, to skim the sunny lea,
And off with sportive splash to break
The mirror of the broad blue lake—
Poor bird! is never more for thee!
Scoop—when our northern summer dies—
Thy gathering clans will gaily flee,
To softer climes beyond the sea,
Through paths untracked by human eyes;
But thou! thy pilgrim toils are o'er—
So here I'll pile thy sylvan bier
With leaves which winds have scattered sore,
Poor bird! like thee to rise no more!—J. S. B.

I WILL mention three facts, illustrative of the vastly superior extent to which, in commercial countries, credit is necessarily employed as an instrument of exchange beyond real or metallic money. These are, first, that the entire commerce of Scotland, both foreign and domestic, is carried on without the practical use of a single gold piece. Secondly, that at the Bankers' Clearing-house in London, exchange transactions are daily settled to the extent of five millions sterling—on some days of thirteen millions—without the intervention of any coin whatever, and by the employment of a floating balance of only about £200,000 in Bank of England notes, themselves merely representing the credit of that establishment. Thirdly, that there is at every moment in existence in England an aggregate mass of transferable credit in the shape of book-debts, foreign and inland bills of exchange, mortgages, annuities, and other moneyed liabilities, including the great national debt itself, to an extent, as regards the whole empire, certainly of several thousand millions in value, the whole of which is strictly in employment as a medium of exchange; an instrument, that is, whereby one individual obtains possession, by consent, of the produce or property of another; while the amount of real or metallic currency circulating through the same countries does not, perhaps, exceed thirty millions, and might probably, as in Scotland, be dispensed with altogether, without in the least affecting the extent of this prodigious mass of transactions on credit.—SCHOPF'S *Political Economy*.

WHEN Europeans reached China three hundred years ago, they found all arts arrived at a degree of perfection which was quite astonishing, but which the Chinese have not since surpassed. Later still, they discovered vestiges of high state of knowledge, which had disappeared. The nation was industrious and mechanical; the greater number of scientific methods were traditionally preserved; but science itself no longer existed. This explains the kind of singular immobility in which was found the mind of the Chinese. In following the steps of their fathers, they had forgotten the reasons after which their fathers worked and acted. They made use of the form without the sense. They kept the instrument, but had no longer the power of modifying or improving it. Accordingly nothing was left to them but eternal imitation, all being dark and unknown to them beyond the beaten path. The source of knowledge was dried up, although the streams continued somehow or another to flow. In this manner China continued to subsist for ages, peaceable, industrious, rich, and happy. War and revolution were unknown to them. Might not some similitude be found between us and those barbarians? Some people allow light to be ravished from them, whilst others tread it out beneath their feet.—DR. TOCCREVILLE.

ON CHESS. XXII.

THE KNIGHT'S MOVE.

WHILE studying the various powers of the pieces at chess, we cannot fail to be struck with the remarkable move of the knight: we have made it probable that the move of this piece originated in a compound of the shortest moves of the bishop and rook; but in *modern* chess this piece is the only one which is allowed to move over the heads of other pieces. The peculiar power which this privilege gives to the knight in actual play, it is not our purpose here to discuss: another interesting question will occupy our attention. A little consideration will show that the king, provided no other piece were on the board, could pass in succession to every one of the sixty-four squares, either with or without going twice over the same square; the queen could do the same, and so likewise could the rook. But the pawn, as it can only move straight forwards (except in capturing, and even then it moves obliquely forwards), cannot traverse the sixty-four squares; nor can the bishop do so, for one consequence of his diagonal move is to confine him to squares of one colour: consequently, he can traverse only thirty-two squares. The knight is yet remaining, and a question arises,—Can the knight traverse the sixty-four squares without stepping on any square twice? The solution of this question is one of the most remarkable circumstances in the history of chess; for as it was soon found that the problem could not be solved by mere inspection, the difficulty attending it drew the attention of ingenious persons towards the subject. Difficulties act upon scientific and ingenious minds rather as incentives than as discouragements; and this problem of the knight's move attracted the notice of first-rate mathematicians, who might not otherwise, perhaps, have paid any attention to chess and its associations. Among the distinguished men who have endeavoured to solve this problem are Euler, Bernouilli, Mairan, Demoivre, Montmort, Willis, and Dr. Roget; and we propose in the present chapter shortly to consider the results at which they arrived.

Most of the solutions of the problem (for we may here state at once that it *can* be solved,) have been arrived at by repeated trials, without proceeding in accordance with any particular law; and, we doubt not, that most of our readers could, with a little patience and ingenuity, carry the knight over the sixty-four squares, after many trials. But the object of such a man as Euler, whose profound mathematical talents led him to seek for principles in every department of study, was to elicit some general law by which the required object might be attained. He was successful in tracing the outline of a rule or law by which this might be accomplished; but the practical application of it was so difficult, that we doubt whether any one but himself has ever adopted it. The thorough mastery of the subject can only be attained when we are able to solve the problem in all its varieties, that is, to begin the circuit of the knight at any given square, and to end at any other given square.

In order to trace the power of the knight step by step, an anonymous writer, about twenty years ago, gave representations of imaginary chess-boards, rectangular, but containing a smaller number of squares than a real board; and he was able to demonstrate, that if the board contained 12, 20, 21, 24, 25, 28, 30, 32, 35, 36, 40, 42, 48, 49, or 56 squares, the knight could be carried over the whole of them, without going twice on the same square. These moves of the knight may be represented either by numerals, or by lines drawn on a diagram: the latter is the more perspicuous and pleasing of the two; and we will here give representations of the modes of proceeding in a few of these cases. Let us suppose there are three boards, containing respectively 5×5 ,

6×6 , and 7×7 squares, the knight can be carried over them in the following manner:—

The angles represent the various positions of the knight; and the lines, his paths from one square to another. Beginning with fig. 1 (a), we see that if the tour commences at the left hand bottom corner, all the twenty-five squares in succession can be traversed without any one being covered twice; and the route terminates at the central square. In fig. 1 (b.) the tour commences at the right-hand bottom corner square, and, after extending over the thirty-six squares in succession, ends at the square next above the initial square. In fig. 1 (c.) the route is over all the forty-nine squares, and the terminal square is at a considerable distance from the initial one.

Fig. 1 (a).

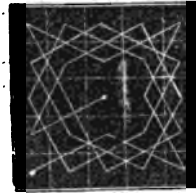


Fig. 1 (b)

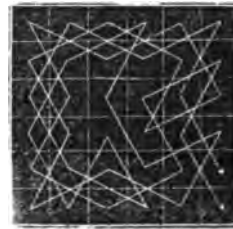
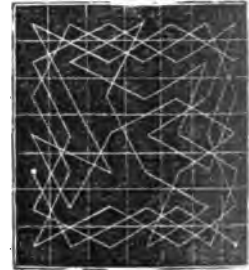


Fig. 1 (c).



These examples show that the knight may make the tour of a chess-board containing a smaller number of squares than the regular board; and there is little doubt that it might also be done on a board of more than sixty-four squares*. These imaginary boards have helped to devise systems whereby the problem can be solved on a real board.

We will now give three diagrams, representing three modes of solving the problem on a regular chess-board; and the reader would gain a clear idea of the subject by performing the same operation with a counter: he will do well to mark each square with a counter, as the knight steps on it, in order not to go twice on the same square. In the first diagram we shall commence at one corner and terminate at another: in the second, we shall cover all the thirty-two squares of one half of the board, before proceeding to the other half: in the third we shall give a *re-entering* route, that is, one in which the *last* square is situated at exactly a knight's move from the *first* square, so that the tour may be re-entered on, and performed in precisely the same way any number of times.

In fig. 2 (a.) the regular board of sixty-four squares is traversed by the knight, beginning at one corner, and ending at another; this, it will be seen, forms a figure having some degree of symmetry, but less so than one or two which we shall hereafter give. In fig. 2 (b.) the squares are separated into two portions, one of which is traversed before the knight crosses over to the other. Fig. 2 (c.) possesses this distinguishing property, that we can commence the tour on *any* square: in drawing the diagram, we commenced at the right-hand bottom corner, and ended at the knight's third square; but any other initial square might have been selected, because the route is an interminable one, re-entering into itself.

Many other ingenious modes have been devised, some of which we shall notice hereafter; but no satisfactory attempt to give a *general* solution to the problem had been made public, until the month of April, 1840, when Dr. Roget communicated a short but admirable paper to the *Philosophical Magazine*, unfolding a method by which the problem could be solved in any

* Ciccolini has solved the problem of the knight's move over a board of one hundred squares, as well as over a circular board of sixty-four squares.

Fig. 2 (a).



Fig. 2 (b).



Fig. 2 (c).



form, that is, by beginning at any given square, and terminating at any other given square of the opposite colour*. We will now attempt to explain this ingenious method.

In the first place, the reader must conceive the board to be divided into four quarters, of sixteen squares each, by two lines passing through the middle at right angles to each other, and parallel to the edges of the board. Then selecting any quarter, we shall find that the sixteen squares may be divided into four systems, each of which consists of four regular knight's moves. These systems are shaped, two as perfect squares, and two similar to the rhombus, lozenge, or diamond (in future we shall use the last of the three names). Thus in fig. 3 the sixteen squares, constituting one quarter, are divided into four systems, represented by these four kinds of lines, forming two squares and two diamonds; and it will be seen that the four sides forming each of these figures, are regular knight's moves.

Fig. 3

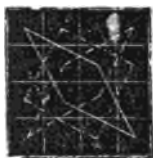


Fig. 4 (a).



Fig. 4 (b)



Now the question which arises, is this:—Can the knight after having traversed the sixteen squares of one system, pass on to another system? He can do so under certain conditions: he can pass from a square to a diamond system, or from a diamond to a square system; but not from a diamond to a diamond, or from a square to a square. Moreover, the sixteenth, or last square of each system ought to be as near the *centre* of the board as possible, since, if it be at or near a corner, the passage to another system may be difficult, or even impossible. If we examine fig. 4 (a.) we shall see that, beginning at the corner square, the terminal one of that system is such as to allow the knight to step on to either of the square systems, there being a choice of four moves, of which two belong to each of the square systems: similarly, from the terminal square in fig. 4 (b.) we can select four squares to move to, of which two belong to each of the diamond systems.

If the necessary precautions be attended to, it will now be evident that the problem may be solved by the method under consideration. Let the initial square, for example,

* Since the knight at each move, goes to a square of a different colour from that which he before occupied, all the *odd* squares are of the same colour as the initial square, and all the *even* squares must be of the opposite colour; consequently the sixty-fourth square, which is the terminal one, must always be of the opposite colour to the initial one.

In the next place, it will be found, that, after passing over the four squares of one system in one quarter of the board, we can pass to the same system in an adjoining quarter; and, after traversing that system, can pass on to another quarter, and so on; thus, in sixteen moves, we can traverse the sixteen squares forming one system of the whole board. We will demonstrate this as to *two* of the systems, and the reader will then readily admit its truth as to the other two. In fig. 4 (a.) we traverse all the sixteen squares of the system ———; and in fig. 4 (b.) all those of the system The diamonds in the former case, and the squares in the latter, *appear* to be incomplete, because only three out of the four sides are represented; but this necessarily results from the conditions of the problem, for we must not go twice on the same square, which we inevitably should do if we drew the four sides of each figure: the knight, however, steps on the squares representing the *angles* of each figure, and this is sufficient to make our description correct.

be in one corner: it will then belong to a diamond system. After traversing the sixteen squares of that system, the knight passes to a square system, which is succeeded by the other diamond, and this by the other square, when the tour terminates. A little practice will give the necessary facility, provided the player attends to these two points:—1st, to complete the sixteen squares of one system before he passes to another: 2nd, to terminate each system rather towards the centre of the board than towards one corner. Generally speaking, he may pass round either to the right or to the left *ad libitum*, and may choose any one of the sixty-four squares he pleases, as the initial square.

In our next article we will apply this method to several remarkable forms of the problem under consideration.

WE say of a false man, Trust him not, he will deceive you; we say concerning a weak and broken staff, Lean not on it, for it will deceive you. The man deceives because he is false, the staff because it is weak, yet our own heart is both. The heart of man hath not strength to think one good thought of itself; it cannot command its own attention to a prayer ten lines long, and no wonder then that in secret it should grow weary of a holy religion, which consists of so many parts as to make the business of a whole life.—JEREMY TAYLOR.

THE CASTING OF STATUES IN BRONZE.

The preparation of statues from brass, bronze, or other metal, is a process requiring an intimate union of that refined and elevated taste which distinguishes the sculptor, with the knowledge of the metals and their qualities so indispensable to the founder. We will endeavour to give a popular description of these operations:

In the first place, it must be observed that all bronze statues are hollow, consisting of a mere shell, delicately worked on the exterior, and more rudely fashioned in the interior. To produce this shell a complicated series of operations are necessary, comprising alternately modellings and castings. The nucleus with which the artist commences his work is an inner mould or core, composed of potter's clay, plaster, and brick-dust, mixed with water to a working consistence; this clay is worked upon a slight iron frame or skeleton, and fashioned into a rude resemblance of the figure about to be cast, but smaller in all its dimensions. The rough core, thus formed, is covered with wax of such thickness, that the dimensions of the figure may be in excess of that intended to be executed: and the sculptor proceeds to sculpture this waxen surface with all the delicacy and care which he would bestow upon a marble statue; working out his entire design on the wax. This part of the process being completed, little tubes of wax are fixed perpendicularly to the surface, all over the figure, for a purpose which will be presently explained; and the whole of the wax is then coated or covered with a layer termed the shell. This shell consists of strata, formed of different materials; the first is a composition of clay and old white crucibles well ground and sifted, and mixed with water to a creamy consistence; this is laid on with a pencil, in the manner of paint, seven or eight successive coats being given, and the surface dried after each. The next stratum consists of the same substance together with a little earth to give it more solidity, and the third stratum is still more solid. The soft or semi-fluid shell, thus laid on, takes the impression of the different parts, which it afterwards imparts to the metal. The shell is now secured by several bandages of iron wound round it, secured to an iron ring at the top, and to a grating at bottom, on which the model had been erected.

Thus far all the operations may be classed under the head of modelling; but the next process is a very curious one, viz., to melt out the wax from between the clay core and the earthen shell, and thus leave a vacancy afterwards to be filled up with metal. The grating on which the model has been built up is placed at the bottom of a square hole made in the ground. This hole is lined with free-stone or brick; and beneath the grating is a smaller hole provided with a furnace. When the figure is complete, a moderate fire is kindled in the small furnace just alluded to; and the heat, being confined and equalized by boards placed over the hole, speedily melts the layer of wax between the core and the shell, and causes it to run down from all parts of the figure, out of pipes introduced for that purpose at the foot of the mould. There must now be a vacancy everywhere where the wax had been, and this vacancy is carefully preserved.

The hole in which the figure is placed is then entirely filled up with bricks; and the fire in the furnace is continued until the whole contents of the furnace, mould as well as bricks, are thoroughly red-hot. The furnace is then extinguished; and when the contents are cold, the bricks are removed, and the space is filled up by earth rammed in closely round the figure.

All is now ready for the introduction of the melted metal, and we will therefore proceed to speak on that point. Sometimes brass is the metal of which statues are formed; but, generally speaking, the metal is an alloy of copper and tin. In every case copper is one of the component metals, for brass is a compound of copper

and zinc; while bronze, or statuary metal, as well as bell metal and gun-metal, are compounds of copper and tin. The chief difference between the last-named three compound metals is in the proportion between the copper and the tin. Generally speaking, bronze contains a larger proportion of copper than of tin; but most statuaries have particular combinations which they prefer. The furnace in which the bronze is melted somewhat resembles an oven, and is provided with three apertures, one to put in the wood, another for a vent, and a third to run the metal out at. From this last-mentioned aperture, which is kept closed while the metal is in fusion, a little tube or canal extends, by which the melted metal is conveyed to a large earthen basin situated over the mould, and from this basin spring a number of little jets, for conveying the metal to different parts of the figure. All the jets are terminated or stopped with plugs, which are kept close until sufficient metal is contained in the basin to supply the whole figure; they are then speedily removed by iron rods attached to them, and the melted metal rushes into, and fills up all the cavities which had been previously occupied by the wax.

When all is cold, the earth which had been pressed into the pit is removed, the shell or crust is broken off from the metal, and the clay core is removed from within it; leaving a thin metallic figure, whose external surface represents the object intended, but needs to pass through the hands of the sculptor, who repairs any defects.

Where the statue is very large, the quantity of metal necessary for this process is considerable, and constitutes a formidable item in the expense. Hence various plans have been suggested for producing very thin statues, in order to effect a saving in the quantity of metal employed. One such method, employed to a considerable extent on the Continent, is the following. The figure is first made in plaster of Paris, of the exact shape and dimensions it is intended to be when completed in metal, and placed in an erect position on a firm platform. It is then covered all over by a shell, composed of a number of pieces fitted very correctly together, so that they may be removed and built up in another situation, forming in the interior a figure exactly resembling the original one in plaster. The work is commenced at the bottom, by covering with strong sand such part as is intended to form one block of the shell to about an inch or an inch and a half in thickness, to which is added about one foot in thickness of plaster of Paris, which unites with the sand, and forms one block: the remaining part of the figure is completed up to this height all round, in a similar manner, by blocks, of which the number and arrangement must be such, that they may be removed when the shell is complete, without disturbing the sand. Another course is now commenced and completed in the same way, and the work is thus continued until the whole figure is completely surrounded by the shell. During the progress of the work, tubes are cast in with the plaster, for the admission of the metal, and for the escape of the air, as in the common method; and iron rings are let into the plaster for the convenience of raising and removing the blocks. When the shell is complete, it is taken to pieces and removed to the casting-pit, where it is carefully rebuilt, and the interior filled up with the material to form the core. It is now a second time taken to pieces, leaving the core of the exact shape and dimensions of the original figure, from which is scraped off such a quantity of material as will give the necessary thickness of metal to each part of the figure. The shell is then again put together in its original position, and will, therefore, leave a space between the interior of it and the core, exactly equal to the thickness of material which has been removed. Nothing now remains to be done, but drying the mould, and pouring on the metal, which operations are performed in the ordinary way.—This method effects a great saving of metal; but it at the same time requires much care and dexterity.

RURAL SPORTS FOR THE MONTHS NOVEMBER.

MYSTERIOUS POWER! which guides by night
Through the dark wood the illumined sight;
Which prompts them by the unerring spell,
The appointed prey's abode to tell,
Bore with long bill the investing mould,
And feel, and from the secret hold
Dislodge the reptile spoil! But who
Can look Creation's volume through,
And not fresh proofs, at every turn,
Of the Creator's mind discern:
The end to which his actions tend;
The means adapted to the end;
The reasoning thought: the effective skill;
And, ruling all, the Almighty will?

BISHOP MANN'S *British Months*.

NOVEMBER introduces the commencement of a sport that must be practised in bleak and marshy districts by those who are its advocates. The shooting of woodcocks and snipes demands on the part of the sportsman a power of resisting the effects of the wet and cold season, and of bearing the inconveniences resulting from the nature of the ground. Of snipe-shooting, in particular, it has been said, that the man who follows it should be possessed of a strong constitution, not liable to catch cold, and should have all the fortitude as well as exertion of a water spaniel. To succeed in his sport, he must be habitually inured to wet, dirt, and difficulty, and not be daunted by the most inclement weather. It appears strange, to those who have but little sympathy with the pursuits of sportsmen, that, at a season of the year, when even the most favoured spots of our island present few attractions to out-door employments, and when, except for the transaction of necessary duties, we might naturally be willing to shelter ourselves in our comfortable homes from the cheerless and foggy atmosphere without,—that, at this uninviting season, the members of the sporting community should find their chief delight in seeking out just the most dreary, and wet, and chilling localities in our own and the sister island, and there, in defiance of bog, marsh, or half-frozen pool, should follow, with so much enthusiasm, the task of destroying our winter visitants.

Woodcocks are fond of wild, marshy copses, where, near the pools, which are frequent in such spots, they can bore the ground with ease, and find abundance of food. Solitude, shelter, and humidity, are essentials with these birds; and, therefore, they shift their quarters as cultivation changes the character of a country. Devonshire, Dorsetshire, Cornwall, and Sussex, are the favourite English localities for these birds; and both North and South Wales are celebrated for the sport they afford.

The Woodcock (*Scolopax rusticola*) is placed at the head of the Snipes proper, and, according to Bewick, is fourteen inches in length, twenty-six in breadth, and weighs about twelve ounces. The shape of the head is remarkable, being in profile, rather triangular than round, and extending over the base of the bill in all directions, so that, in whatever way the bill may work in the ground, the weight of the head gives force to its movements, as it penetrates the oozy soil in search of food. The bill itself is, however, the distinguishing mark of this family of birds. The upper part, or mandible, is three inches long, and projects beyond the lower one, ending in a kind of knob, which is susceptible of the finest feeling. By means of this curious organ, the woodcock, in common with other birds of the same genus, is enabled to distinguish the small worms, &c., abounding in soft moist grounds, and then to extract them with its sharp-pointed tongue. With the bill also it explores among fallen leaves, and other rubbish, in search of insects which shelter underneath. Three varieties of woodcocks, common in Britain, are noticed by Dr. Latham. The head of the first variety is of a pale red, the body white, and the wings brown;

the second is of a dun, or rather cream colour; and the third of a pure white. There are many other variations in the plumage of these birds.

The grand resort of woodcocks during summer, is understood to be the marshy woods to the north of the Baltic, though this species is generally extended throughout all the climates, both hot and cold, of the Old Continent, and is also found in both North and South America. Everywhere it is a voyaging bird, though its migrations are mostly from the mountains to the plains, and from the plains to the mountains, and not from one distant country to another. It visits this country at the same time with the Red-wing; and is supposed to come from Sweden. The most numerous tribes arrive in November and December, and as the Alps and Pyrenees are stated to be favourite localities with woodcocks in summer, it is probable that some of our winter visitants arrive from thence. The arrival of these birds is hastened or retarded according to the weather: they appear to wait a favourable gale to waft them towards our shores without much exertion; for, that they are scarcely able to endure their flight is evident from the fatigued condition in which they often reach us. Compelled to alight on the first spot which offers itself, they have been not unfrequently picked up in the open streets of the towns on the coast, being too tired to make their escape. They are in this case usually found to be extremely lean and exhausted, which is the more remarkable, as other birds arriving at the same time, and from an equal distance, show little symptoms of fatigue. It appears that this emaciated condition cannot be attributed solely to exhaustion on account of their long flight; since those which are killed in Norway before the migration has taken place, are already in a poor condition, and infested with vermin. It is therefore probable that their fatigue is the consequence of their debilitated state, and not the cause of it. At first the woodcocks arrive one by one, or two by two, but later in the season they appear in flights, according as the wind serves their purpose. They are often descried for the first time in the evening of a misty day, and are found to alight indifferently in woods, hedges, heaths, &c. They are very shy and retired in their habits, and rarely take wing during the day, unless disturbed. At close of day they quit the covers, and wander over the meadows in search of moist places, where they bore for food, retiring to their hiding places again at morning dawn. The eyes of these birds are large and convex, so that they cannot see well except by twilight. A stronger light appears painful to them, and it is probably owing to the weakness of their visual organs, that they have acquired a character for stupidity. In their mode of feeding the eye is not called into use, and they depend on the exquisite sense of feeling in their long bill, aided perhaps by acuteness of smell. As in the duck tribe, the nerves of the bill are extremely numerous, and highly sensible of discrimination by the touch, so that when plunged into the soft earth, not a worm that is within reach can escape.

Although the woodcock, in the great majority of its numbers, is a bird of passage in Britain, yet nests and broods have been discovered both in England and Scotland, so that it has of late been classed among our native birds. Their nests are composed of leaves, or dry plants, heaped on the ground, against the trunk of some tree, or under a thick root. The eggs are dull yellowish white, blotched with reddish brown, and are about four or five in number. They are rather larger than those of the common pigeon, and said to be very good eating. The young birds are voracious feeders; they quit the nest when they are only covered with a soft down, and even begin to fly before they have any other feathers than those of the wings. The number of woodcocks in our islands is generally admitted to be on the decrease, and Mr. Blaine, in noticing the circumstance, complains that these birds are unmercifully pursued, not, as formerly,

by one gunner from every village, two or three from every town, and twenty or thirty from every city, of which number many thousands were a ready shot, but by the far more numerous and practised shooters, who in our day have learned to handle the gun. "The common principles of humanity," says another, "should prevent a war of utter extermination of a race that comes to seek food and protection from us."

The Common Snipe (*Scolopax gallinago*) is also provincially called *snipe*, or *heather-beater*. Though agreeing very much in external appearance with the woodcock, it differs from it in natural habits, and the place which the woodcock chooses as cover during the day-time, and for the concealment of its nest in the breeding season, is one which would not suit the wants of the snipe. The latter bird prefers the open marshy grounds, and seeks no other concealment than is afforded by tufts of heath and grass. Snipes are still more generally diffused than woodcocks, and there is no portion of the world in which some of them have not been found. They are so numerous in the rice-grounds of Egypt, soon after the crops have been gathered in, that it is not uncommon for a person to shoot a basket-full in a day. The soil is, however, so completely impregnated with water, that the sportsman finds it fatiguing work to traverse the fields, and sinks at every step he takes, sometimes above his knees. These birds are common at the Cape of Good Hope, and in the islands of Ceylon and Japan. They greatly abound in some parts of Ireland, so that forty-three brace have been killed by one gentleman in six hours. The common snipe weighs about four ounces; it is near twelve inches in length, of which the bill occupies three inches. The head is black, with a light rufous stripe down the middle, and others surrounding the eyes; the throat is white; the cheeks, neck, and upper breast, mottled with black and rust-coloured patches; the wings, tail-coverts, and back, are barred with the same; the lower breast and belly, white; the legs are in some cases of a dusky lead colour, in others green.

Autumn is the season for the arrival of this bird in most of the southern and western countries of Europe. It is then met with in meadows, marshes, bogs, and along the banks of streams and rivers. In walking it carries its head erect, without either hopping or fluttering, and gives it a horizontal movement, while the tail moves up and down. On taking flight, it rises so high in the air, as often to be heard after it is lost sight of. The bill of the snipe is no less remarkable than that of the woodcock, being adapted for boring in the soft muddy ground, where worms abound. It is very interesting to remark the exact adaptation of form in different birds to their peculiar modes of life. In dabbling birds, which sift and turn up the mud of shallow streams with their flat bills, we find the boat-shaped body, the web-foot, and all the necessary adaptations for swimming and diving; but the snipes always have their feet on the ground while they feed, and we find those feet, not indeed so well adapted for walking on elastic vegetation, inasmuch as they are destitute of the long hind toe, which is so essential for that purpose, but yet remarkably fitted for walking on the surface of soft mud, and in those moist and marshy places which form their favourite localities, while they are not in any way adapted for swimming or diving.

In spring, when the low grounds begin to get dry, snipes make their way to more northerly situations, or to those upland regions where the winter lasts longer, and the surface of the ground continues humid. Some few, however, remain in most parts of the country during summer; and in the north and north-west of Britain and in the bogs of Ireland they are numerous. The nest of the snipe is always in close concealment, among the thickest herbage. It is rudely constructed of vegetable fibres, sometimes lined with withered leaves. The eggs

are four in number, arranged in the form of a cross, with the shell reddish. The young are of a pale greenish colour, and are hatched as soon as they escape from the shell, and the plumage which they rapidly acquire is at first darker than that of the old birds. Their feet are so well developed that they are soon able to go in quest of their own food. The bill is, however, short, and does not attain its full length for two or three months, nor its proper consistency till the following spring. Snipes lie very close in the herbage at all times, and are with difficulty raised to the wing. Their flight has often so many turnings and windings as to make them difficult game.

Birds of prey also find the snipe a troublesome and perplexing object of pursuit. In the first place, they have to beat a long time before they can make it take the wing, and then, if the snipe gets the least advantage, it doubles so often and so rapidly that if the hawk is not altogether thrown out, the chase is often a lengthened one.

The snipe usually grows very fat both in Europe and North America, and after the early frosts, its flesh acquires a fine and delicate flavour. It is cooked like the woodcock without extracting the entrails, and is everywhere esteemed as an exquisite game. The fat of the snipe is particularly delicate, and is not apt to cloy or to disagree with those who eat it. Snipes are more numerous than woodcocks in this country, and in the fenny districts are especially abundant. In frosty or snowy weather, these birds resort in numbers to warm springs, and other places where the ground remains unfrozen, these being the only situations in which they are able to procure food. Snipe-shooting is met with in the greatest perfection in Ireland; in Wales, also, both North and South, snipes are plentiful, whether in the mountains or in the more level districts. The mossy lands of Scotland, and the vicinity of the lochs, afford these birds in considerable numbers; while in England, the counties of Cambridge, Lincoln, and Northampton, and the Essex marshes, are their favourite resorts.

Reside in Cumberland's humid fells,
Or Scotia's dank and rushy dells,
Or where a vale or mountain's head
Green flag's heathery swamps are spread;
You'll hear remote the feeble pipe
Shrill sounding of the Wakeful Snipe,
And catch, receding from the view
His spots of black and rusty hue;
As, starting from his reedy fen,
He flies abrupt the approach of men,
And, with quick wing and high flight,
Baffles the unpractised fowler's sight.

British Months.



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A BRIEF HISTORY OF THE FINE ARTS. No III.



VICTORY; FROM A ROMAN PAINTING FOUND AT POMPEII.

A BRIEF HISTORY OF THE FINE ARTS. No. III.

ON THE KNOWLEDGE OF PAINTING POSSESSED BY THE ANCIENTS.

The softer canvass oft reposed the soul.
 There gaily broke the sun-illuminated cloud;
 The lessening prospect, and the mountain blue,
 Vanished in air; the precipice frowned, dire.
 White, down the rock, the rushing torrent dashed;
 The sun shone, trembling, o'er the distant main;
 The tempest foamed, immense; the driving storm
 Saddened the skies, and, from the doubling gloom,
 On the scathed oak the ragged lightning fell:
 In closing shades, and where the current strays,
 With Peace, and Love, and Innocence around,
 Piped the lone shepherd to his feeding flock:
 Round happy parents smiled their younger selves;
 And friends conversed by death divided long.—THOMSON.

INTRODUCTION.

HAVING traced in our former Supplement the history of the art of Sculpture from the earliest periods to which our knowledge extends down to the present time, we now commence a similar undertaking with respect to the sister art of Painting, which being more extensive in the range of subjects which it presents to our imagination, depending upon illusion for some of its more striking effects, and employing principles abstractedly unreal, may be considered as presenting a class of difficulties to the artist, altogether different from those attending the practice of Sculpture, and in many respects more formidable and less likely to be overcome. Both arts, however, have the same basis, *i. e.*, Form; and that basis is made the great and fundamental law of practice in all well regulated plans of study.

That painting is an art of extreme antiquity, there cannot be the slightest doubt; but to assign the country where it was first practised, or the circumstances attending its origin, is beyond the power of the historian. It has been justly observed that "the origin of any art, science, or discovery, is not so much owing to the particular accident which happened to the individual concerned, as to the intellectual adaptation of that individual to receive impressions of a peculiar nature, from the particular circumstance which occurred. Thus, whether music was invented by the man who listening to the sound of an anvil, instantly composed notes; or whether painting was discovered by the girl who watched the shadow of her lover, as he sat silent at the prospect of parting, and traced it on the wall as a memento of their mutual affection; whether it originated with Philoetes in Egypt or Cleinthes in Corinth, or long before Egypt or Greece were habitable, the principle is the same. Without an inherent susceptibility to the impressions of sound, in preference to all other impressions, in the man, or an inherent susceptibility to the impressions of form equally intense in the girl, the intellectual faculties of either would never have been excited to compose notes, or to define figures. The art originated with the first man who was born with such acute sensibility to the beauty of form, colour, light, and shadow, as to be compelled to convey his thoughts by positive imitation."

SECTION I. EARLIEST RECORDS OF THE ART.

The cultivation of the arts is noticed in Scripture history as first appearing in the family of Cain; and within four centuries after the Flood we find that images of wood, stone, and metal were formed for idolatrous purposes. It is an ancient tradition that Terah, the father of Abraham, was a maker of images, but even at a period preceding by more than a century the call of Abraham, Greek and Egyptian tradition tells us of a colony planted at Sicyon by an Egyptian leader named *Agialous*, who brought with him the knowledge of sculpture and painting, and founded the earliest and purest school of Greek art. We find that the walls of Babylon were adorned with paintings of different species of animals, hunting expeditions, combats, &c. Semiramis was represented on horseback striking a leopard with a dart, and Ninus, her husband, wounding a lion. Allusion to this custom of the Babylonians of decorating their walls with paintings is found in the Sacred Writings. The prophet Ezekiel reproving the Jews for their idolatry says, "I went in, and saw, and behold every form of creeping things, and abominable beasts, and all the idols

of the house of Israel, *pourtrayed* upon the wall round about." And in another place the same prophet adds, "She saw men *pourtrayed* upon the wall, the images of the Chaldeans *pourtrayed* in vermilion, girded with girdles upon their loins, exceeding in dyed attire upon their heads, all of them princes to look to, after the manner of the *Babylonians of Chaldea.*" Ezek. xxiii. 14, 15.

The key which has at length been discovered to the deciphering of Egyptian hieroglyphics, promises to open to us much of the history of ancient art. It is now little doubted that although painting and sculpture existed in Egypt, and were probably at their highest condition, eighteen centuries before the Christian era, yet, at a still earlier period, even in the ages of which we have hitherto had nothing more than a fabulous account, the arts were known in the ancient kingdom of Ethiopia. The existence and the exploits of Ethiopian monarchs are now found commemorated on the existing ruins of their cities, and correspond in a remarkable manner with the Jewish and Greek historians; and it is considered probable that the course of civilization descended from Ethiopia to Egypt. In the Bristol Museum may be seen some fine specimens of Ethiopian skill, in two nobly executed lions, on the shoulders of one of which is the name of Amenoph III., called Meinnon by Greek historians. These were found by Lord Prudhoe among the remains of a magnificent city, situated eighty miles above Dongola, and supposed to have been the capital of Tirhakah mentioned in the Scriptures. The walls and temples of Thebes also, were decorated with paintings and sculpture, as early as the nineteenth century before Christ; and it is a remarkable fact that the succeeding efforts of Egyptian art never exceeded in merit the specimens which remain of those very early times.

To account for this circumstance it is conjectured that at the early period of which we are speaking the artists were allowed to follow their own feelings, and to commemorate in any way they liked, the actions of their employers, whereas it is well known that in later times, the arts in general were practised entirely in subserviency to the priesthood, and as by law every child was compelled to follow the profession of his father it is not to be wondered at that painting and sculpture degenerated, rather than progressed, among this singular people, and that in the time of the Ptolemies the former art was little better than an illuminated hieroglyphic. "The effect that the use of hieroglyphic painting, whether more or less near to writing, had upon the art of painting itself, was most disastrous. Those who were permitted to paint at all, were bound to make no improvement. The art was jealously kept for the adornment of hideous mummy cases, and sepulchral chambers, where the nearest approaches to what is properly painting were a sort of portraits, drawn upon the inner coffins, which were composed of folds of linen, prepared with a chalk ground, or basso relievos either coloured themselves, or imitated in flat colours upon the walls."—CALLCOTT.

The Egyptians can scarcely be said to have possessed the art of painting. The coloured subjects found on the walls of tombs and caverns are many of them merely coloured basso relievos: the outline was drawn in red chalk and corrected; it was then cut out by the sculptor, and coloured by the painter in simple unbroken colours. Thus there are blue gods, yellow goddesses, and red men, with green and black draperies. The pigments were for the most part ochres; but the blues and greens appear to have been prepared from copper; the black was lamp-black, and the white a very fine lime. This distant approach to the art of painting seems to have been the mere result of a desire to distinguish the personages in their groups and to represent the colour of the nations, whether white, tawny, or black, with whom they were at warfare, or from whom they received homage. There is nothing in these groups deserving the name of a picture, since there is no knowledge of light and shadow, and no idea of either local or aerial perspective. Neither have we any record of an Egyptian painter in the annals of the art. Of the adornment of the mummy cases above referred to we give some further notice, for the benefit of such of our readers as may not have had an opportunity of examining them for themselves in the collection of the British Museum. The outer or wooden

case of a mummy is made, it is believed, of sycamore wood, sometimes cut out of a solid piece, sometimes composed of several pieces joined together by wooden pegs. It is generally of considerable thickness, and is coated on the outside with distemper colour, on which various emblematical devices are painted in a very inferior manner. The rude representation of the face which appears on the upper part, is sometimes painted red to denote that the body inclosed within is that of a male, sometimes yellow, for the female, and occasionally it is gilded. As soon as the upper portion of the mummy case is removed, the second or inner case appears. This is not composed of wood, but of at least ten or a dozen layers of linen firmly cemented together by a strong glue. This case is said to be originally formed on a rude model of the size and shape of the swathed body, and when the cement has become sufficiently dry, the model is taken away and the body introduced, the aperture being afterwards closed by an ingenious lacing, and the seam covered with a strip of cloth, glued or cemented over it. It is on this inner case that the largest portion of ornament is bestowed. "I have seen some," says a gentleman who had assisted in the opening of several mummies, "which must have occupied many days, perhaps many weeks, in the very elaborate outlining and colouring in water-colour or distemper; and finally varnishing or fixing the subject of this hieroglyph or allegory. The ground of this painting is of very fine and pure white, resembling stucco. The parts that are drawn on, and apparently outlined with a pen and then coloured, are the only parts that are afterwards varnished:—the blank parts of the white ground remain unvarnished, except where the varnish-brush has occasionally slipped beyond the outline, and there the white has become yellow. This white ground may be disturbed by a wetted finger, which is not the case with the varnished parts. Their varnish must have been of excellent quality, as it retains its transparency and gloss in a most extraordinary degree; in some instances appearing as if executed only a few days."

From all that can be gathered of Egyptian art, it does not appear that painting ever flourished in that country, or that other nations were much indebted to Egypt for their knowledge of the art. The only minute account we have of any peculiar works executed by tribes who may be supposed to have gained their knowledge of the arts from Egypt is that contained in the books of Moses; and this leads us to the consideration of the state of art among the Hebrews.

SECTION II. NOTICES OF HEBREW ART.

Of the knowledge of the arts possessed by the Hebrew nation after their deliverance from the bondage of Egypt we have the most interesting intimations in the history of that people, and in the directions given them for the making of the ark and the tabernacle. "Moreover, thou shalt make the tabernacle with ten curtains of fine twined linen, and blue, and purple, and scarlet: with cherubims of cunning work shalt thou make them." (Exod. xxvi. 1.) "And the Lord spake unto Moses, saying, See, I have called by name Bezaleel the son of Uri, the son of Hur, of the tribe of Judah; and I have filled him with the spirit of God, in wisdom, and in understanding, and in knowledge, and in all manner of workmanship, to devise cunning works, to work in gold, and in silver, and in brass, and in cutting of stones, to set them, and in carving of timber, to work in all manner of workmanship." (Exod. xxxi. 1—5.) We find that in the preparation of the tabernacle they must have understood the weaving of fine linen; the preparing and dyeing of skins; the making of scarlet, red, blue, and purple dyes; the various modes of carving in wood; the casting and chiselling of metals, and the engraving of precious stones, and setting them according to the jeweller's art. Still there is no allusion made to the existence of painting as one of the fine arts among the Hebrews, and no proof that it was cultivated among them as such. This seems the more extraordinary, as it is hardly possible to suppose a people working in stone, silver, gold, and timber, and making rich embroidery on curtains and borders of garments, with various other clever devices, and to be destitute of the knowledge of painting. Indeed, there is every reason to believe that coloured designs must have been made to serve as patterns for the working of their tapestry, and it is difficult to assign any other reason for the neglect of the art than that which has been assigned by an eminent authority, *i. e.*, that the representation of any object by painting was not permitted to the Hebrews. This view of the subject seems countenanced by a passage

in the book of Numbers, where pictures are named among the objects of the idolatrous worship of the Canaanites: "And the Lord spake unto Moses in the plains of Moab, by Jordan near Jericho, saying, Speak unto the children of Israel and say unto them, When ye are passed over Jordan, into the land of Canaan; then ye shall drive out all the inhabitants of the land from before you, and destroy all their pictures, and destroy all their molten images, and quite pluck down all their high places." (Numbers xxxiii. 50—52.)

SECTION III. PAINTING AMONG THE PHENICIANS, PERSIANS, CHINESE, AND JAPANESE.

With respect to the art of painting among the Phœnicians, Persians, and other Eastern nations, we are assured that it has been from the earliest ages, vile and wretched in the extreme. The Chinese, who have remained in nearly the same state, as to civilization, for a period of several thousand years, have from very early times made use of written signs for the purpose of retaining the memory of particular events, and among the elementary characters composing by their endless combinations the language of that people, it is not difficult to trace the rude forms of men and animals, houses, trees, hills, &c. The art, however, among them remained at a very low point, and their religion was not calculated to call forth their genius. They seem, until within a very recent period, to have contented themselves with only so much knowledge of painting as might enable them to decorate their beautiful porcelain, and their lacquered wares. Of the degree of dexterity to which they had attained Mrs. Callcott thus speaks:—"The Chinese had certainly attained to great manual dexterity, and the power of copying servilely whatever inanimate subjects were before them; and they had discovered the method of extracting colours from metallic substances, capable of bearing the furnace, as well as those of more obvious use in the chalks and earths of their country; besides some of the finest varnishes in existence. We ought not to marvel that they did not attain, in their painting, to common, much less to ideal beauty, when we reflect on the general character of form in their own nation or their Tartar conquerors, which is very far below that of the Indians and their western neighbours. And we have, perhaps, no right to expect better human shapes than that of the portly mandarin and his crimp-footed lady upon their plates and dishes. But their animals, whether painted, modelled in clay, or cast in metal, are less distorted than their men: and as to perspective, linear or aerial, they seem to have no sense of either. In flowers and birds, their pencilling is delicate, and often true to admiration; but even in these objects, except in treatises on botany or ornithology, their peculiar taste breaks out in monstrous combinations of leaves and flowers that never grew in the same soil, and of beaks and wings that were never hatched in the same nest." Within a recent period a change has taken place in Chinese art, and proofs have been given of an attempt to imitate Europeans in their superior skill and knowledge.

Among the more imaginative people of India, with their florid religion and exaggerated poetry, we might reasonably look for greater advancement in the art, yet no specimen of considerable antiquity has been preserved to show what was the former state of painting in that country, and as to the modern productions of India, as conveyed to us in the designs on their tapestry, shawls, and carpets, they have become celebrated on account of the excellence of the materials and not on account of the purity of the design. Of the just proportions of the human figure the artists of that country are totally ignorant, and their representations of the lower animals are not always clearly distinguishable, the one from the other.

The Japanese appear to have attained considerable dexterity in many of the arts; and even in painting the old Japan figures more nearly approach to beauty of style than is the case with Chinese productions of a similar kind.

SECTION IV. ON ETRUSCAN ART.

We have now to consider the state of art among a most interesting people, whose origin and history are involved in obscurity, and whose early acquaintance with science has excited much astonishment among those who have searched the most deeply into the subject, and have traced their progress by means of the beautiful and curious specimens of their works still extant. These are the Etruscans, respecting whom, most authors agree that they were not the aboriginal inhabitants of the land of Etruria, yet none are decided where

they came from, or who they were. The early works of the Etruscans are not superior to those of other nations, but, either through intercourse with Greece, or through the original genius of the people, they had attained to considerable eminence in the arts before Rome was founded, for Pliny tells us that there were beautiful pictures at Ardea and Laduvium, which were older than *Rissa*. According to Winkelmann the Etruscans were advanced in art even before the Greeks, and it was a tradition of the remote ages, that *Dædalus* flying from Minos settled in Etruria and first sowed the seeds of design. Heyne also says that before Rome was built, casting of metal, sculpture, and painting existed in Etruria anterior to any connection of the Etruscans with Greece.

Very few relics of importance, such as should give evidence of their talents in art, had been discovered of this ancient people, until 1780 when tombs decorated with various designs were brought to light at Tarquinia, the capital city of ancient Etruria. Public attention does not appear to have been greatly excited by this event till the commencement of the present century, when private collections of Etruscan objects began to be formed and valued, and when fac-similes of pictorial decorations of tombs were publicly exhibited in London, with the monumental statues themselves. Mrs. Hamilton Grey, in her interesting work on Etruria, describes her visit to this exhibition, previously to her departure for Italy, and expresses the astonishment which was naturally felt at the sight of objects of such size and grandeur as the colossal statues then before her, and which had lain undisturbed throughout so many ages. But as it is with the paintings of Etruria we are now concerned, we shall content ourselves with quoting her remarks on those which formed part of the same exhibition. "Having seen these tombs, we were conducted up stairs into other small dark chambers, I think four in number but all separate from each other, and lighted in the same manner. They were without sarcophagus or ornament, but had described upon the walls a series of the most spirited and lively coloured paintings. In one was a Triclinium, a man and woman richly dressed being seated together as if presiding over some grand entertainment, with piles of vases and tazze near them, dancers, and players upon instruments on each side, and servants waiting to carry round viands and wine. In another chamber was a chariot race, in another, horses caparisoned, and dancers, in another, a fight, all expressed with a grouping and a spirit which was Greek, and a mannerism which was Egyptian." On a subsequent visit to Tarquinia itself, Mrs. Grey had an opportunity of inspecting many similar works. She was informed that the necropolis or burying-place of that city was computed to extend over sixteen square miles, and judging from the two thousand tombs which have been opened of late years, the number in all cannot be less than two millions! This is sufficient to give us an idea of the dense population of ancient Etruria, especially as this necropolis stands not alone, but is surrounded on all sides by cemeteries scarcely inferior to itself, one of which, (that of *Castel d'Asso*.) Mrs. Grey speaks of as having probably been the Westminster Abbey of Central Etruria. Of the great number of tombs which have of late years been excavated at Tarquinia, only nine are preserved for the inspection of the curious. One of the most interesting though by no means the most important is the *Camera del Morto*, as it has been called, in allusion to the subject which decorates its walls. "It exhibits," says our authoress, "an affecting scene of domestic manners, the preparation of a dead body for its last resting-place, and the piety of the daughter and friends of the deceased. The paintings remain only on three walls of this chamber; those on the side of the entrance, which consisted of fabulous animals, being obliterated. On entering we were struck with the graceful figure of a girl clad in a mantle and tunic, having jewelled ears, and pointed buskins, with hair dishevelled, and in an attitude of grief, who performed the last sad offices for an aged man. He, venerable from his white hair and beard, is laid out on a bed of state, ornamented with purple, and covered with a tunic which reaches mid-way down the leg, and is joined to a hood like that of modern friars coming over his head, which rests on a double pillow. To watch the last moments, as well as to close the eyes and mouth, to wash the body, and to anoint it, was always the child's office. And here she is assisted by a son, or some very near relation, who touches the knees of the corpse with his left hand, his right being raised to his head, with the expression of lively sorrow, while he bids his last adieu. A fragment of an inscription is all that remains.

The usage of the Etruscans to honour their dead with music and dancing is not here forgotten. The very chamber of death is not without this somewhat incongruous accompaniment; while on the middle wall a dancer is introduced, who, to the sound of the flute, pours out a libation beside a large vase ornamented with fillets, placed in the centre of the picture; and two more dancers are represented, one of whom is emptying a tazza."

Another tomb exhibited a very different scene; a luxurious and splendid entertainment formed, the inappropriate subject for the decoration of the chamber of the dead. We have not space for the very interesting and elaborate description of this and the other tombs, as given by Mrs. Grey, but the complicated nature of the representations on the walls give us no mean opinion of the school of Etruscan artists, as it regards the design and grouping of their subjects. The painting in the tomb we have alluded to, which is called the *Grotta del Triclinio*, fully displays the Etruscan magnificence in dress and furniture. Splendid festal dresses adorn the guests, the tables and couches have party-coloured coverings of great richness and beauty, vessels and cups of various forms, load a sort of buffet at the side of the festal chamber, dancing-girls are present habited in dresses of the most splendid material, embroidered with minute stars, and adorned with party-coloured garnitures, and every appearance of luxury attends this funeral entertainment. A remarkable frieze of figures drawn in a very spirited manner but not shaded, and with colours scarcely distinguishable, is one of the objects of interest in the tomb called the *Grotta del Cardinale*. It consists of a procession of souls to judgment, and one of the groups evidently represents the state of a person, who, during his life, had been of a doubtful character, much both of good and evil being attributed to him. He is dragged in a car, before the judge by two winged genii, the one good, and the other evil, who are contending for the exclusive possession of him. In the eagerness of dispute the car stops. They cannot draw it on, but remain stationary, to mark the uncertain character of the deceased. The genii in this procession, all have wings, while the souls are without them; the evil genii are distinguished from the good by being painted black. Mrs. Grey justly remarks that a visit to the tombs of heathenism brings home to us, with peculiar force, the consolations of Christianity. "To the unformed Etruscan the passage from the seen to the unseen world was dark and uncertain; he tried to dispel its gloom by the representation of festal gaiety and jocular revelry, by which he beguiled himself with the hope that the state of the departed soul was accurately represented. But that his efforts were unavailing to dispel doubts and care, is proved by the pictures in this and in the following tomb. Here we have the powers of good and evil, contending for one who knew nothing of an Almighty Mediator; and there we have the piteous representation of youth, beauty, and dignity, a prey to friends, with no friendly power to pluck them from their grasp. How comfortable, nay, how beautiful, do the most luck-nayed expressions in our churchyards seem, after a visit to the tombs of these men."

The above account of Etruscan paintings will be sufficient for our present purpose, and we may conclude by saying that the specimens left us of their art are many of them extremely beautiful in taste, design, expression, and drapery; but we have little opportunity of judging of the colouring of the Etruscan school, as fresco, stucco, or distemper (the modes employed by this people) are adapted neither for depth nor for tone. The painted vases of Etruria are extremely beautiful, and the principles of design and proportion in them, are nearly the same as in the finest works of Greek sculpture.

SECTION V. ANCIENT GRECIAN PAINTING.

For our knowledge of the early state of art among the Greeks we are greatly indebted to Pliny, although that author was undoubtedly mistaken in attributing the origin of painting to Greece. Of the progressive steps of the art in that favoured land we can judge only by inference, for a production of the Grecian pencil remains to aid our judgment, and the opinions of ancient critics are not always satisfactory. We have, it is true, a regular and systematic account of early painting, but it has been objected that the progressive advances follow each other in an order too artificial to represent faithfully the alternate failure and success, which usually attends the course of genius. The progress of the Greeks is said to be as follows. At first the mere outline was traced with a stylus or point. After a certain

tion, the early artists, having drawn an outline ventured to colour it inside with black, as we do our profile figures. These paintings were called *stygians*, from two words signifying "shade" and "to draw," and the artists who could thus fill up a face or figure with black were looked upon as eminent men. After a time the method of producing effect by outlines only began to be understood, and this outline without shade was called a *monochrome*, signifying "only to draw." Next came the genius who was bold enough to venture upon *positive colour*. His name was Cleophantus of Corinth, and his mode a very simple one. He ground up a red brick, and used it in a first attempt at imitating this colour of human flesh. On his account the Greeks claimed the invention of colour, although the Chaldeans and the Egyptians had made paintings on their walls and tombs nearly a thousand years before. This discovery was called *monochrome*, or single-coloured; one colour having been employed, it naturally followed that others were soon obtained from different earths; so that *polychrome*, or many-coloured, became the title for the new style of art. We cannot here dwell on the nature of distemper, and encaustic painting, as practised by the Greeks, (for the latter subject we may refer our readers to a recent number of the *Saturday Magazine*), but must proceed to notice the principal artists and their productions from the earliest times.

We have already mentioned the artist to whom the invention of outline is ascribed by Pliny. The names of Arctius of Corinth, and of Telephanes of Sicily, are associated with that of Cleophantus, but of their performances we have little notice, except an accusation of Etilian, applicable, no doubt, to this early period; that the artists were obliged to write underneath their wretched designs, "This is a bull; this is a house, this is a tree." Among the monochromists or single-colour painters, Cimex the Cilecian appears to have far exceeded his fellows. He is said to have invented fore-shortening; and drawing objects at an angle. He varied the characters and forms of heads so as to make them looking up, or looking down, or turning aside; he also improved the draperies by giving them undulations and folds. Another great man of this period, was Polygnotus, the Greek national and monumental painter, who seems to have possessed a real love for his art, and to have been above all considerations of gain. The hall at Delphi and the portico at Athens were painted gratuitously by him, and his disinterested conduct at length met with its proper acknowledgment in a decree of the Amphictyonic council, that he was henceforward to be maintained at the expense of Greece. From his time improvement was carried forward for half a century by Mycon, chiefly remarkable for his skill in representing horses; by the famous and accurate Dionysius of Colophon; by Agelophon, famed for boldness and energy; by Etemor, the father of Parrhasius; and by Apollodorus the Athenian, who invented or perfected the knowledge of light and shade. Zeuxis improved his style so much by this knowledge as to excite the envy of Apollodorus. According to Pliny, "the doors which Apollodorus opened Zeuxis boldly marched through, daring everything the pencil could do, and carrying it to the greatest glory." This was about the 95th Olympiad. To Zeuxis is attributed the merit of introducing simplicity of composition, relying rather upon the perfection of a single figure to concentrate the interest, than upon the crowd of objects introduced by the earlier masters. He was equally simple in his colouring, using two, or at most four, pigments. After this artist came Parrhasius, who seems to have surpassed him in colouring, but whose works were many of them degraded by inexperience. Timanthes became celebrated on account of his representation of the sacrifice of Iphigenia in Aulis, which was full of touching expression. In covering the face of the father who was compelled to attend the sacrifice of his daughter, he appealed more strongly to the feelings, than if he had attempted to depict the grief-stricken countenance of the unhappy parent. Following Timanthes, were Eupompus, renowned for the splendour of his style, Aristides, the great master of expression, Pamphilus, eminent for natural feeling and truth, and Apelles, whose name is synonymous with perfection of finish.

The age of Apelles witnessed both the glory and the decay of ancient art. This refined and accomplished artist was an eminent example of persevering industry, and not only painted assiduously, but wrote copiously on his art. His treatises were extant about the year 1100 of our era, and as they were probably illustrated with designs, their loss is indeed to be regretted. The leading features of his

style were beauty and grace, and in these respects he was followed by the greatest painters of his day. Apelles is said to have been a very generous man, and one who readily acknowledged any points of superiority in others. Pliny has many anecdotes respecting this painter, from which we may select the following. Protogenes was an excellent artist, I was residing at Rhodes, and Apelles sailed to that island to pay him a visit. On his arrival he was disappointed to find the artist absent from home. An old woman showed him into the painting room, where he found a tablet with its wax ground ready for a picture, and taking up a brush, he drew an exquisite line in colour down the tablet. After his departure, Protogenes returned and was shown what had happened, and on contemplating the beauty of the form, he said none other but Apelles could have executed so perfect a work. He then took a brush, and drew another still more refined, saying, "If the stranger call again, shew him this, and say that this is what he is seeking." Apelles returned, and blushing to see himself outdone, took a brush; and drew a third, the refinement of which it was impossible to exceed. When Protogenes saw this, he confessed that he could carry the line no farther. This tablet was preserved long after the death of both artists; and after the conquest of the Romans it was preserved in the palace of the Cæsars on the Palatine Hill. Pliny speaks of it as superior to all that could be found in the finest works though consisting of three lines only. What these lines were, it is now impossible to say, though Michel Angelo was of opinion that they must have represented the contour of some part of the body. The tablet was unfortunately destroyed at the same time with the palace where it was deposited.

Apelles has been called the court-favourite of antiquity, since by his pleasing tact in portrait painting, he was enabled to seize on the most agreeable expression of any sitter's face, and to conceal, or to turn to advantage, its peculiar defects. This was the secret, doubtless, of his great popularity. "There is no gratitude," says Mr. Hazlitt, "equal to the gratitude of being successfully painted. Kings bow to the unknown power of having their momentary expressions observed, seized, transferred, and fixed for ages, and whilst colours and canvass last, carried off, for the admiration of a distant age, when the existing one is past and forgotten." What can equal the gratitude of a woman to have her beauty preserved, while she is in her bloom, for the admiration of her children when age has shrivelled her form, or misfortune destroyed her happiness? The world may be elevated, excited, roused, by the commemoration of the great deeds of ancestors or heroes; but no sympathy is ever excited, and no personal vanities are ever so happily gratified by any class of painters, as by the great portrait-painter. The degree of imagination required is not of that irresistible kind which forces him to leave the model before him, using it only to realise his own burning conceptions, so that all likeness of the individual is lost; he requires no more than to retain in his mind the best expression of the individual before him to identify it on canvass. But it must be exactly like, or it is nothing. After the likeness is completed, the sitter will have no objection to the highest degree of embellishment. There the great portrait-painter shews the degree of fancy wanted, and he that embellishes most, without losing resemblance, will be the most welcomed, as Apelles was, by the world."

The greatest work of Apelles seems to have been his *Venus Anadyomene*, but being painted on wood it was destroyed by insects in the time of Augustus. He began another, but died before its completion. It is mentioned as a proof of the reverence entertained for his talents, that although this painting was finished as far as the bust, and the remaining contours were also completed, no one would venture to touch the picture for the final stages of the figure.

Of the other painters of this celebrated period, Asclepiodorus was renowned for proportion, Nicomachus for skill of hand, and Theon for wild conceptions. Pansias and Euphranor appear to have been the greatest encaustic painters. The former was celebrated for his skill in fore-shortening, as we learn from Pliny's description of a bull painted by him, which appeared to project beyond the tablet. Metrodorus, Nicias, and Timomachus are the last we shall mention among the celebrated men of the finest period of Greek painting.

The progress and decline of Grecian art which took place at the time we are now arrived at, has been already traced in our Supplement on Sculpture. We need therefore only allude to the probable causes why painting was not at

any period so completely national in Greece as the sister art. The general taste in Painting was not, as in Sculpture, formed and established by public and venerated monuments, and consequently the wholesome restraints of public opinion could not operate in an equal degree. The ambition and the talents of painters were not excited and directed by the nationality of their performances, nor was the standard of excellence formed until the severe purity of ancient taste had suffered a sad decline. Painting appears to have been too soon abandoned to the caprice of private patronage and judgment, and could never compete with Sculpture, whose labours were publicly dedicated to the renown of the good, the learned, and the brave. One hundred and sixty-nine sculptors are mentioned by Pausanias, while he has only recorded the names of fifteen painters; and after three centuries of spoliation he found in Greece three thousand statues, not one of them a copy, while he describes only one hundred and thirty-one paintings.

Grecian art has been divided into three periods; the first being that previous to the time of Pericles; the second that of Pericles himself, considered the highest and purest in painting, sculpture, and architecture; the third, or epoch of Alexander, the most refined, but prophetic of the corruption which followed. After this last period came the subjugation of the Greeks by the Roman power, and the seizure of their noblest works to adorn the capital of Italy.

SECTION VI. ANCIENT ROMAN PAINTING.

The time at which painting began to be employed for the purposes of external and internal decoration in Rome, seems to have been that when, during the reign of the Tarquins, Etruria exercised so much influence over the arts of that city. But the first recorded specimen of Roman art was not executed until near two hundred years later, when one of the great and noble family of the Fabii painted the Temple of Health in such a manner, that the work was highly esteemed even after the introduction of Greek pictures. On account of this performance, the family of Fabii took the surname of Pictor. The painting was destroyed by fire, with the temple itself, in the reign of Claudius Cæsar. About sixty years after the time of Fabius Pictor, lived a poet and tragedian, named Pacuvius, who is named as the great painter in the time of the republic. He painted the Temple of Hercules in the cattle market in Rome, and the pictures are said to have given dignity to the art itself.

A singular use made of painting among the Romans is referred to in Mrs. Calcott's *Essays* on the art. This inordinate love of military fame by which they were actuated, found a mode of gratification in this charming art; and it appears, that Valerius Maximus Messala was the first to adopt a practice of exhibiting pictures of his own actions which became afterwards pretty common, though condemned by some of the chief men of the republic. Messala caused a picture to be hung up in the Porta, a public place, representing the battle of Messana, where he had vanquished both the Carthaginians and Hiero of Syracuse, who had joined his former enemies to resist the invasion of his country by the Romans. By the means of this picture, Messala kept himself before the eyes of the people in the situation best calculated to further his views whenever he should be a candidate for the magistracy. This picture told the story of his achievement to the best advantage, and was likely to engage the affections of the people on his behalf. These exhibitions were sometimes productive of injurious effects. The anger of Scipio Africanus was excited against his brother, Lucius Scipio, because the latter exhibited a picture of the battle of Sardis, which won him the title of Asiaticus, but in which his nephew, the son of Africanus, was taken prisoner. Scipio Emilianus, again, was highly offended at the display of a picture of the taking of Carthage, exhibited in the market place by Lucius Hostilius Mancinus. It appears that Mancinus was the first to enter Carthage on the taking of the city, and on his return to Rome, being desirous of the consulship, he had a picture painted, representing the strong situation of the town, with its fortifications, and all the machines employed in the attack and defence, besides the actions of the besiegers, in which, care was taken, that those of Mancinus should be most conspicuous. This he hung up in the Forum, and, seating himself by it, he explained to the people all the parts of the picture, particularly those in which he was concerned, in such a manner, that he won their good will, and gained the consulship at the very next election. Paintings were employed in the same way by lawyers, in their

pleadings, and became the means of unduly swaying the opinions of the people. They were also carried about by persons who had suffered any loss or misfortune, to excite the sympathy of the benevolent. Though these representations were probably rough in their style of execution, there must have been enough of individual likeness, and of correct grouping, to enable the people to recognise their meaning, and this argues considerable skill on the part of the painter.

From the time of the consul Mummius foreign pictures were daily brought to Rome, and the public buildings of the city were hung with the works of Aristides, Apelles, and all the most famed artists of Greece. In the Temple of Peace was placed the most valued of all the works of Protogenes, *i.e.*, the hunter Jalyzus with his dogs and game. This picture was at Rhodes, where the artist lived, when Demetrius laid siege to the town, and it is said that he abstained from an attack which could not have failed of being successful, lest in the confusion of the battle, the picture should receive injury. The Cyclops of Timanthes, and the Scylla of Nichomachus, were also deposited in the Temple of Peace. Some of the most precious works of Zeuxis adorned the Temple of Concord and the private villas in Rome.

The influx of beautiful statues and pictures at Rome during this period, was doubtless the cause of the partial revival of taste, and of the establishment of the numerous schools which sprang up throughout Italy. Yet we do not read of any artist whose name became illustrious. Ludius, of the time of Augustus, is spoken of as the first who decorated the walls of houses with representations of rural scenery; Aurelius, Cornelius Pinus and Actius Priscus were employed by Vespasian to decorate some temples which he rebuilt; but their pictures were of an inferior character, and have few pretensions to excellence. Great encouragement was given to artists in this time of the magnificent Hadrian. But with this emperor and the Antonines the prosperity of the arts ceased. Pliny tells us of an artist of Pretorian rank, Alterius Laheo, who in his time was very skilful in small works of painting, probably miniatures; the same author mentions among the last of ancient Italian painters, Turpilius, a noble Venetian, who painted at Verona, in the first century of our era. It was during this first century that the great catastrophe occasioned by the eruption of Mount Vesuvius took place, when the cities of Pompeii and Herculaneum were buried under vast showers of stones, ashes, and lava. Pompeii remained buried for sixteen hundred and seventy-six years. The first indications of ruins were observed in 1689, but the excavations did not commence till 1763. Such works of art as were not portable, and were therefore necessarily left behind by the flying inhabitants, still remain as fresh as at the day of their disappearance, and the discovery of these cities has therefore greatly enlightened us with respect to Roman arts and customs. "Every one must be struck," says Mrs. Calcott, "with the great disparity between the bronzes and marbles, and the pictures of Pompeii. Some of the bronze figures, and most of the furniture of that metal, are exquisite in taste and execution, and many of the marbles are not far behind them. But the pictures are of a very inferior character, generally speaking. Single figures there are of great beauty, and some arabesques elegantly designed; but the groups are for the most part more like sculpture than painting; and the few landscapes are little better than those of the Chinese. To account for this in some measure, I would suggest, that the pictures we have found are merely the decorations of small private houses, and that they must have been executed late in the decline of art, because the great earthquake which had destroyed the temples of Pompeii, but a few years before that eruption of the mountain which buried the town, must have shaken the stucco from the walls, and with it whatever specimens of art of a better time might have then existed. Besides, the inhabitants of Pompeii had, most of them, time to escape with their most precious moveables. Now if any of the residents at that small provincial town possessed any Greek pictures or others of value, they were painted on light wooden panels (larch or sycamore) and were easily removed, so that if not saved, they must have been consumed in the fields by the fiery showers that destroyed more persons without the gates of the town than within them. Hence I cannot think that the pictures of Pompeii furnish a fair criterion by which to judge of the real nature of antique painting, say more than the arabesques that have been found in the Roman baths and subterranean chambers of the palaces, which we can

not suppose to have been the places where the choicest works of arts were placed."

Premising thus much, concerning the impropriety of judging of the Roman schools of painting in general by the specimens discovered at Pompeii, we proceed to notice some of the existing remains of art in that long buried city. Examples are found, in great number, of the walls of apartments being painted in a fanciful manner, and sometimes the method employed by the artist is very singular. The picture, though not in an ill state of preservation, and though to be seen at a convenient distance, is quite undistinguishable on a nearer approach. Sir W. Gell describes a painting of this kind in a chamber near the entrance of the Chalcidium. At a certain distance a town, a tent, and something like a marriage ceremony, might be perceived; but which vanished into an assemblage of apparently unmeaning blots, so as to entirely elude the skill of the artist who was endeavouring to copy it at the distance of three or four feet. Another picture of the same kind was visible in the chamber of the Perseus and Andromeda. An entire farm-yard, with animals, a fountain, and a beggar, seemed to invite the antiquary to a closer inspection, which only produced confusion and disappointment, and proved that the picture could not be copied, except by a painter possessing the skill and touch of the original artist. A house of the minor class, yet remarkable for the paintings with which it was adorned, was visited by Mayo in 1812. He copied two of them, and shortly after that time the plaster detaching itself from the wall, they fell, and were destroyed. The subject of one of them was taken from the Odyssey, and represents Ulysses and Circe, at the moment when the hero, having drunk of the charmed cup, draws his sword and advances to avenge his companions. The goddess, terrified, makes her submission at once, as described by Homer, while her two attendants fly in alarm. Circe uses the very gesture of supplication so constantly described by Homer, as she sinks on her knees, extending one hand to clasp the knees of Ulysses, with the other endeavouring to touch his beard. In a house called *Casa Carolina*, because it was excavated in the presence of Queen Caroline, the paintings were found in good preservation, though they have rapidly decayed since that period. Two of them are engraved in Sir W. Gell's work. One of them is explained to be either Diana and Endymion, or Venus and Adonis. A youth, whose head is encircled with rays of light, is sitting down holding two spears; a female figure of great beauty is approaching him, and between them is Hymen with his torch and palm-branch. The female is rather scantily dressed, but richly ornamented with ear-rings, necklace, armlets, and bracelets. The other picture represents Perseus and Andromeda after the hero has slain the monster. He holds behind him something like a skull, which is probably intended for Medusa's head, and his double-pointed sword lies beside him on the ground. Andromeda is in full costume, and wears a white tunic, with a blue peplum or large wrapper.

The house of the female dancers in the street of Herculaneum, is remarkable for the beauty of its paintings. Among them are four elegant figures of female dancers, from which the house receives its name. Another represents a figure reposing on the borders of a clear lake, surrounded by villas and palaces, on the bosom of which a flock of ducks and wild fowl are swimming. The *Fullonica*, or scouring-house, had its walls adorned by a very interesting series of paintings, where the various processes connected with fulling and scouring cloth are admirably illustrated. The house of the tragic poet, and the houses of the great and little fountains, excited a great sensation at the time of their discovery, not so much for their extent, as on account of the beauty and richness of their decorations. In the former dwelling was found a painting that has been esteemed one of the most beautiful specimens of ancient art that has descended to modern times. The subject is Achilles delivering Briseis to the heralds. It is thus described by Sir W. Gell:—"The scene seems to take place in the tent of Achilles, who sits in the centre. Patroclus, with his back towards the spectator, and with a skin of deeper red, leads in from the left the lovely Briseis in a long and floating veil of apple-green. Her face is beautiful, and, not to dwell upon the archness of her eye, it is evident that the pouting of her ruby lip was imagined by the painter as one of her most bewitching attributes. Achilles presents the fair one to the heralds on the right; and his attitude, his manly beauty, and the magnificent expression of his countenance, are inimitable. The tent seems to be

divided by a drapery about breast-high, and of a sort of dark bluish-green, like the tent itself. Behind this stand several warriors, the golden shield of one of whom, whether intentionally or not on the part of the painter, forms a sort of glory round the head of the principal hero. It is probably the copy of one of the most celebrated pictures of antiquity. When first discovered, the colours were fresh, and the flesh particularly had the transparency of Titian. It suffered much and unavoidably, during the excavation, and something from the means taken to preserve it, when a committee of persons qualified to judge, had decided that the wall on which it was painted was not in a state to admit of its removal in safety. At length, after an exposure of more than two years, it was thought better to attempt to transport it to the studiù at Naples, than to suffer it entirely to disappear from the wall. It was accordingly removed with success in the summer of 1826, and it is hoped that some remains of it may exist to posterity."

In the same house is a representation on a white ground of the combat between the Greeks and Amazons. Some of the female warriors are in chariots, some on horses, and they are armed with bows, shields, and battle-axes. They are clothed in blue, green, and purple draperies, and are represented in violent action. The men are distinguished by wearing helmets, while the women have the head bare. These figures are more remarkable for their spirited composition, than for accuracy of drawing. A very beautiful production ornaments a chamber in this house, called, from the subject of the picture, the chamber of Leda. Pictures of Venus and Cupid, of Ariadne, and of the sacrifice of Iphigenia, also serve to increase the interest attached to this dwelling.

At the north-east angle of the Forum, stands an edifice called the Pantheon, which contains several paintings worthy of notice. The designs are well composed and the colours brilliant. One of the most interesting is that of a female artist, holding in one hand an oval white palette, apparently of silver, in the other, brushes tinged with several colours. Her five fingers appear to grasp the palette, through as many holes perforated in the metal. The paintings, for the most part, consist of architectural compositions of long aerial columns, vistas seen through doorways, showing the ornamented ceilings, a variety of figures and borders of flowers generally painted in dazzling colours, among which, bright vermilion, jet black, deep crimson, azure blue, and bright yellow, prevail to form the ground. A variety of mixed tints are added to these, which consist principally of light greys, pink, purple, and green. In the centre of compartments formed by the arabesques, historical subjects are painted. The subject of one is the return of Ulysses in disguise to Ithaca, and his meeting with Penelope, as recorded in the nineteenth book of the Odyssey. The picture represents the queen inquiring of the supposed mendicant stranger for tidings of Ulysses. She is clothed in a violet coloured robe, and a white mantle, or perhaps a species of veil. She holds the materials for spinning in her hands. Ulysses has a white tunic, and a yellow chlyamis or pallium. The attendant Eurynome is also represented. The distinguishing characteristic of this painting is said to be its total absence of affectation. There is not that strong effect of light and shadow employed in modern painting, for though the picture is shaded it is only to a depth that might exist in the open air. The following remarks of Sir W. Gell, made in connection with the painting we refer to, are interesting and important:—"It is of consequence to preserve every thing which can convey to us the conceptions which the ancients themselves formed on the subjects connected with poetry and history, before dress and manners had undergone that complete change which took place soon after the general introduction of Christianity. By collecting the materials which Pompeii and Herculaneum have already furnished, and may hereafter supply, we shall probably, ere long, have the means of forming editions of the writers of antiquity, and decorating our classical and mythological dictionaries with figures and illustrations which the ancients themselves might have approved, but which have hitherto been attempted in vain."

In the house of the Quæstor, otherwise called the house of the Dioscouri, or sons of Jupiter, there are some excellent paintings of figures, among which we may notice that of Jupiter seated on his throne, and crowned by Victory, attired in her usual flying drapery and with S.C. on her shield. The figure represented in our frontispiece also represents Victory, but differs materially from that of which we have just spoken. It is conjectured that the

genius of Rome may possibly be intended by this elegant figure, as the globe in her hand may be understood to signify. The trophy in her left hand proves the goddess to be of Roman, and not of Grecian invention. The globe does not bear any representation of oceans or continents, but is merely marked with a few indistinct touches.

From the preceding account it will be evident, that although the faults of the paintings at Pompeii taken as a whole may be numerous, as it respects accuracy of perspective and other important particulars, still there is sufficient beauty in many of the groups and single figures, to make these remains of ancient art important to those who wish to study the grouping and composition of the ancients, and to render them worthy of their most attentive consideration.

Mrs. Callcott mentions the discovery of two very beautiful specimens of antique painting, found in a vineyard near Rome in 1823, which seem to corroborate her opinion that the pictures scattered through the Italian provinces were generally inferior to those belonging to Rome itself or the immediate neighbourhood. One of these was the half figure of a boy, with a double flute; broad in colour and effect, and round and fine in form, somewhat resembling one of the Venetian frescoes, particularly those of Paul Veronese. The other was a Ganymede, very beautiful in form, and remarkable for the effect of light and shadow. The light in this painting is described as falling principally on the body of Ganymede in the centre, and illuminating the blue sky on the left; but a low light stone altar is placed on the right to balance it. Over the altar an eagle with outstretched wings is dark, and the shadow is continued behind the lower part of the figure of the boy by a purple mantle.

SECTION VII. MATERIALS EMPLOYED IN THE PAINTINGS OF THE ANCIENTS.

The ancients painted principally upon wood, of which we find the larch, the cornel, the cedar, the cypress, the holly, the sycamore, and the box-tree, mentioned by ancient writers. The boards or tablets were prepared with a thin ground of chalk and size of some kind. Linen cloth or canvass was also employed to paint upon, but we have no direct evidence of its use before the reign of Nero. Parchment, ivory, and plaster were the other materials. With respect to the pigments employed by the ancients, the greater number are employed still. It is commonly believed that only four colours were known in the time of Apelles, and that these were white and black, and red and yellow ochres. This belief is founded on an expression in Pliny to that effect, but when we find Pliny himself describing the Venus Anadyomene of Apelles, as rising from a green or azure ocean, under a bright blue sky, we are at once undeceived on this point. Other authors lead us to the conclusion, that so many and so beautiful were the ancient pigments, that it is doubtful whether modern science has given us any advantage in this respect. In the Egyptian catacombs, long before the time of the great painters of Greece, blues and greens are as commonly found as yellows and reds. And we know that in the time of Moses, scarlet, red, blue, and purple, were the colours employed in the furniture of the ark of the covenant, and the vestments of the priests.

Of the white colouring matters, the ceruse, or white lead of modern painters, was known to the ancients, but could not have been so valuable to them, unless they had some oils, or vehicles of that nature, wherewith to apply it, for it turns black when used in water or fresco painting. A natural earth from Egypt, Crete, and Cyrene, was much valued; a very fine pigment was also made of chalk ground with the white glass of which rings and other ornaments were made, and therefore called *annularis*. The finest description of lime was used, repeatedly washed, and beaten, and then formed into cakes which were dried in the sun.

The Romans divided colours into two classes, florid and grave, and we may adopt this division in speaking of the ancient pigments. The florid colours were the more valuable, and appear to have been cinnabar, minium, armenium, purpurisum, indicum, ostrum, chryscolla.

Vermilion, called in its rough state cinnabar, is the most brilliant and valuable red, and appears to have had something of a sacred character in the estimation of the Romans, since the first duty of a censor, in entering upon his office, was to paint Jupiter's face with vermilion, and the faces of all the gods were adorned in a similar manner. Theophrastus tells us, that Callias, an Athenian, calcined

it, and brought it to its very fine colour. Minium, or red lead, is often confounded with native cinnabar, but is decidedly inferior in quality, and blackens on exposure to light and air, unless secured by strong varnishes. Armenium, purpurisum, indicum, or indigo, and ostrum, were different shades of blue, the first being the splendid colour now called ultra-marine. Theophrastus says that one of the kings of Egypt invented the method of making the beautiful Armenian blue, so precious, that kings sent presents of it to each other. The lapis lazuli, from which the colour is obtained, is found in Siberia and on the borders of Persia, as well as in China, where the preparation of the colour has long been known. Some of the ancient imitations of this beautiful colour were composed of earth, boiled with woad, or indigo. Several lumps of a deep blue substance, found in the baths of Titus, were analyzed by Sir Humphrey Davy, and were found to be a frit made by means of soda, and coloured with oxide of copper. Powdered and mixed with chalk, they produced tints exactly corresponding with the blues still preserved on the walls of the same baths. Indigo was introduced into the West from India, not long before Pliny's time, and was immediately adopted for shadows and strong lines. All the ancient greens examined by Davy, proved to be combinations of copper, and there is every reason to believe that the native chryscolla was carbonate of copper. The name of chryscolla (gold-glue), was probably derived from the green powder used by goldsmiths as solder, into which copper entered.

The austere colours were more numerous than the florid. Of the red earths, Sinopia, brought from the city of Sinope in Pontus, was much esteemed. The red grounds at Pompeii and elsewhere were made with this colour. It is now sold in our shops as Armenian bole, and is used in some manufactures. There was a red colour used by the ancients especially to represent blood, and from their account of it, they were evidently ignorant of its origin. They described it as produced by the mixed blood of elephants and dragons in their deadly fights. This is probably the same substance still called dragon's blood, the resin of the *Draconis Draco* of Linnæus. Sandaracha was a substance found in gold and silver mines, varying between red and yellow. There was also a paler sort of sandaracha, which, with orpiment, or sulphuret of arsenic, and the several ochres, made up their different yellows. The Attic and Gallic ochres were pale, but many of those found in the hills near Rome were darker, and their tints were still farther deepened by burning. Several of the ochres when burnt assume a reddish hue. The blacks used by the ancients appear to have been the soot collected from burning such substances as resin or pitch. Black was also obtained from a peculiar earth, and from the blood of the cuttle fish. *Atramentum* was the name given to the best kinds of black—*Kalamiton*, to the vitriolic black, only used for staining wood. Two kinds of blue were formed with a sand procured in Egypt, Scythia, and Cyprus, which was dyed with the juice of herbs. These blues were called respectively *chalcum* and *lomentum*.

In concluding our notice of this subject we employ the language of Sir Humphrey Davy:—"It appears that the Greek and Roman painters had almost all the same colours as those employed by the great Italian masters, at the period of the revival of the arts in Italy. They had indeed the advantage over them in two colours, the *Vesuvian* or Egyptian azure, and the Tyrian or marine purple.

"The azure, the red and yellow ochres, and the blacks, are the colours which seem not to have changed at all in the ancient fresco paintings. The red is darker than recently made Dutch cinnabar, and the lead is inferior in tint to that sold in the shops. The greens in general are dull. Massicot and orpiment were probably among the least durable of the ancient colours.

"If red and yellow ochres, blacks, and blues were the colours most employed by Protogenes and Apelles, so are they likewise the colours most employed by Raphael and Titian in their best style. The St. John and Venus in the gallery at Florence, offer striking examples of pictures in which all the deeper tints are evidently produced by red and yellow ochres, and carbonaceous substances."

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THE MARKET-CART, BY GAINSBOROUGH.

GAINSBOROUGH AND HIS WORKS. II.

LIKE the Dutch artists, Gainsborough was devoted to the representation of the rural features of his own country. His figures, mostly those of country people, are in general conspicuous objects in his pictures. In the National Gallery are his two well-known pictures, the "Watering-Place" and the "Market Cart." The former represents in the foreground a piece of still water, at which some cows are drinking, and children playing among rocks, with tall trees overshadowing. The feeling of rural tranquillity is well preserved in this picture: the subject, though simple, is well calculated to exhibit the skill and character of the artist; and the effect results mainly from the contrast of bright lights and deep shadows. The tone of colouring is, however, by some thought to be heavy, and the details not well made out.

An idea of the second picture, the "Market Cart," may be conveyed by the frontispiece to our present article. We see a road overgrown with bushy trees; two country girls are seated upon a cart, loaded with turnips and other vegetables; two lads are walking, and other figures enliven the back-ground. The tone of this picture is highly rich and harmonious. According to Dr. Waagen,—

It pleases the eye by a warmth of colouring which is peculiar to Gainsborough, yet the tone of the figures is very false, the handling affected and slight, the colouring much broken. What a difference between such a picture and an old Dutch one,—for instance, an Isaac Ostado treating a similar subject! How pitiful and solid is his execution! how rounded and accurately characterized every individual object, yet without neglecting the harmony of the whole.

We are, however, inclined to think that there is more justice in the general remarks of Sir Joshua Reynolds, who says:—

A novelty and peculiarity of manner, as it is often a cause of our approbation, so likewise it is often a ground of censure; as being contrary to the practice of other painters, in whose manner we have been initiated, and in whose favour we have perhaps been prepossessed from our infancy, for, fond as we are of novelty, we are upon the whole creatures of habit. However, it is certain that all those odd scratches and marks, which on a close examination, are so observable in Gainsborough's pictures, and which even to experienced painters appear rather the effect of accident than design—this chaos, this uncouth and shapeless appearance, by a kind of magic, at a certain distance assumes form, and all the parts seem to drop into their proper places, so that we can hardly refuse acknowledging the full effect of diligence, under the appearance of chance and hasty negligence. That Gainsborough himself considered this peculiarity in his manner, and the power it possesses of exciting surprise, as a beauty in his works, I think may be inferred from the eager desire which we know he always expressed, that his pictures at the Exhibition should be seen near as well as at a distance.

Before resuming our memoir of his life we will distinctly notice one other painting of Gainsborough, and that a remarkable one: it is entitled "the Blue Boy." This is the portrait of a youth in a blue dress, and it is now in the gallery of the Marquis of Westminster. It has a natural elevation of look, and great ease of attitude, but the cerulean splendour of the boy's coat is at first somewhat startling. This picture owed its origin to a dispute between Gainsborough and other artists. Gainsborough's object was practically to disprove the opinion of Sir Joshua Reynolds,—that the predominance of blue in a picture was incompatible with good colouring; and in spite of the blue dress, our artist succeeded in producing a harmonious and pleasing effect. "And in truth there are," says Waagen, "in the cool shades of colours in which blue acts the chief part, very tender and pleasing harmonies, which, however, Sir Joshua, with his way of seeing, could not much approve. The Blue Boy is besides greatly distinguished for spirit and careful solid painting."

Reynolds used to say that Gainsborough could copy Van Dyck so exquisitely that at a certain distance the copy could not be distinguished from the original, or any difference be observed between them. He thought Gainsborough's manner to be peculiarly his own, and one which produced great force and effect: one day, while examining a picture of his with considerable attention, he said, "I cannot make out how he produces his effect."

As Gainsborough's circumstances improved, he felt himself enabled to indulge his peculiar tastes. He was not greatly attached to reading, but considered himself to be well read in the volume of nature, and that that was learning sufficient for him. He did not therefore much covet the intercourse of literary men, but yet he was fond of company, and passionately so of music. He esteemed a good musician as one of the first of men, and a good instrument as one of the noblest works of human skill. He in consequence devoted much of his leisure to fiddles and rebecs: he collected numerous instruments, and received at his table musical professors of all descriptions, except bagpipers. He admired Giardini and his violin,—Abel and his viol-de-gamba,—Fischer and his hautboy, and was delighted with a strolling harper who came from the Welsh mountains to Bath. Music was with him at all times a favourite topic of conversation, and during his leisure he practised by fits and starts on his numerous instruments, and his performance is said to have been worthy of praise.

One of Gainsborough's acquaintances in Bath was Wiltshire, the public carrier, a kind and worthy man, who loved the artist and admired his works. In one of his landscapes the painter wished to introduce a horse, and as the carrier had a very handsome one, he requested the loan of it for a day or two, and named his purpose: the carrier saddled and bridled it, and sent it as a present. Upon this the artist painted the wagon and horses of the friendly carrier, put his whole family and himself into it, and sent it well framed to Wiltshire, with his best respects. This picture is considered to be a capital performance. While our artist resided in Bath, but exhibited his pictures in London, Wiltshire was annually employed in the removal of his paintings, and constantly refused to accept money for his services, but being a great lover of the art, he would ask and obtain a small picture of the painter, according to the amount of carriage performed. Several of these pictures still remain in the family of the carrier, and their value is justly appreciated.

When settled in London, Gainsborough engaged in portraiture and landscape painting with fresh feeling and increasing success. He had a fine house and gallery in Pall Mall, and, though Sir Joshua was then high in favour, yet there was room for another, who, to just delineation of character, added a force and a freedom which approached, and sometimes rivalled, Van Dyck. The splendour of his colours was permanent, and to all his performances he imparted an air of truth.

A conversation or family piece of the king, the queen, and the three royal sisters, was much admired, as also were some sketches of the Duchess of Devonshire; but Gainsborough declined to send to Chatsworth a painting of her Grace, because he felt that "her dazzling beauty, and the sense which he entertained of the charms of her looks and her conversation, took away that readiness of hand and hasty happiness of touch which belonged to him in his ordinary moments."

Gainsborough never attached his name to any of his productions, and very seldom the date. One of his own chief favourite compositions was the "Cottage Girl with her Dog and Pitcher," which is, as Cunningham remarks, a happy and well-considered scene.

Such a picture is well calculated to illustrate the following spirited observations of the above-named writer:—

The chief works of Gainsborough are not what is usually called landscape, for he had no wish to create gardens of paradise, and leave them to the sole enjoyment of the sun and breeze. The wildest nooks of his woods have their living tenants, and in all his glades and his valleys we see the sons and daughters of men. A deep human sympathy unites us with his pencil, and this is not lessened because all its works are stamped with the image of Old England. His paintings have a national look. He belongs to no school; he is not reflected from the glass of man, but from that of nature. He has not steeped his landscapes in the atmosphere of Italy, like Wilson, nor borrowed the postures of his portraits from the old masters, like Reynolds. No academy schooled down into uniformity and imitation the truly English and intrepid spirit of Gainsborough.

Gainsborough lived to the age of sixty-one. Being present at the trial of Warren Hastings, he was sitting with his back to an open window, when he suddenly felt something very cold touch his neck; stiffness, and pain succeeded. On returning home, a mark was seen about the size of a shilling, which was harder to the touch than the surrounding skin, and which he said still felt cold. The use of flannel did not avail to remove it. The most eminent surgeons, however, and John Hunter among them, declared there was no danger: It turned out however, according to the presentiment of the artist himself, to be a cancer, which proved fatal. On his death-bed he sent for Reynolds to thank him for the kind and liberal manner in which he had always spoken of him in public and in private. This was the more pleasing because it was generally known that professional jealousies had existed between these artists. In a Discourse pronounced soon after the death of his rival, Reynolds thus refers to the occasion:—

I cannot prevail on myself to suppress, that I was not connected with him by any habits of familiarity; if any little jealousies had subsisted between us, they were forgotten in those moments of sincerity; and he turned towards me as one who was engrossed by the same pursuits, and who deserved his good opinion, by being sensible of his excellence. Without entering into a detail of what passed at this last interview, the impression of it upon my mind was, that his regret at losing life, was principally the regret of leaving his art; and more especially as he now began, he said, to see what his deficiencies were: which he said, he flattered himself in his last works were in some measure supplied.

These remarks on the dying artist's state of mind may teach us that whatever we allow to become the first object in life will assuredly cling to us even on the threshold of eternity; and it is therefore necessary to make the inquiry, even with respect to our most innocent and laudable pursuits, whether they are not usurping a place in our thoughts and affections, which as immortal and responsible creatures we cannot safely assign to them.

Gainsborough was buried on the 9th of August, 1788, in Kew Church-yard; according to his expressed wish his name alone was cut on the tomb-stone. Sir Joshua Reynolds, Sir William Chambers, West, Meyers, Bartolozzi, Paul Sandby, Cotes, Sheridan and others attended his funeral.

We have already expressed regret that the biography of this great artist is so meagre. There are, however, many details respecting him preserved in the fourteenth Discourse of Sir Joshua Reynolds, which must be peculiarly valuable to the student, not only as affording him the character of this master from one so well qualified to pronounce it, but also as revealing some of the methods of working whereby Gainsborough produced such charming effects. For the general reader a few extracts from this Discourse will suffice: the student will do well to study the Discourse itself.

In the early part of this performance occurs the following remarkable passage, which is alike honourable to him who uttered it and to him who is the subject of it, and which our subsequent experience in art has fully confirmed.

If ever this nation should produce genius sufficient to acquire to us the honourable distinction of an English school, the name of Gainsborough will be transmitted to posterity, in the history of the art, among the very first of that rising name.

Comparing Gainsborough with certain masters of the Roman school, he says:—

For my own part I confess I take more interest in, and am more captivated with the powerful impression of nature, which Gainsborough exhibited in his portraits and in his landscapes, and the interesting simplicity and elegance of his little ordinary beggar children, than with any of the works of that school, since the time of Andrea Sacchi, or perhaps we may say Carlo Maratti,—two painters who may truly be said to be *ULTIMI ROMANORUM*.

And then, anticipating the surprise with which this bold opinion was likely at that time to be received, he adds:—

I am well aware how much I lay myself open to the censure and ridicule of the academical professors of other nations in preferring the humble attempts of Gainsborough to the works of those regular graduates in the great historical style. But we have the sanction of all mankind in preferring genius in a lower rank of art, to feebleness and insipidity in the highest.

Among the causes which led Gainsborough to the attainment of such high excellence, Sir Joshua states the fundamental one to be

The love which he had to his art, to which indeed his whole mind appears to have been devoted, and to which everything was referred; and this we may fairly conclude from various circumstances of his life, which were known to his intimate friends. Among others he had a habit of continually remarking to those who happened to be about him, whatever peculiarity of countenance, whatever accidental combination of figure, or happy effects of light and shadow occurred in prospects, in the sky, in walking the streets, or in company. If, in his walks, he found a character that he liked, and whose attendance was to be obtained, he ordered him to his house: from the fields he brought into his painting-room stumps of trees, weeds, and animals of various kinds, and designed them, not from memory, but immediately from the objects. He even framed a kind of model of landscapes on his table, composed of broken stones, dried herbs, and pieces of looking-glass, which he magnified and improved into rocks, trees, and water. How far this latter practice may be useful in giving hints the professors of landscape can best determine. Like every other technical practice, it seems to me wholly to depend on the general talent of him who uses it.

Another illustration of his great affection for his art was his custom of painting by night, since he could not amuse himself in the evening by any other means (not even by music) so agreeable to himself.

I am indeed (says Sir Joshua) much inclined to believe that it is a practice very advantageous and improving to an artist, for by this means he will acquire a new and a higher perception of what is great and beautiful in nature. By candle-light not only objects appear more beautiful, but from their being in a greater breadth of light and shadow, as well as having a greater breadth and uniformity of colour, nature appears in a higher style, and even the flesh seems to take a higher and richer tone of colour.

There is something sublime in the impression produced upon a contemplative mind, passing from hall to hall, and gallery to gallery, of a museum filled with the noblest objects of human genius, wrested from the oblivion of long departed years. As you enter each apartment, a new era in the history of the world seems to dawn upon you—and you find yourself surrounded with the most illustrious beings, by whose genius and whose actions it was distinguished and adorned. Centuries there dwindle into hours and minutes—you pass from age to age as you move from room to room—and in the lounge of a morning, you seem to have communed with the greatest characters that have appeared upon the busy theatre of the ancient world. Instead of days, months and years might be devoted to the examination of such interesting objects, and, after all, the eye of the connoisseur, and the mind of the Christian philosopher, would discover new beauties, and suggest fresh trains of thought.

OPTICAL ILLUSIONS IX.

ON BINOCULAR VISION, (concluded.)

In describing the very interesting experiments of Mr. Wheatstone on the subject of binocular vision, we have given some of the figures by which he illustrates the truth of the principles which he was the first to unfold. We may now give a few others, from which it will be evident that an almost interminable number might be produced. They are arranged in pairs, each pair consisting of two *monocular* pictures, as Mr. Wheatstone very conveniently terms them; that is, pictures as seen by one eye only; one picture of each pair representing the appearance which a certain solid body would present to the right eye; the other, the appearance presented to the left. These pairs, when placed in the stereoscope, produce a combined image, in which the idea of relief is strongly impressed on the mind. In fig. 6 (a) the

Fig. 6. (a).

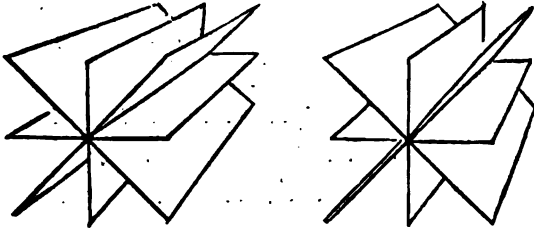


Fig. 6 (b).

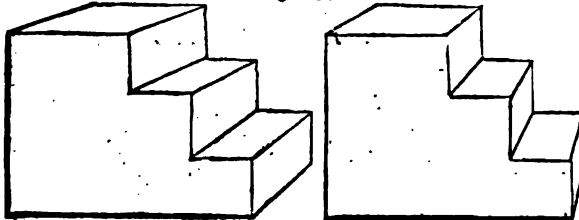
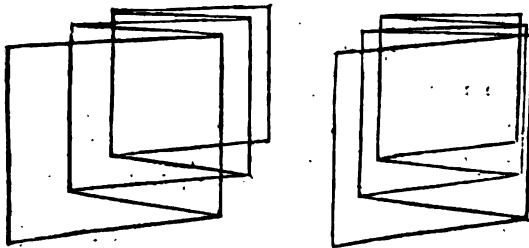


Fig. 7 (a).



eight leaves or fans appear really to stand out in relief; so do the steps in fig. 6 (b); the five leaves or plates in fig. 7 (a); and the small tower in fig. 7 (b).

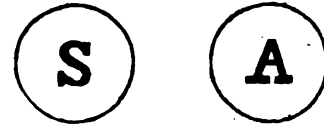
The results of the experiments made by aid of the stereoscope prove that if two pictures of similar size, and differing from each other only in the same degree as objects differ in their appearance to the two eyes, be viewed in the way described in our last paper, they will produce an image apparently in relief. But in order to embrace other varieties of the question, it may be asked, "What would result if the pictures were of different magnitudes?" and "What would result if they were of different forms?" Mr. Wheatstone gives the results of his investigations of these two points.

First as regards the difference of magnitude. If two squares or circles, differing a little in size, be drawn on two separate pieces of paper, and placed in the stereoscope, so that the reflected image of each shall be equally distant from the eye by which it is regarded, it will be seen that they coalesce, and produce a single image, notwithstanding the difference of size in the pictures. This experiment shows that the difference of size does not render the result discordant with those before given, but it leaves untouched the question as to what relation exists between the size of the resultant

image and that of each of the pictures. This comparison may be made by placing the two drawings side by side on a plane before the eyes, and making the optic axes converge to a point either nearer or farther than the plane in which the pictures are placed: the two pictures and their binocular image being thus all brought into a line, it is found that the latter is midway in size between the other two. It is justly remarked by Mr. Wheatstone, that were it not for this binocular coalescence of two unequal images, we could never see objects clearly except when looking immediately forward; for when we look obliquely towards either side, say the right, the left eye is at that moment farther from the object than the right eye is, and consequently recognises it as being smaller in size; yet the resultant image is clearly defined, in consequence of the law just detailed.

With regard to the effect of placing two pictures of different forms before the two eyes, Mr. Wheatstone arrived at a very curious result, and one which seems to open an extensive field for inquiry. If two small pictures, such as *a* and *b*, fig. 8, be placed, one in each half

Fig. 8.



of the stereoscope, it might be supposed that the resultant image would be a kind of confused superposition of the one on the other; but this is not the case. The common circular border remains constant as a circle, but the letter within it changes alternately from that which would be perceived by the right eye alone to that which would be perceived by the left eye alone. At the moment of change the letter which has just been seen breaks up into fragments, while fragments of the letter which is about to appear mingle with them, and are immediately after replaced by the entire letter. It does not appear to be in the power of the will to determine the appearance of either of the letters; but the duration of the appearance seems to depend on causes which are under our control. Thus, if the two pictures be equally illuminated the alternations appear in general of equal duration, but if one picture be more illuminated than the other, that which is less so will be perceived during a shorter time.

The circumstance for which this last mentioned experiment may be deemed important, is that it corroborates certain experiments made by other philosophers on the subject of colour. It is known that if blue and yellow fragments or powders be mixed, a green colour will result; that orange results from a mixture of red and yellow, &c.; and it has been supposed by some that if one eye gazed upon a red colour while the other gazed upon yellow, or one upon blue and the other upon yellow, that the mind would appreciate in the one case an orange tint, and in the other a green, the component colours being individually lost in the blending of the two. M. de la Tour made an experiment on this point, by placing a blue disc before the right eye, and a yellow one before the left; but instead of the green tint which would appear if these two colours had mingled before their arrival at a single eye, he perceived the two colours distinctly and separately, one or the other alternately predominating either partially or wholly over the disc. Mr. Wheatstone states the result in an exactly similar manner; and it would be a very interesting question to determine, whether *other* eyes see the phenomena in the same manner. It is known that great differences exist in the power of vision, in the appreciation of colour, in the symmetrical position of the optical axes of the two eyes, &c., and it often happens that many of the results obtained by experiments are a good deal influenced by these circumstances. Could this point be definitely settled, it

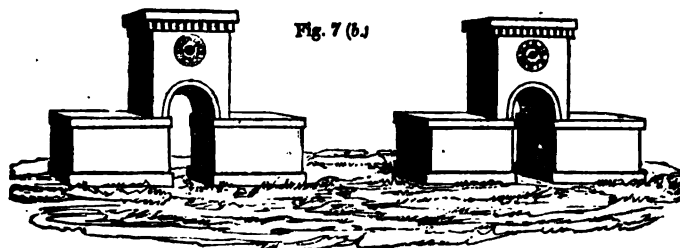


Fig. 7 (b.)

might lead to important results, for the theory seems to show that the mind does not and cannot appreciate two images at once, as presented in the two eyes, but alternates rapidly from the appreciation of the one to that of the other.

As the experiments with the stereoscope show that there is an essential difference in the appearance of objects when seen with two eyes, or when only one eye is employed, and that the most vivid belief in the solidity of an object of three dimensions arises from two different perspective projections of it being simultaneously presented to the mind, it may be asked, how do persons, who see with *one* eye, avoid mistaking a picture for a solid object, and how do those who are accustomed to see with two eyes, avoid mistake when they close one eye? Mr. Wheatstone answers these questions thus.—Although the simultaneous vision of two dissimilar pictures suggests the relief of objects in the most vivid manner, yet there are other signs which suggest the same ideas to the mind, which, though more ambiguous than the former, become less liable to lead the judgment astray in proportion to the extent of our previous experience. The vividness of relief, arising from the projection of two dissimilar pictures, one on each retina, becomes less and less, as the object is seen at a greater distance before the eyes, and entirely ceases when it is so distant that the optic axes are parallel while regarding it. We see with both eyes all objects beyond this distance precisely as we see near objects with a single eye; for the pictures on the two retinæ are then exactly similar, and the mind appreciates no difference whether two identical pictures fall on corresponding parts of the two retinæ, or whether one eye is impressed with only one of these pictures. A person deprived of the sight of one eye sees therefore all external objects near and remote, as a person with both eyes sees remote objects only; but the vivid effect arising from binocular vision of near objects is not perceived by the former: to supply this deficiency he has recourse unconsciously to other means of acquiring more accurate information; of which the principal is the motion of the head. The manner in which the movement of the head furnishes this collateral evidence is thus explained:—The mind associates with the idea of a solid object every different projection of it which experience has hitherto afforded; a single projection may be ambiguous, from its being also one of the projections of a picture, or of a different solid object; but when different projections of the same object are successively presented, they cannot all belong to another object, and the form to which they belong is completely characterized. While the object remains fixed, at every movement of the head it is viewed from a different point of sight, and the picture on the retina consequently continually changes.

The reader will remember, that in one of our former papers on optical illusions, we described the appearance which a hollow cavity, such as the interior of a shallow vessel, or an intaglio, or seal, presents when viewed under particular circumstances; it appears to the eye to be convex instead of concave; a seal or intaglio appearing to have been converted into a cameo. We explained that this apparent change or illusion is brought about principally by the mode in which light and shadow are distributed over the object; but Mr. Wheatstone attributes the effect partly to circumstances which have already been explained in these papers.

There are other branches of this interesting and extensive subject, into which Mr. Wheatstone partly enters; but as he gives us ground for hope that he will at some future period publish the results of further experiments thereon, we will not here present those features which are as yet imperfect. We will, therefore take leave, till some future time, of these important contributions to the physiology of vision.

We cannot refrain from expressing a hope that the reader will repeat all these interesting and instructive experiments. The stereoscope is an instrument which may be easily and cheaply constructed. For all ordinary purposes the screw might be dispensed with and a lateral movement given to the flaps $x\ x'$, fig. 4 (a), by means of hinges. The various figures must be drawn accurately and neatly on drawing-paper or card; the right-hand figure on one piece, and the left-hand figure on another. Should the young student find any difficulty in procuring the two little mirrors, let him purchase two pieces of plate glass of the required size, and silver them himself according to the following simple directions, which we borrow from Mr. Tomlinson's *Student's Manual of Natural Philosophy*.

To construct a *plane* mirror,—procure a piece of plate-glass, and polish it until perfectly clean. Then cut out a piece of tin foil of the exact size of the glass: let the foil be quite smooth and free from wrinkles and holes. Place it on any smooth and level surface, and cover it with a layer of clean mercury: then having gently smoothed the surface of the mercury, by means of a piece of cotton wool, or a hare's foot, the under surface of the mercury will combine with the foil; the upper surface being brilliant and reflective. Then place a piece of stout paper of greater extent than the intended mirror upon this amalgam; and lay the glass upon the paper exactly over the amalgam. Press firmly upon the glass; and draw out the paper in a steady equable manner: this will exclude the air from between the amalgam and the under surface of the glass. The glass will thus be evenly coated with the amalgam, and a plane mirror will be formed; which must not be taken up directly; but left under pressure of a heavy weight for a few hours, during which time the surface on which the mirror rests should be gradually sloped in order that all superfluous mercury may drain off.

MANCHOO TARTARY

Is tributary to both China and Japan, but dependent on the latter. The men are athletic, tall, and jealous of their women, and the country not unlike parts of the western coast of Scotland. They live chiefly on vegetables, varied at times by puppy's flesh; in many of the houses we found these little creatures fattening for their fate; for, although they have plenty of bullocks, they employ them only for agricultural purposes; and all through China and along this coast, milk, a principal article of diet among European peasantry, is not used. We remarked that the Chinese at Chusan laughed immoderately at our soldiers milking the goats, as they think it unnatural that man should drink the milk of animals. However, the Tartars to the westward are said by travellers to live almost entirely on the milk obtained from the camel; so this must be a prejudice which the people of Manchoo have derived from the Chinese.

We found the most useful articles of barter here were the brass buttons on a naval jacket, the worth of one being estimated far higher than a Spanish dollar, of which they did not seem at first to comprehend the value; for a button, kindly furnished me from the jacket of a friend, I became the owner of a sheep and some poultry, and, I suspect, both purchaser and seller were equally proud of their ability at barter.

Their houses are much the same as in China, but the mode of cultivating the land must be here laborious. All the hills are terraced to the summit, on account of the severe rains to which they are subject, and which often sweep the whole side of a hill into the valley below. Traces of these devastations meet the sight on every side, showing how necessary is the precaution.—*Six Months with the Chinese Expedition.*

ON SHOOTING STARS.

For some years past a periodical phenomenon has occurred on the 9th and 10th of August, and still more strikingly on the 12th and 13th of November, to which the attention of astronomers and meteorologists has been drawn in a marked degree, viz., the appearance of a very large number of meteors or shooting-stars.

What these shooting stars are we are little able to surmise. Aërolites, fire-balls, shooting-stars, and other phenomena of somewhat analogous kinds, have attracted attention from early ages, and numerous theories have been advanced to account for their formation. Soon after Franklin made known his researches in electricity, an opinion was formed that shooting-stars were due to some electrical action going on in the atmosphere. Afterwards Chladni, a celebrated German philosopher, conceived that the origin, both of those bodies which actually fell to the earth, and of those which merely appeared luminous in the heavens, might be accounted for in some such way as the following: that these meteors are masses of matter, moving through space with velocities equal to those of the planets; that when they encounter the earth's atmosphere they become inflamed by the resistance and friction, and thence rendered luminous; and that some of them burst into pieces, and scatter masses of stone and iron on the ground. This theory was ridiculed by some and supported by others, but attention was not so strongly drawn to the subject until it was observed that the luminous meteors appeared in greater abundance about the dates above mentioned than at any other periods of the year.

Sir William Hamilton, after describing an eruption of Vesuvius, which took place on the 9th of August, 1779, spoke of a phenomenon which occurred in the following night.

It was universally remarked (said he) that the air this night, for many hours after the irruption, was filled with meteors, such as are vulgarly called falling-stars. They shot generally in a horizontal direction, leaving a luminous train behind them, but which quickly disappeared. The night was remarkably fine, starlight, and without a cloud. This kind of electrical fire seemed to be harmless, and never to reach the ground, whereas that with which the black volcanic cloud of last night was pregnant appeared mischievous, like that which attends a severe thunderstorm.

Professor Quetelet, of Brussels, has collected numerous proofs of similar phenomena having occurred within the last few years, on the 9th and 10th of August. Similar exhibitions have taken place during the first week in August, but the 9th and 10th seem to be the most conspicuous days. At a meeting of the Astronomical Society about two years ago, Professor Schumacher gave an account of some August meteors which he had observed in conjunction with several other astronomers, and other scientific bodies have received numerous communications of a similar kind.

But the November meteors are still more numerous than those of August. The first recorded observations of which we are aware is that of the 11th of November, 1799, when Humboldt and Bonpland observed many thousands of shooting-stars within a few hours, at Cumana, in South America, and in the same night similar meteors were observed by different persons throughout almost the entire extent of America, as well as in some parts of Europe. On the 12th of November, 1832, philosophers in every part of Europe saw numerous displays of these bodies, but the following year, 1833, presented a phenomenon which surpassed everything previously seen. From the accounts which Professor Olmsted gave of what he saw on the 12th of November in that year, at a place in North America, M. Arago computed the number of meteors on that night at not much less than a quarter of a million! In the years 1834, 1835, 1836, and 1838, similar exhibitions, more or less extensive, have been noticed in many parts of the world; but

it has been stated that 1839 and 1840 were not so prolific in them.

Before giving an outline of the theories which have been offered in explanation of these phenomena, it may be well to state what is known respecting their height and velocity.

No experiments seem to have been made for the determination of the height and velocity of shooting-stars until the year 1798, when Brandes and Benzenberg, two German astronomers, undertook a series of observations for this purpose. Having selected a line, about nine miles in length, they stationed themselves at its extremities, and began to observe on nights previously agreed on. When a meteor was seen they immediately traced its apparent path on a celestial map, noticing carefully the exact times of its appearance and extinction, with any other circumstances likely to assist in identifying it. Several of the meteors were sufficiently identified to make it certain that they were seen by both parties, and the recorded results, when worked out by the aid of trigonometry, gave tolerable indications of the heights and velocities of the meteors. Of twenty-two computations thus obtained, it was found that one gave the height of the meteor about 6 English miles above the surface of the earth; six others were between 6 and 45 miles high; nine were between 45 and 90 miles; and six were above 90 miles, one being as much as 140. With respect to velocities there were only two observations which could be depended on, one of which gave a velocity of about 21 miles, and the other 25 miles per second,—a velocity exceeding that of the earth. It was noticed as a remarkable circumstance, and one deserving of attention in reference to any theories on the subject, that one of the meteors moved *upwards*, or away from the earth.

About the year 1823 another attempt, on a more extensive scale, was made to measure the heights and velocities of meteors. The German observer, Brandes, assisted by several other persons, made a series of observations, from April to October, 1823, in Breslau and the neighbouring towns. During this interval more than eighteen hundred shooting-stars were observed by some or other of the parties, but only about a hundred of these were observed simultaneously at different places, so as to afford the means of computing the heights and velocities. Of these meteors, the altitudes of four were computed to be under 15 miles; fifteen were between 15 and 30 miles; twenty-two were between 30 and 45 miles; thirty-five were between 45 and 70 miles; thirteen were between 70 and 90 miles; and eleven were above 90 miles. The four highest had altitudes of 140, 220, 280, and 460 miles, respectively. Of those meteors whose directions of motion was sufficiently determined it was found that twenty-six had a motion downwards, nine upwards, and one horizontal. With respect to the velocities with which they move, only three computations were made which could be depended on, and these gave velocities of 23, 28, and 37, miles in a second, respectively,—all being greater than the velocity of the earth in its orbit.

In 1824 M. Quetelet made a similar series of observations in Belgium; the results of which gave, as the velocity of the various meteors which he measured, from 10 to 25 miles, the mean being a little less than the velocity of the earth in her orbit. In August, 1838, M. Wartmann, and several assistants, made an extensive series of observations of a similar kind in Switzerland. Some of the observers stationed themselves at Geneva, while the others were stationed at Planchettes, a villa at about sixty miles distant. On the 10th of August, in the space of about seven hours and a half, nearly four hundred meteors were observed at Geneva; while those at Planchettes observed rather more than a hundred; and from a comparison of the two sets of observations, it was found that the average of height of those which had

been observed at both stations was more than 500 miles; while the velocities attained the startling amount of 240 miles in a second.

Such are the results of the observations which have been made on the heights and velocities of these meteors; and we next speak of the theories which have been framed to account for them. Mr. Galloway, in a paper read before the Astronomical Society a few months ago, divides these theories into five classes, and states some of the objections which may be urged against each.

1. Benzenberg, and some other observers, suppose that shooting stars and fire-balls are substances projected from volcanoes in the moon. If a body were projected vertically from the surface of the moon with a velocity five times greater than that of a cannon-ball, it is capable of calculation, on the theory of gravitation, that the projectile would reach a point in space where the earth's attraction is stronger than the moon's, and would consequently then fall to the earth. Benzenberg, in accordance with this theory, supposes that shooting stars are small masses of stone, from one to five feet in diameter; which are projected from lunar volcanoes, and instead of falling on the surface of the earth, are whirled round it in a kind of orbit. The objections to this theory are the extraordinary numbers which appear at intervals, and the periodicity of the August and November meteors.

2. The second theory, proposed by Dr. Olbers, is, that the shooting-stars are the *débris* or fragments of a large planet, burst into pieces by some internal explosion, and of which the asteroids, Pallas, Ceres, Juno, and Vesta are the principal remaining portions. These small fragments he supposes to circulate about the sun in very elongated orbits; and that when they approach the region of space through which the earth is moving, they enter the earth's atmosphere, and by reason of the resistance and friction are rendered luminous, whereby they present to us somewhat the appearance of stars.

3. M. Biot supposes that these meteors have a close connection with the zodiacal light. This is a lens-shaped portion of the heavens which presents a slightly luminous or nebulous appearance, similar to that called the "milky way." It is objected to this theory, that as the earth passes obliquely through the plane of this zodiacal light, it must vary in its distance therefrom, and that therefore the shooting-stars ought to present very different appearances at different times; whereas, they are nearly alike all the year through, although more plentiful at some periods than others.

4. Arago and many other astronomers suppose that independently of the great planets, there exist in the planetary regions myriads of small bodies which circulate about the sun, generally in groups or zones; and that one of these zones intercepts the ecliptic about the place through which the earth passes in November. It would appear from a letter which Sir John Herschell sent to the Athenæum Journal a few weeks ago, that he coincides in this opinion so far as relates to the August meteors. He says:—"The meteors of August 9, 1840, in so far as I observed them, radiated almost without exception from a point in the heavens very near the star γ (gamma) in the constellation Perseus: which is almost coincident with the point (near the star B Camelopardali) from which I observed them to emanate on the 10th of August, 1837." Facts of this nature appear almost decisive in favour of the opinion, that a zone or zones of these bodies revolve about the sun, and are intersected by the earth in its annual revolution.

Mr. Galloway adduces five classes of objections to this hypothesis. First.—That bodies moving in groups in this way, would necessarily move in the same direction, and consequently, when they become visible from the earth, they would all appear to emanate from one point, and move towards the opposite; whereas shooting-stars are observed on the same nights to emanate from all points of the heavens, and to move in all possible direc-

tions. Secondly.—The average velocity at which these shooting-stars seem to move greatly exceeds that which any body circulating about the sun can have at the distance of the earth. Thirdly.—From the luminous train which they generally leave behind them; from their being situated within the earth's shadow, and at heights far exceeding those at which the atmosphere can be supposed capable of supporting combustion, it follows that their light, instead of being reflected from the sun, is self-supported, contrary to every analogy of the solar system. Fourthly.—If the shooting-stars be solid matter, passing within a few hundred miles of the earth, many of them would inevitably be attracted to it; which has never yet been known to occur. Lastly.—Some of the shooting-stars are seen to move in a path inclining upwards; a fact which is difficult to reconcile with the theory.

5. The last theory to which we shall allude is, that advanced by Capocci of Naples. He supposes the Aurora Borealis, shooting-stars, aërolites, and comets, to have a common origin, and to be due to the aggregation of atoms of matter, brought into unison by magnetic action. He supposes, that in the planetary spaces there exist bands or zones of nebulous particles, more or less fine, and endued with magnetic forces, which the earth traverses in its annual revolution; that the smallest and most impalpable of these particles are occasionally precipitated on the magnetic poles of our globe, and form polar auroras; that the particles a degree larger, in which the force of gravitation begins to be manifested, are attracted by the earth, and appear as shooting-stars: that the particles in a more advanced state of concretion give rise in like manner to the phenomena of fire-balls, aërolites, &c.; that the comets, which are known to have very small masses, are nothing else than the largest of the aërolites, which in course of time collect a sufficient quantity of matter to be visible from the earth.

It will be seen from these details that the present state of our knowledge is inadequate to explain the subject of shooting stars. Our ignorance of a subject is often well displayed by the many conflicting theories which accompany it; but we are generally so anxious to explain, that time is not allowed to collect materials necessary to an explanation. Probably many years of accurate observation will be necessary to form a consistent theory on a subject which has only just begun to be included among the *periodical* phenomena of nature.

GARDEN-HERBS. XI.

HYSSOP.

DIOSCORIDES, that gave so many rules for the knowledge of simples, hath left Hyssop (*Hyssopus Arabum*,) altogether without description, as being a plant so well known that it needed none: whose example I follow. A second kind of hyssop (*H. arabum flore rubro*,) is like the common hyssop, and differeth in that, that this hyssop hath his small and slender branches decked with fair red flowers. A third kind (*H. albis floribus*,) differeth only in having flowers as white as snow. The fourth kind (*H. tenuifolia*) is of all the rest of the greatest beauty; it hath a woody root, tough, and full of strings, from which rise up small, tough, and slender flexible stalks, whereupon do grow infinite numbers of small fennel-like leaves much resembling those of the smallest grass, of a pleasant smell and aromatic taste, like unto the rest of the hyssops, but much sweeter; at the top of the stalks do grow among the leaves small hollow flowers of a bluish colour tending to purple. We have in England in our gardens another kind like unto the former, but the leaves are some of them white, some green, as the other, and some green and white, mixed and spotted, very goodly to behold. Of which kind we have moreover in our gardens another sort, whose leaves are wonderfully curled, rough and hairy, growing thick thrust together, making as it were a tuft of leaves; in taste and smell, and in all other things like unto the common hyssop.—GERARD.

Hyssop has nearly the same name in most European languages, and is derived from the Hebrew word *azub*,

which has been variously translated; but its most probable signification is a holy herb, or herb for purifying holy places. At the institution of the Passover, Moses commanded the Israelites to take a bunch of hyssop, and dip it in the blood of a lamb, and to sprinkle the lintel and the door-posts. (Exodus xii. 22.) It was also used by the priest at the cleansing of persons afflicted with leprosy, as well as for purifying the house of the leper. (Leviticus xiv. 4, 49, and 52.) These, and other passages of Scripture, do not refer to the plant which now bears the name of hyssop. A modern authority is of opinion that the hyssop of Scripture is the *Phytolacca decandra*, or that it belonged to the genus in which this plant occurs. The length and straightness of the stem are characteristic of the various kinds of phytolacca, and afford an obvious reason why the Roman soldier placed a sponge filled with vinegar upon hyssop in order to raise it to the lips of our Saviour. (John xix. 29.) The *Phytolacca decandra* and other species of the genus, contain a considerable quantity of potash, so that a hundred pounds of its ashes afford forty-two of the caustic alkali; hence, an illustration is afforded of the passage in Psalm li.—“Purge me with hyssop, and I shall be clean.”

The accompanying cut and description we borrow from the *Bible Cyclopædia*:—

The phytolacca belongs to the family *Chenopodeæ*, in which the barilla plant is found, but it is unlike the rest of its congeners in the extreme beauty of its flowers, and the berries by which they are succeeded. These flowers are generally of a fresh and lively pink, disposed in elegant clusters. The berries are compounded of a circle of carpella, or minute fruits closely joined together. The leaves are generally smooth, and neatly shaped, and the stem is long, smooth, and wand-like. It usually rises to about a foot and a half in height, but in Palestine it sometimes exceeds two feet.

Burder says,—

Salmasius, cited by Wolfius, proves that there was a species of hyssop whose stalk was sometimes two feet long, which was sufficient to reach a person on a cross, that was by no means so lofty as some erroneously imagine.

Some authors have imagined that the hyssop of Scripture is the shrub which we call Winter Savory: but this opinion is contradicted by Pliny, who gives an account of savory and another distinct account of hyssop: he says that the best hyssop grew on Mount Taurus in Cilicia, and next to that the hyssop of Pamphylia was most esteemed. He describes it as a herb not friendly to the stomach. The Romans used it with figs as an aperient, and with honey as an emetic: and a plaster formed from it was thought to be a remedy for the sting of serpents. Five sprigs of hyssop, and two sprigs of rue, boiled with three figs are recommended by him as an excellent drink to relieve the chest.

Aiton notices three species of hyssop and four varieties of the common sort, the earliest of which was cultivated in England in 1548. The species of hedge hyssop noticed by this author are exotics; but as early as the year 1590, Gerard states that he found the broad-leaved hedge hyssop growing wild:—

It groweth in moist places. I found it growing upon the bog or marish ground, at the further end of Hampstead Heath, and upon the same heath towards London, neere unto the head of the springs that were digged for water to be conveyed to London, 1590, attempted by that careful citizen Sir John Hart, Knight, Lord Maior of the Citie of London: at which time myself was in his Lordship's company, and viewing for my pleasure the same goodly springs, I found the said plant not heretofore remembered.

Mr. Henry Phillips has collected a number of authorities to show the high estimation in which hyssop was held during the palmy days of the herbalists. Dodoens wrote much on the medical virtues of this herb; he recommends a decoction of this plant with figs, rue and honey, boiled together, as good for the complaints of the chest, shortness of breath, and hard dry coughs:

when given with figs he says it is an excellent vermifuge, and is an admirable gargle for the mouth and throat. He states also that hyssop boiled in vinegar, and held in the mouth, eases the tooth-ache; and that the decoction removes congealed blood occasioned by bruises, and takes off the black or blue marks. Later authors have greatly commended it in cases of bruises; it may be applied either as a cataplasm, or a little bundle of the plant put into linen rag and applied to the part. Ray gives an account from Mr. Boyle of a violent contusion from a kick of a horse which was happily cured by this herb, boiled and applied as a cataplasm. He says, that the violent pain was almost instantly removed, and the very mark and blackness taken off in a few hours. It is probable, however, that in modern practice a simple fomentation of water would be thought as effectual as any medicated preparation of the herbalists.

Riolanus the elder speaks of the efficacy of hyssop in sugillations* of the eyes:—

I found by experience (says that physician,) the truth of what Archigenes affirms, in Galen, which is, that if the tops of hyssop be tied up in a cloth, and boiled in water, and the cloth afterwards applied warm to the livid eye, the blood will be attracted by the hyssop to such a degree as to stain the linen. Upon this authority I have, several times, prescribed a decoction of hyssop against sugillations, even of the eyes; only, instead of water, I sometimes ordered the bag to be boiled in wine; and directing the application of it somewhat warm to the eye-lids, when the patient went to bed, his eyes being shut, the lividness was removed as well as I could wish.



Phytolacca decandra.

* This word is expressive of the black and blue marks produced on the body by strokes. It is derived from the Latin *sugillare*.

LLOYD, in his *State Worthies*, gives the following account of Sir Edward Coke:—“His parts were admirable; he had a deep judgment, faithful memory, active fancy. And the jewel of his mind was put into a fair case,—a beautiful body with a comely countenance;—a case, which he did wipe and keep clean, delighting in good clothes, well worn, and being wont to say, that the outward neatness of our bodies might be a monitor of purity to our souls.”

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THE SILVER BOOK OF THE GOSPELS.



FAC-SIMILE SPECIMEN OF THE SILVER BOOK OF THE GOSPELS.

THE art of printing was first brought into use by Europeans about four hundred years since, when our ancestors began to shake off their long sleep of a thousand years. Five centuries before that the Chinese began to use the same art at the opposite extremity of the Old World, when England was struggling for life against the Danes; but a sort of printing or impressing was practised in Europe perhaps fifteen, or at least thirteen centuries ago. So near indeed did this mode of impressing approach the present art of printing, that it is surprising no further progress was made. It would be a curious speculation to consider how far the complete discovery of printing might have repelled the thick cloud of ignorance which hovered so long over Europe: the effect may not perhaps have been great: the barbarous tribes who overwhelmed the civilized world might not have appreciated the art, though the subject of this article shows that, under one aspect at least, they were not inattentive to literature. One valuable result would have been, that many important works now lost would have been preserved.

Only one work is now known to exist impressed in the manner alluded to, though probably others were executed in the same way. It is a translation of part of the New Testament into a very ancient dialect of the German language, and is commonly known by the name of the Gothic Gospels, or the Silver Book. It is deposited in the Public Library at Upsal, in Sweden. This book is composed of very thin smooth vellum, of a fine purple or violet colour, and something of the shape and size of the Saturday Magazine. The first three lines of each Gospel, the beginning of the Lord's Prayer, and of any other important passage, and the names of the evangelists, are impressed in gold letters: the rest is all in silver. Much of the volume, in fact nearly a half, is now lost, but more than one hundred

and sixty leaves are yet remaining, to show how beautiful the whole must have been when complete, and to enable an artist to judge with accuracy of the means by which the work was done.

Any one who has seen a bookbinder letter the back of a book will have a good idea of the manner in which the Silver Book was executed, for there is no doubt that the processes were very similar. A bookbinder rubs some sticky substance, such as white of egg, on the book he is about to letter, places a leaf of gold upon it, and then takes up a series of heated metal letters, one after another, and presses each in its turn strongly upon the gold leaf. The gold is firmly fixed upon the leather in the places where the impression is made, and the remaining loose gold is wiped off with a rag. This was the old process of lettering, which is still much in use, and this was the way in which the Silver Book was executed, only that silver was used instead of gold, and a cement of an oily nature instead of the white of egg.

Much dispute having arisen as to the reality of this process, Professor Ihre instituted a very minute examination of the Codex in the presence of four literary gentlemen, and came to the conclusion that the work was produced by the impression of metal types. In the first place each letter is respectively so exactly similar in form to every other, that it would be quite impossible for the best writer to imitate its perfect regularity: this argument will be best appreciated by those who have compared the very best manuscripts with any printed book whatever: they must have remarked that in print, from all the similar letters being cast in the same mould, the regularity is indisputable, however defective in other matters the execution may be. The next proof was the tangible remains of the impression: the form of every letter is hollow on the face of the vellum, and on turning to the back of the leaf, it is there found to be convex,

so palpably that the simplest touch will immediately show the place where the type has been pressed down, the margin being quite smooth and the impressed part rough. In a hundred cases the substance of the vellum has been actually cut out by the impression of the tool, while the surrounding leaf is entire. To complete the evidence, a film of a glutinous or oleaginous nature was in many parts perceptible, in a strong light, between the metallic foil and the vellum to which it had adhered.

The only argument now remaining for those who contended that the whole was written with a pen, depended on the assertion that vellum could not be impressed in that way, without wrinkling up and becoming contracted. This was however disproved by Gerard Meerman, who says, in his *Origines Typographicæ*, that his bookbinder tried the process for him, and found it succeed as well with vellum as with leather.

Some fragments of other portions of Scripture have since the discovery of the Silver Book been found in several places, particularly parts of the Epistle to the Romans, in the Library of Wolfenbuttel: these were published by Knittel, who states that they appear to have been impressed in a similar way to those of the Upsal Book. It is curious enough that this language should be the only one in which evident proofs of the practice of this art should be found. It must have been too costly for ordinary use, and perhaps the only persons rich enough to command such expensive luxuries were the monarchs of the conquering tribes by whom the language was spoken.

The history of the Silver Book is curious: it had been lying from an unknown period in the Library of Werden, near Dusseldorf, on the Rhine, until the early part of the seventeenth century, when it was removed to the city of Prague, in order to escape the ravages of the thirty years' war. When that city was taken by Königsmark, the book came into the possession of the Swedes, and was deposited in the Royal Library of Stockholm. Very soon after this the learned Vossius became possessor of it.—how, it is not known, but he was suspected of having stolen it, while on a visit to Christina, queen of Sweden. Voss took it with him to Holländ, where about seven years after it was seen in his possession by Puffendorf, who purchased it for the sum of six hundred rix dollars, on account of the Count Gabriel de la Gardie, by whom it was presented to the Public Library of Upsala, where it still remains.

The language and age of this version of the Scriptures have been still more a subject of dispute than the manner of its execution. It is commonly called Gothic, and supposed to be the translation made in the middle of the fourth century by Ulphilas, bishop of the Goths, who then inhabited the country now called Walachia, on the lower part of the Danube. This is still the usual opinion, but several learned men have called it in question; they argue, and we are much disposed to agree with them, that there is no evidence whatever of its being Gothic, and that the presumption is rather in favour of its being Frankish, because the place where it was found was not inhabited by the Goths but was a portion of the territory of the old Franks. The alphabet is very similar to that of the known existing remains of old Frankish, and two additional characters, found in no other dialect of the German tongue, very nearly amount to a positive evidence of the country and date of the work. Those letters are Ψ and Θ , the first of which, in the Silver Book, stands for *th*, and the last, for *ye*. Now it is stated expressly by Gregory of Tours, a French historian, who lived in the sixth century, that Chilperic, king of the Franks, ordered four letters to be added to the alphabet of their language, and the two letters given above are among the four. As the use of these letters ceased with the life of the monarch who introduced them, the date of the book, if this opinion be well founded, may be ascertained within a short period, Chil-

peric having died in 584, after a reign of seventeen years. Perhaps in this, as in many other disputes, there may have been truth on both sides; the translation may have been that of Ulphilas, and the copy now existing impressed by a Frank of the time of Chilperic. The language of all these tribes was the same. Procopius in the sixth century, and still more positively Walafrid Strabo in the ninth, asserts this; his words are, "The Goths or Getes who dwelled in the provinces of Greece, when converted to the faith of Christ, used our language, that is the Theotisc . . . they had the Scriptures translated into their own tongue, copies of which are yet in existence." The word Theotisc is nearly identical with Teutsch, the name by which the Germans designate their country and language to this day: and the Franks used a cognate language even in France, as late at least as in the days of Charlemagne.—Whichever way the question may be decided, it must be admitted that the Silver Gospel is one of the oldest books and most curious remains of ancient art known to be in existence.

A fac simile of part of a page of the Silver Book is given at the head of this paper. The four lines shown contain the twenty-fourth and beginning of the twenty-fifth verses of the eleventh chapter of Saint Matthew, with the exception of the first syllable of the twenty-fourth verse, which is in the preceding line, not copied here. The twenty-fifth verse being the beginning of a new subject or section is headed with gold in the original, shown in the fac-simile by dotted letters. The transcription in Roman letters and literal translation will stand thus, supplying the few letters at the beginning and end to make complete sense:—

[Swe] thanh qwitha truis thatel
airthai
Saudunge suttao walrithith
in daga stauoe thah thus.
Iauh gainamma mole andhaf
[Iasus].

Truly I say to you that for the
earth
of Sodom better it shall be
in the day of judgment than for ye
in that time [Jesus] answerd.

The bottom of the page has been selected for the purpose of showing the ornamental mode of exhibiting what appears to be the parallel passages. The letters RI, on the left of the colonnade, stand for 110, being the number of the section, as at that time the New Testament had not been divided into chapters and verses. The monogram in the first arch, composed of M surmounted by Ψ (th), stands for Matthew, and the letters under it for 109, 110. In the next arch stands JOH, and in the third LUK, with the letters RIB, meaning 112; in the fourth arch is the monogram $\frac{M}{R}$ for Mark. All these letters are of gold; and the effect of the whole, combined with the purple hue of the vellum, is a degree of magnificence which could not have been expected in a work executed at such a period, and which is not often surpassed in our own day of splendid typography.

THE present life overcomes futurity, by being daily with us, as a small object near the eye can shut out the most magnificent prospect beyond.—AIRD.

To play with important truths, to disturb the repose of established tenets, to subtilize objections, and elude proof, is too often the sport of youthful vanity, of which maturer experience commonly repents. There is a time when every man is weary of raising difficulties only to task himself with their solution, and desires to enjoy truth without the labour or hazard of contest.—DR. SAMUEL JOHNSON.

FABLES were suffered to float vaguely through the popular mind of the ancients, but of religious instruction, in our sense of the words, no trace is to be discovered, except amongst the Jewish nation.

If the evidence of revelation had been weak, why were minds like those of Locke, of Bacon, and of Newton, which boldly destroyed prejudices in science, blind to those in religion?—LORD TEIGNMOUTH.

LIGHT AND DARK MORNINGS.

In the pages of that once almost universal Kalendar, the venerable *Vox Stellarum*, which still annually announces itself as "containing all things fitting for such a work," under the undying editorship of "Francis Moore, Physician," who, regretfully be it spoken, yet holds his oracular sway over the minds of thousands, many of your readers will have noticed a column headed "clock before the sun," or, "clock after the sun." It is well known that a sun-dial and a well regulated clock seldom indicate precisely the same time; and the information contained in the undying editor's table of "the equation of time," is duly appreciated by those who wish to regulate their clocks or watches.

It is not my purpose to give a long or learned dissertation on the subject of the "equation of time*," or to explain at much length the different terms used for denoting time's admeasurement. There is solar, or apparent, time, as shown by a sun-dial; and there is mean time, or true time, as shown by the clock. There is the sidereal day, that is, the time of the earth's revolution on its axis, or the time that elapses between the southing of any star to-night and its coming to the meridian, or southing, the next night, which is 23 hours and 56 minutes; and there is our solar day of 24 hours, that is, 24 hours, on an average, throughout the year.

Then we have the astronomical day, commencing and terminating at noon, computed by 24 hours, (not 12 and 12, as in the solar day;) thus October 12th 16h. 30m. of astronomical time, means $\frac{1}{2}$ past 4 of the morning of the 13th by the ordinary mode of computation; and we have the original, the primeval day, commencing and terminating in the evening, as in the language of Holy Writ, "And the evening and the morning were the first day," which mode of computation is still observed by the Jews, their sabbath terminating on the evening of our and their "seventh day, which is the sabbath of the Lord." At this time, 6 o'clock in the evening, they reopen their shops, which have been closed since 6 o'clock of Friday, and again commence business for the remainder of the Saturday evening, closing them during the Sunday; thus "losing," as some will term it, two days in the week, by continuing to observe their own, as well as the Christian sabbath. May the day speedily approach when they shall come into the true sheepfold.

When at school, we were rightly instructed that, "the sun sets as much after 6 as it rises before, or as much before as it rises after." This is worth remembering; and to such of our younger readers as are not familiar with the rule, we recommend a second perusal. But it applies only to 6 o'clock solar time, and not to true time: for a person who should suppose, on the 13th of October, for instance, and the 1st of March, (these two days being of equal length,) that the sun will rise at the same time, on each day, by the clock, would find himself just half an hour wrong in his reckoning; as a reference to any Almanac that gives the sun-rise and sun-set in true, not solar, time, will immediately convince him.

There are only four days in the year on which the clock and sun coincide, viz.—the 15th of April, the 15th of June, the 1st of September and the 24th of December; and the times of greatest variation are the 10th of February, when the clock is 15 minutes before the sun, and the 2nd of November, when it is 16 $\frac{1}{2}$ minutes after the sun; thus making a difference of half an hour between the two extremes. And to this, as the cause of our "light" or "dark" mornings or evenings, it is my wish to direct the attention of the reader.

It may be seen by referring to any table which gives the time of sunrise and sunset at London, that on the 21st of February and the 21st of October, the sun rises at 52 minutes after 6, solar time; now both days being of equal length, (10 hours and 16 minutes,) the sun of course rises at the same hour, solar time, each

* See *Saturday Magazine*, Vol. XIV., p. 83; Vol. XV., p. 161:

day; and according to the rule previously mentioned, he must set 52 minutes before 6 solar time, but if we take the time by the clock, we shall find that he rises half an hour later on the 21st of February than on the 21st of October; for in February the clock is 14 minutes before the sun; and consequently, by clock time, he rises 6 minutes after 7, and the mornings are "dark." In October, on the contrary, although the day is the same length, yet the clock being 16 minutes after the sun, he rises 36 minutes after 6; and the mornings are "light," and at this season of the year, early risers reap a decided benefit from the phenomenon of nature.

Early rising! Oh that we had more practical acquaintance with this blessing, that we were more alive to the beauties and melodies of the "sweet hour of prime," that we more frequently compelled ourselves to taste the pleasures so rapturously described by the poet,

The morn is up again, the dewy morn,
With breath all incense, and with cheek all bloom,
Laughing the clouds away in playful scorn—

To a contemplative mind, and a lover of nature—to one who

Looks through nature up to nature's God.

the theme is inexhaustible. With heart and soul he adopts Beattie's beatific outburst to the "melodies of morn;" as, with emotions known only to him who can lift his eyes to heaven and say "My Father made them all," he exclaims

But who the melodies of morn can tell?
The wild brook babbling down the mountain side;
The lowing herd; the sheepfold's simple bell;
The pipe of early shepherd dim descried
In the lone valley; echoing far and wide
The clamorous horn along the cliffs above:
The hollow murmur of the ocean tide;
The hum of bees; the linnet's lay of love;
And the full choir that wakes the universal grove.

And, adopting the same writer's description of the beauties of morning, say,

Oh how [can I] renounce the boundless store
Of charms which nature to her votary yields?
The warbling woodland, the resounding shore,
The pomp of groves, the garniture of fields;
All that the genial ray of morning gilds!

Gentle reader! excuse this digression; and, with one more extract, I will return to the subject of my paper: it is from the pen of a pious lawyer, when, descending on "the drops of dew hanging from every blade of grass, and reflecting the rays of the sun in a thousand different directions," he says:—"Not a sound was heard, nor a leaf moved, whilst the secret operation was advancing: and what a pleasant emblem does this afford of the influences of the Holy Spirit. How mild, how gentle, how imperceptible have its effusions often been upon our minds!"

To return: it will be seen from what has gone before, that, when the clock is before the sun, the mornings are "dark" and the evenings "light;" and when the clock is after the sun, the mornings are "light," and the evenings "dark." In fact the "equation of time" causes such a variation of time between the clock and the sun, that, on two days of the year, of precisely the same length, the sun may rise half an hour earlier one day than on the other. See 1st of February and 10th of November.

In May and August the equation is reversed; but the variation being less, the phenomenon is of course not so striking.—*From a Correspondent.*

THOSE that with diligence fight against poverty, though neither conquer till death makes it a drawn battle, expect not, but prevent, their craving of thee: for God forbid the heavens should never rain till the earth first opens her mouth; seeing some grounds will sooner burn than chap.—*FULLER.*

ON CHESS. XXIII.

THE KNIGHT'S MOVE, (concluded.)

WHEN the method of solving the problem of the knight's move, as stated in our last article, is thoroughly understood, the young chess student may pass on to that which constitutes the peculiar feature of Dr. Roget's method, and which confers on it that generality and comprehensiveness never before attained: viz., the power of *ending* as well as of beginning on any *given* square, provided, of course, that the two squares be of opposite colours. When the two given squares are named, the player must attentively notice to what systems they belong: whether both are in diamond systems or in squares, or one in a diamond and the other in a square: also, if both are diamonds, whether the two form parts of the *same* diamond system or not. The determination of these points will decide the mode of procedure. If the two squares belong to the same system, we must depart from one of the instructions given in the last article: we must not complete that system before passing to another, because one square belonging to it is to be the very last of the 64. We must therefore pass on to another system before completing the first one, and it is optional to leave as many as we please, to assist in forming links to conduct to the terminal square. Dr. Roget recommends that one or two squares of the system should be left to the last, but we incline to the opinion that it will be better to leave a greater number,—that is, after covering two or three squares of that system to which the initial square belongs, pass on to the other three systems successively, complete the 48 squares of which they consist, and then cover the remaining 13 or 14 squares of the first system. We will illustrate this by a problem. Required: to commence at the king's rook's square, and to terminate at the king's bishop's 6th square. These two squares belong to the same diamond system; consequently we must pass on to another system before completing this one. In the diagram (fig. 5) we begin at the rook's square, and cover only two squares of the diamond system to which it belongs: we then pass on to a square system, the 16 squares of which we complete; after this we traverse the 16 squares of the other diamond system, and then the 16 of the other square; finally, we cover the remaining 14 squares of the first diamond system, and end at the required position.

If the initial and terminal squares are respectively in the two diamond or the two square systems, another modification is required, arising from the circumstance that the knight cannot pass from one diamond system to the other, nor from one square system to the other. Let the initial square be in one diamond system, and the terminal square in the other. Complete the first diamond system; then one of the square systems; then traverse a *portion* of the second diamond system, omitting that square which is to be the terminal square, as well as some others; after this, cover the second square system; and lastly, traverse the remainder of the second diamond system, ending on the required one. By transposing the words "square" and "diamond" in this description, it will be available for that variety of the problem which begins in one square system and ends in the other.

If the initial square be in a diamond system and the terminal in a square one, or *vice versa*, the solution is easier than in either of the cases before supposed; because all the four systems can be completely traversed in succession, by bearing in mind that the *second* system traversed must not be that which contains the terminal square.

We have endeavoured to impress on the mind of the reader, that attention to the respective *systems* in which the initial and terminal squares are contained, is the point of most importance in giving a general solution to

the varieties of this problem. When this is once attended to, minor difficulties are more readily surmounted. Among these are, the quarter of the board on which the terminal square is situated. Not only must the tour of the knight, in a given problem, end in a particular system, but also in a particular quarter of the board; and as the tour may generally be made from left to right or from right to left at pleasure, we must choose that direction which, while it obeys the conditions of the problem as to systems, shall terminate in that quarter which contains the terminal square. We may illustrate this by referring again to fig. 5. The terminal square is in the right hand upper quarter. After covering 2 squares of the first diamond system, and then traversing the 48 squares which constitute the other three systems, we find the knight in the left hand upper quarter, only two squares distant from the terminal square; and as we have still 14 moves to make, we manage to go into all the other three quarters of the board before arriving at that one which contains the terminal square. In every instance, if the rules which we have given are attended to, and any difficulty arises towards the end of the tour, a reconsideration of a few of the last moves will enable the player to surmount the difficulty. The moves which it is in the power of the knight to make at any given moment, varying from one to eight in number, give such interminable variety to the modes of solution, that the judgment of the player must be exercised as to the choice of the mode of proceeding in each particular instance; but it is only in the last few moves that this judgment is particularly called for, provided the prescribed rules are attended to. Of the number of ways in which the problem can be solved no estimate has yet, as far as we are aware, been made; nor do we know of any means but actual trial by which it could be determined, since the regular arithmetical law of permutation will not here apply. If the squares of the board were numbered from 1 to 64, and these numbers were noted down in the order in which the knight moved, we have very little doubt that this order might be varied in more than a *million* different ways; there are $64 \times 32 = 2048$ modes of varying the initial and terminal squares alone; and in each mode the intermediate moves are susceptible of variation at almost every step of the process.

Such is the result to which Dr. Roget's extremely ingenious investigation enables us to arrive. Until his method appeared, no one, we believe, was able to insure a solution to the problem when both the initial and terminal squares were prescribed; except in the limited instance of a re-entering route, where the terminal square is a knight's move distant from the initial one. By the method which we have just endeavoured to explain, the problem can be solved whether the terminal square be far removed from the initial one, or contiguous to it; the only condition being, that the squares must be of different colours.

To shew the interesting variety of which this problem is susceptible, we will here give three additional representations, each of which possesses some peculiar property capable of being committed to memory: they are partly original, and partly altered from methods already known; and the whole of them differ from Dr. Roget's mode of solution. Fig. 6 is produced by attending carefully to this one simple rule:—*Keep as far from the centre of the board as possible.* In obedience to this direction, the tour of course commences in one corner, no matter which, and every successive move is determined according to the distances, from the centre of the board, to those squares open to the knight; the greatest distance being always chosen. It might appear from this rule, that the terminal square ought to be still nearer to the centre of the board than it is seen to be; but it will be found that in the course of the preceding moves, the four central squares have necessarily become occupied; since

Fig. 6



Fig. 6

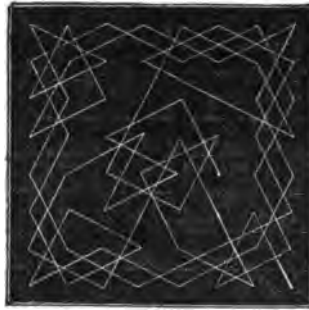
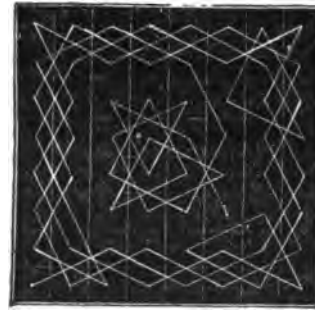


Fig. 7 (a).



it happens in some cases that there is only one square left open to the knight, and that one may probably be near the centre of the board. No difficulty will occur, provided we adhere strictly to the one rule laid down.

Fig. 7 is produced by adhering to the following rule: *Play the knight to that square where he has least power.* Supposing the board to be unoccupied except by the knight, the reader can easily satisfy himself, that the knight can command 2, 3, 4, 6, or 8 squares, according to his position: if in one corner, he commands only 2 squares; if he be on the knight's square, he commands 3 squares; if on the bishop's square, 4 squares; and as he approaches the centre, the squares commanded are 4, 6, or 8 in number. Now the rule requires, that in every instance the square chosen for the knight's leap be that which, of all those remaining open to the knight, will give him least power. If at any move there are two open squares of equal power in this respect, either one may be chosen. In many points this solution resembles the last, since, generally speaking, the knight

has "least power" when "farthest in the centre;" but a comparison of the two figures produced will show that the routes are by no means identical.

Fig. 8 (a) is possessed of a most remarkable numerical property, and belongs to a class of problems which would be found fertile in interesting combinations. In order to exhibit this property, we have in a separate diagram or table, fig. 8 (b), numbered the squares in the order in which the knight stepped on them. The tour commences on one of the central squares, which we have marked 1, and terminates on the king's bishop's third, which is therefore marked 64. Now it will be found, that if we select two squares on opposite sides of the centre, and equidistant from it, the *difference of the two numbers occupying those squares will be always equal to 32.* Thus, the opposite corner squares are 16 and 48, 27 and 59; and $48 - 16 = 59 - 27 = 32$: the four central squares are 1 and 33, 14 and 46; and $33 - 1 = 46 - 14 = 32$. In the same way we may select any two squares, provided the centre of the board is precisely

Fig. 8 (a).

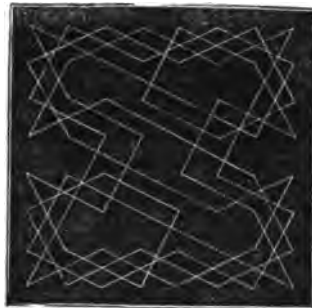


Fig. 9 (a).

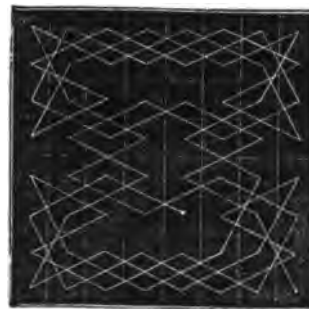


Fig. 8 (b.)

48	65	4	29	10	53	6	27
8	30	49	64	5	28	11	52
66	47	32	9	50	13	26	7
31	2	57	46	38	8	61	12
44	19	40	1	14	25	34	63
39	58	45	18	41	64	16	24
20	43	60	37	23	17	62	35
69	36	21	42	61	36	23	16

Fig. 9 (b.)

17	8	43	38	15	10	45	30
42	39	16	9	44	37	14	11
7	18	41	48	5	13	35	46
40	49	6	19	34	47	4	13
29	20	68	60	3	22	33	56
62	51	28	21	64	67	2	23
27	30	53	60	25	32	55	58
52	61	26	31	54	59	24	1

between them, and equidistant from them, and we shall find that the smaller number subtracted from the greater will invariably leave 32.

There are other remarkable circumstances connected with this last solution. The route is a re-entering or interminable one, and the figure produced, as seen in fig. 8 (a), is one of the most symmetrical which we have yet given. The route being interminable, may be commenced on any square, and as the initial square must always be marked 1, the distribution of the numbers over the board would vary with the varying of the initial

square, every square being affected alike. Now it will be found, that at whatever square the route commences the same numerical law will hold good; there will in fact be 128 modes of varying the order of the numbers, in all of which the same figure will be produced, and the same remarkable law will be observed; because any square out of the 64 may be selected as the initial square, and from each we may begin the route either to the left or the right.

Another example of the maintenance of a particular law throughout the numbers obtained, we will here give

in order to shew the reader how varied may be the results to which he can arrive by a little ingenuity. Fig. 9 (a.) is a very pleasing and symmetrical figure, produced by a route of which the numbers are entered in fig. 9 (b). If these numbers are examined, it will be found, that the difference of two numbers situated on opposite sides of the centre, and equidistant from it, is 16,—half the amount of constant difference in the last case. This route is not a re-entering one, and we do not think it could be made so, with a constant difference of 16.

The reader will now have had sufficient proof of the diversified solutions of which the knight's problem is susceptible. We have never heard of a chess kaleidoscope, but the instructions we have given will enable him to form one out of the numerous other modes of solution which may be left to his ingenuity to produce. Nor will the study of this subject be without its use to the chess-player; since it not only teaches the art of manœuvring this beautiful piece, but brings the fact into forcible notice, that the knight has less power of moving, and therefore becomes less valuable, when he approaches the corners and sides of the board.

SACRED LITERATURE.

DIVINITY and ethics are the centre round which the national literature of a great, a thoughtful, and enduring people, must ever revolve. The subject-matter of these sciences alone possesses an interest sufficiently steady and intense, to give birth and impart active purpose to great ideas. The literature which rests on taste and manners, is dependant for its charm on those peculiarities which gave it existence. The literature of mere sentiment springs up and perishes, annually, before the sated eye, like other sickly productions of the hot-bed. The literature of classical research is intelligible to few; and being deficient in applicability to the practical realities of life, is almost limited in value to the charm of an exquisite amusement. The pursuits of natural science, though in the highest degree useful and pleasant to man, as inhabiting the world of sense, regard merely his external accommodation, and, with their results, will disappear when "all these things shall be dissolved."

But the literature of divinity and ethics is liable to none of these objections. Rooted, not alone in the truth of things (which is the essential ground of all literature, worth the name), but in Deity itself, its pure themes are fit to be adorned, and never can they be exhausted, by the loftiest inspiration of genius. Not concerned in the external welfare only, and present interests, of mankind, but with men's inmost and immortal well-being, it has a practical value which cannot be over estimated. Making no severe demands upon intellect, no rarer qualification is needed for enjoying it, than ordinary sobriety of mind. Dependant on nothing fluctuating, it possesses equal charms for the wise and good of every period, age, and condition. Whatever is sublime in thought, may be met with in the pages of our sacred writers. Whatever is rich, powerful, noble in elocution, their high majestic themes demand, and have received from them. Whatever is strict in logic and cogent in argument finds here a place and application. Minds of the most various altitude and construction here expatiate in an apt and ample field. The abyssal simplicity of St. John, and the fervent ratiocinative energy of St. Paul,—the eloquence of Chrysostom, and the warmth of Augustine,—the affectionate sweetness of a Leighton, and the exhaustive vigour of a Barrow,—find here more than commensurate employment.

So attractive and absorbing, so high and central are the subjects which this department of literature presents, that all great writers, in proportion as they approach those altitudes of conception and expression, their being able to reach which, marks them great, rush into it, and become, at least for a time, moral and theological teachers. Shakspeare in his most earnest moments was a divine and moralist; Addison and Johnson were often professedly such; to the same sphere the genius of Wordsworth, and even sometimes of Scott,

Repairing, in their golden urns drew light.

Introductory Essay to Gems of Sacred Literature.

GARDEN HERBS.

TANSEY.

Tanacetum vulgare, or common tansey, is a well-known native plant. It belongs to the Corymbiferous tribe of the natural order *Composita*, and is common in the banks, hedges and borders of fields in most parts of the middle of Europe, and very frequent in England. Linnaeus enumerates eight species of this herb. The common yellow-blossom tansey, of which there are three varieties, is said to be a native of Britain. The English name of this plant is either an abbreviation of the Latin, or is derived from the French name, *Tanaise*.

This herb may often be seen growing in churchyards, and it is probable that it was once used as a funeral plant. Boerhaave informs us that the leaves intruded into the mouth and nostrils of a dead body preserve it from decay, and from the attacks of insects; whence the plant has been called *Athanasia*, or the immortal. It is also stated that if meat be rubbed over with tansey the flesh-fly will not deposit its eggs in it.

Tansey has a bitter taste, and an aromatic smell; it was formerly held in regard for warming and strengthening the stomach, for which reason the young leaves obtained a place among culinary herbs, their juice being used in puddings. In Gerard's time they made cakes of the young leaves in the spring mixed with eggs, which were called tansies; "these," he says, "be pleasant in taste and good for the stomach; for if any bad humours cleave thereunto, it doth perfectly concoct them and carry them off. The root preserved in honie or sugar, is an especial thing against the gout, if everie day for a certaine space, a reasonable quantitie thereof be eaten fasting." Boerhaave says: "This balsamic plant may supply the place of nutmegs and cinnamon. For I believe Asia does not afford a plant of greater fragrancy than tansey."

Notwithstanding this high praise, tansey is now but rarely used as a domestic vegetable; our habits, customs, and diet are not those of our forefathers, especially in those times when the season of Lent was strictly observed as a fast. It was then a common practice to make cakes at Easter, of flour, eggs, and the tender leaves of tansey, and these were not only greatly prized, but were thought necessary to be eaten at that season in particular, to relieve the stomach of the real or imaginary ill occasioned by a continued diet of fish and pulse. The custom of eating these cakes at Easter only is greatly censured by Culpeper:—

The world (says he) being overrun with popery, a monster called superstition perks up his head, and, as a judgment of God, obscures the bright beams of knowledge by his dismal looks; (physicians seeing the pope and his imps selfish began to be so too), and now, forsooth, tansies must be eaten only on Palm and Easter Sundays, and their neighbour days. At last, superstition being too hot to hold, and the selfishness of physicians walking in the clouds; after the friars and monks had made the people ignorant, the superstition of the time was found out by the virtue of the herb hidden, and now it is almost, if not altogether, left off. Surely our physicians are beholden to none so much as they are to monks and friars. For want of eating this herb in spring, makes people sickly in summer; and that makes work for the physician. If it be against any man or woman's conscience to eat tansey in the spring, I am as unwilling to burthen their conscience as I am that they should burthen mine; they may boil it in wine and drink the decoction—it will work the same effect.

Tansey is perennial: it may be easily propagated by seed, and also by parting the roots in spring, and planting them in any sort of light soil or situation.

CHERVIL.

Sweet chervil, or sweet cicely, groweth very like the great hemlock, having large spread leaves cut into divers parts, but of a fresher green colour than the hemlock, tasting as sweet as the aniseed. The stalks rise up a yard high, or better, being cressed or hollow, having leaves at the joints.

but lesser; and at the tops of the branched stalks, umbels or tufts of white flowers; after which come large and long creased black shining seed, pointed at both ends, tasting quick, yet sweet and pleasant. The root is great and white, growing deep in the ground, and spreading sundry long branches therein, in taste and smell stronger than the leaves or seeds, and continuing many years.

Such is the old Herbalist's description of *Cherophyllum sativum* (natural order *Umbelliferae*), of botanists. This herb was called *Χαιροφυλλον* by the Greeks, either from its numerous leaves, or as the old herbalists suppose from the joy and gladness which they affirm the leaves of this plant produced in those who ate them. The Romans adopted the same word, and called the herb *Cherophyllum*, and in most of the modern languages of Europe, the name of this vegetable is derived from the same source; the Dutch call it *Kervell*, the Germans *Korffol*, the Italians *Cerfoglio*, the French *du Cerfeuil*, and our oldest botanists write it *Cheruell*.

Chervil is a native of the Levant, and various parts of Europe, and is sometimes found in its native state in this country. When young it somewhat resembles parsley; but as it runs to seed, it bears more the appearance of hemlock. The tender leaves are grateful to the palate, especially when used in soups and salads. It is much cultivated by the French and Dutch, who are so fond of it, that they scarcely ever omit it in their soups and salads: and it is considered to be a milder and more agreeable addition to seasonings than the parsley, so generally used by English cooks. Gerard, about two hundred years ago, had an extensive garden in London, in that part of Holborn now called Hatton Garden, and in his *Herbal* he says:—"The great sweet cheruill groweth in my garden, and in the gardens of other men who have been diligent in these matters." He recommends the roots of this plant to be first boiled, and then eaten with oil and vinegar, "which is very good for old people that are dull and without courage; it reioiceth and comforteth the heart, and increaseth their strength."

We select from Mr. Rogers' *Vegetable Cultivator* the method of rearing this useful plant; Chervil is annual, and the seed should be sown to keep up a succession, from the beginning of March till June, at the intervals of about a month, as the younger it is the higher flavour it imparts.

The seed may be sown in shallow drills, from six to nine inches apart, and covered over lightly with the mould; it can also be sown broad-cast and raked in lightly and evenly. If the plants rise thick, a slight thinning will be necessary; and in dry weather a little water will be useful.

To have chervil for use throughout winter, it should be sown towards the end of August in a three or four foot bed, which may be hooped over and the plants protected with mats in frosty weather. The plants remain where sown, and are never transplanted. They are proper for gathering when the leaves are three or four inches in growth, and must be cut off close; they will shoot up again, and may be gathered in succession, though the plants of the spring and summer sowing soon spindle up into seed-stalks, ceasing to produce young leaves, which are the useful parts.

THE WATER-OUZEL.

Cinclus aquaticus.

THE remarkable appearance and habits of this bird have excited much popular as well as scientific attention; and as it is very generally dispersed over Europe and capable of enduring all climates, so large a variety of names have been applied to it as frequently to embarrass the student who may desire from books to add to the knowledge gained by observation in the haunts of nature. In Wales this bird is the *Mwyalchen y dwfr*; in the Scotch Highlands the *Gobha uisge*; in England it is called the *Water ousel*, the *Dipper*, the *Penrith ousel*, the *Water*

crake, the *Water crow*, the *Water colly*, the *Bessy Ducker*, and some other names. The Scotch call it the *Water pyet*, the *Water craa*, &c.

The Water Ouzel belongs to the dentirostral division of Cuvier's great order Passeres, and to the thrush family in that order. The bird is dumpy in appearance, but full of energy and activity. The bill is slender, the head and the forehead low; the body is short and compact, the wings short and rounded; the tail is also short, but very thick and strong. Its plumage is thick and close, like that of aquatic birds, and though the bird remains long in the water its plumage does not become wet. The colour of the bird on the head, back, and sides, is deep brown; the rest of the upper part, black: the tail feathers and quills are also black; the throat and breast are white, shading off into reddish-brown towards the under parts, and gradually becoming deeper in hue towards the extremity of the tail: the bill is dark brown, and the feet yellowish-grey. The markings are nearly the same in both sexes. The markings in the young birds appear to be subject to variation.

The water ouzel loves to haunt the rocky wilds of almost any northern clime; it seems not to care for the vicissitudes of heat and cold, and provided it can be near water that is not frozen it is cheerful and happy. The deep and rugged channels worn by the mountain streams which dash on against opposing rocks, or amidst loose stones, are the favourite resorts of the water ouzel.

. The bird
Is here,—the solitary bird, that makes
The rock his sole companion. Leafy vale,
Green bower, and hedge-row fair, and garden rich
With bud and bloom, delight him not;—he bends
No spray, nor roams the wilderness of boughs,
Where love and song detain a million wings,
Through all the summer morn—the summer eve;—
He has no fellowship with waving woods,—
He joins not in their merry minstrelsy,—
But flits from ledge to ledge, and through the day
Sings to the Highland waterfall, that speaks
To him in strains he loves, and lists
For ever.—CARRINGTON.

The habits of the water ouzel are retiring: when it becomes observed by the traveller, it flits from stone to stone, chirping and appearing as if incapable of flight. If pursued it appears scarcely to make an effort to avoid capture, and yet it is seldom or never captured. The traveller, secure of his prey, gives chase; the bird is almost within reach; it flirts its tail, and every now and then jerks round, as if half astonished, half inviting.

So onward they fare (says the writer of the agreeable sketches of the *Feathered Tribes of the British Islands*) till they come to a bolder and tougher stratum, which has obstructed the stream, but at the same time given it fall and force to scoop out a pool below, which though it boils where the cascade plunges (or rather where it rises again), is placid compared with the brawlings that have been passed. The water merely laves a beach of clean pebbles, the rocks on the other side are "sky high," without footing even for a bird, and the *breast*, over which the water dashes, seems too high for a thing so hopping and badly-winged. The bird halts on the beach, and forward the traveller rushes, hat in hand, to the capture, but the wet stones are treacherous, end-long he falls, dips himself, and rising sees the hat which was to capture the bird, whirling round and round in the eddies. The bird too has vanished—it is "a sprite" to wile him into peril. But it soon "bobs" to the surface, at the lower end of the pool on the other side, with its feathers dry without any shaking of the water, and leaping first on one stone and then another, it descends the ravine with the same nonchalance that it ascended. To recover the hat is a much more arduous matter than to lose the bird, but that too may be accomplished with one of the long suckers of hazel, which grow from the tangled and gnarled stool on the bank, though if the hold be not taken warily, and kept carefully, there may be a second dipping—and yet no dipper to boast of.

The manner in which the water ouzel seeks its food is very remarkable, and does not seem to have been gene-

rally known until the communication of M. Hebert to the Count de Buffon excited the attention of naturalists.

I lay ambushed (says he) on the verge of the lake Mantua, in a hut formed of pine-branches and snow, where I patiently waited till a boat, which was rowing on the lake, should drive some wild ducks to the water's edge. I observed without being perceived: before me was a small inlet, the bottom of which gently shelved, and might be about two or three feet deep in the middle. A water ouzel stopped here more than an hour, and I had full leisure to view its manœuvres. It entered into the water, disappeared, and again emerged on the other side of the inlet, which it thus repeatedly forded. It traversed the whole of the bottom, and seemed not to have changed its element, and discovered no hesitation or reluctance in the immersion. However, I perceived several times, that as often as it waded deeper than the knee, it displayed its wings, and allowed them to hang to the ground. I remarked too that when I could discern it at the bottom of the water, it appeared enveloped with air, which gave it a brilliant surface, like some sorts of beetles, which are always in water, enclosed with a bubble of air. Its view in dropping its wings on entering the water might be to confine this air: it was certainly never without some, and it seemed to quiver: these singular habits of the water ouzel were unknown to all the sportsmen whom I talked with; and perhaps without the accident of the snow-hut I should have ever been ignorant of them; but I can aver that the bird came to my very feet, and, that I might observe it, I did not kill it.

The quivering motion of the wings spoken of in the above extract is simply an upward stroke tending to keep the body down, in opposition to any difference in gravity between the bird and an equal bulk of water. As soon as the bird enters the water it elevates its head and raises its wings, and thus depresses the body; and this is done so easily and so rapidly that the bird runs down the bank to the bottom of the stream with apparently no greater effort than would be required for simple motion on dry land. A moment's reflection will make it appear less wonderful that a bird should be able to remain beneath a fluid which, bulk for bulk, is heavier than itself, than to sustain itself in the air, which, bulk for bulk, is so very much lighter than itself. In flying, the bird sustains itself by the downward stroke of the wings, and the water ouzel pursues its food in the water by adopting a process the very reverse of flying.

This bird feeds on water insects, larvæ, worms, dragon flies, water beetles, and most of the animal substances which occur in water. It delights in those little pools between the rapids where the trout deposits its spawn: this, as well as the spawn of the salmon, is a favourite food for the water ouzel and its young. When the banks are covered with snow, and most other birds are to a great extent deprived of the means of procuring food, the water ouzel, perched on a stone in the brook, sings to the tune of many waters, and fears nothing but ice, which locks up its source of food, and deprives it of its retreat from terrestrial dangers. But as soon as the ice has disappeared, it is again independent and happy. It is not often, however, that the bird is "frozen out," because it prefers the dells among the secondary hills near the low country, where springs occur which, breaking out from a considerable depth, seldom freeze, and in which the young of many little animals supply it with food.

The water ouzel breeds early in the season; the eggs are of a beautiful white, and not more than five in number. The young birds are of quick growth; they are great feeders and are constantly chirping after food in the absence of their parents. The building of the nest is begun early in the season; it is constructed with much labour, and is formed on the outside generally of moss, which is kept green by the moisture of the place, so that it has the appearance of a natural mossy tuft: it is lined with such dry leaves or fibres as the place affords: it is covered with a sort of dome, and has an opening in the side. The situation of the nest is often under a projecting stone in a hole of the rock, or even in a hole in a wall, provided the situation be sufficiently retired and

near the water. The structure of the nest, however, is differently described by different naturalists, and it may vary according to local circumstances. Mr. Rennie speaks of having found a nest of this bird at Sorn Cleugh, in Ayrshire, which he describes as a romantic spot, where thickly-wooded rocks of variegated sandstone rise for several hundred feet on each side of a small brook, approaching in some parts so near that the sunbeams cannot reach the channel below. By the side of a large block of sandstone, which had fallen into the stream from the over-hanging cliff, in one of those darkened corners, a pair of water ouzels had built their nest. The block in its fall had dragged down with it an old moss-grown hazel, whose roots were plentifully clothed with lady-fern, sweet woodroof, and a profusion of green moss. These convenient materials were employed by the birds for the frame-work of their fabric, which was neatly arched over with a withered fern-leaf, and over this was placed a warm coating of green moss with a few chips of the woodroof. The lining was of similar materials, but of finer quality and more smoothly arranged. It was so near the edge of the stream, that it must have been overflowed, had a flood occurred, as is not unusual from its vicinity to the Clomfort range of hills. The water ouzel is said by Bewick sometimes to nestle behind a waterfall, when it overshoots a steep rock, and thus leaves a vacant space; and Mr. Rennie's observation seems to confirm the statement; for he has "watched a pair of these birds fitting stealthily out and in from such a locality at a small linn in the moors above Wemyss Bay, Refrewshire;" but the force of the falling stream prevented him from getting sufficiently near to discover the nest.

Montagu discovered one of these nests under a small wooden bridge in Caermarthenshire: the nest was built with hay, fibres and moss, and lined with dry oak leaves. The nest was captured, but within a fortnight another was constructed in the same place: this was also taken; a third was constructed, and we regret to add that the persevering little architects were a third time plundered. The same naturalist gives another example of a nest which he found in a steep mossy bank projecting over a rivulet; and from the facility with which moss could be procured, the nest so closely resembled a portion of the bank, that it could not have been discovered but for the parent birds being observed carrying in fish to their young.

The water ouzel sings only during the early part of the year: its summer note is but a mere chirp.



The cheerful bird that loves the stream
And the stream's voice, and answers, in like strains,
Murmuring deliciously.

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TURKEY AND THE TURKISH PROVINCES.



GREEK RIES, OR CAPTAIN.

THE ARCHIPELAGO, AND ITS MARINERS.

At the eastern extremity of the Mediterranean a very remarkable arm of the sea bends towards the north; remarkable as forming the maritime separation between Europe and Asia; as being the channel by which Constantinople and the Black Sea are reached; as being studded with a vast number of islands; and as having been in Europe, almost the birthplace of civilization. This is the *Ægean Sea*; and the islands which stud it form collectively the Grecian Archipelago.

If we examine a map of this region, we see that the whole western shore of Asia Minor bounds it on the east; that some of the Turkish provinces bound it on the north; and that Greece—anciently independent, then under the yoke of the Turks, and now independent again,—forms its western boundary. This portion of sea is about four hundred miles from north to south, and two hundred from east to west. The islands, which are so numerous that they have never been accurately counted, lie scattered over nearly the whole of this sea; some are beautifully fertile and picturesque, producing wine, oil, gums, raisins, figs, silk, honey, wax, oranges, lemons, cotton, &c.; while others are mere barren masses of rock. Of these islands, those whose names are best known to general readers are Samos, Scio, Lemnos, Mitylene, Patmos, Cos, Naxos, Paros, Antiparos, Milo, and Argentiera.

VOL. XIX.

The inhabitants of these islands are a fine, hardy, athletic race, generally good sailors. Their dress consists of a short jacket and waistcoat, without a collar, very full breeches, with a red sash round the waist, a small red cap fitting close to the crown of the head, and shoes resembling our slippers. The legs and throats are generally bare; they wear moustaches, but never beards; and the hair is made to hang back over the neck to a great length. The women are generally beautiful, and their dress simple; when not employed in their household occupations, their time is chiefly taken up with spinning, knitting, and weaving.

It is, however, in a maritime point of view that we are about to consider this singular region. The islands being very small, the inhabitants on each are few in number; and as they are obliged to depend a good deal on each other, it results that much intercourse is maintained from island to island. The Greeks of the Levant have thus become good sailors; and form the principal part of the crews in the Turkish as well as the Greek vessels. Among the vessels here employed, one which is found in that corner of the Archipelago leading to the Black Sea, is the *caïque*, a small kind of sloop, with sails, and a few rowers. These *caïques* are long, narrow, boats, extremely light, and provided with one, two, or three small sails, which are set only in fair weather, or when the wind is not too strong. They are not provided

with ballast, and are so buoyant that a somewhat stiff breeze would everset them, if the boatman did not take care to let go the sail on the smallest danger and to turn the boat by shifting the helm. The caiques belonging to the Sultan are remarkable for their size, their elegance, and the number and dexterity of the rowers; these latter are twenty-eight in number, and are dressed in white.

The vessels that go greater distances are, of course, of larger size, and are better provided with sails. We cannot perhaps better illustrate the nature of such a vessel and of its crew than by following the narrative of a traveller in these seas. Some years ago, Mr. Turner, an Englishman, left Constantinople to go to Syria in a small Turkish vessel, passing through the Archipelago in his way. The vessel was about a hundred tons burden, and was loaded with a cargo of olives and nuts belonging to a merchant of Candia named Tussein Ago. The captain of the vessel was what Mr. Turner calls a *sans souci*, with a most extraordinary face, having one eye, one nostril, and one moustachio at least half an inch higher than the other; he was called captain, simply from the boat being his; he had no command over his men, for he had not the slightest idea of manœuvring a ship. The crew were twelve in number, of whom four, who were Turks, were very inefficient seamen; and the other eight were intelligent and active Greeks. The passengers consisted of about thirty persons, comprising two or three English gentlemen, two Frenchmen, the Candiot merchant and his brother, and several Turks and Greeks. Among them was a very devout Turk, who regularly performed his ablutions and prayers five times a day, and every evening, taking an hour-glass in his hand, sang a prayer for favourable weather, in the chorus of which he was joined by all the other Mohammedans. The Turkish passengers paid from forty to fifty piastres each, for their passage from Constantinople to Cyprus; the Englishmen paid much higher, under an agreement to be provided with board, which proved to be of the sorriest kind. On the day after they started, Mr. Turner was astonished to see all the sails still up, notwithstanding a gale was blowing, which to most seamen would have been a hint to "furl." He represented the danger, but all in vain; for they were excessively angry at his remonstrances, which they said would bring misfortunes upon them, for, "if they were destined to perish, all precautions would be in vain:"—this is an example of the power of the notion of fatalism on the Turkish character. On the same evening a dispute arose among the Turkish passengers:—the merchant Tussein, on account of the cold, wanted to perform his ablutions in warm water; but this the Turkish devotee would not allow to be lawful, insisting that there was no instance on record of Mohammed having so acted. Tussein retorted on the devotee, that he had been praying sitting, which he asserted was not consistent with their religion; but the devotee replied, that he had only done so that evening during the gale, when the ship rolled so that he could not stand on the deck, and that in this case there was a special permission granted to Mohammedans at sea to pray sitting:—thus the dispute ended.

The party landed occasionally at the islands which they passed, visiting the objects most worthy of notice, and then embarking again to proceed on their voyage. The instances of superstition and ignorance which they met with in the crew and passengers were many, and some of them ludicrous; but we will only allude to one or two which relate to navigation, and which obtain great credit among the Turkish seamen. The English travellers having one evening sought to relieve the tedium of the voyage by a game at cards, Tussein came into the cabin and begged them to desist, urging that some misfortune would else surely happen to the ship; and to induce them to believe him, he related a story of what had once happened to himself:—He was once detained at Rhodes twenty-eight days by contrary winds,

during which he amused himself by playing cards with the crews of some other ships. The captain, much vexed at the delay, at length said he was sure there must be some cause for the contrary winds; and going down to search the cabin, he found the cards, which he flung overboard in a great rage. Immediately the wind became fair, and they had a very prosperous voyage to Alexandria; but the other ships, three in number, whose crews had not thrown away their cards, were all taken by an enemy's squadron;—that the cards were the cause of the contrariety of the wind, Tussein stoutly maintained. A day or two afterwards, while sailing round a cape, a sudden gust of wind disturbed the equilibrium of the vessel, and also of an old Turkish passenger, who immediately railed against the Englishmen, and said that it was occasioned by their drinking rum, and not performing ablutions after meals.

Mr. Turner states that in the Greek boats trading about the Archipelago, the sailors receive no fixed pay from the captain, who is always the owner of the boat; the captain takes half the profit or freight, on account of the boat being his, and of his being obliged to keep it in repair at his own expense; he then divides the other half with his comrades, taking two shares for himself. For instance, a boat manned by four men, including the captain, has gained one hundred piastres clear, after deducting the expense of provisioning; the captain first takes fifty, which he lays aside to pay for the repairs of the boat when necessary; he then out of the remaining fifty takes twenty, and gives ten a-piece to his three men. In the Idriote vessels, the captain (when owner), after supplying provisions, and paying all expenses, takes half the profit for the ship, and then divides the remainder among himself and the crew, taking two shares for himself, giving two to the boatswain, two to the *scrivano*, or supercargo, one and a half to the cook, and one to each man.

We will now accompany another traveller, Mr. Emerson, in a voyage among the islands of the Archipelago. This gentleman, in his *Letters from the Ægean*, says:—

There is more intense excitement in sailing by night in the Levant than in any other sea I have ever passed over. There are a thousand possible dangers from sudden squalls, and pirates, and sunken rocks, that keep the imagination on a continued stretch: then the softened azure of the midnight sky is so pure and placid, and its little twinkling stars are so sparkingly reflected in the deep dark sea beneath them; and if, as is seldom the case, it be a night of clouds and darkness, there will follow in the wake of the vessel a long line of phosphorescent light, which heaves and glitters like a stream of lava, till it again subsides into dimness and repose.

Mr. Emerson, after visiting Smyrna, engaged a passage from thence on board a brig, commanded by a Greek, named Panagies Androcopoulo. The vessel proceeded slowly on its voyage, now stopping to let the passengers enjoy the beautiful scenery on shore, now stopping for want of wind to move onwards: sometimes she narrowly escaped being captured by the Greek pirates which infest these seas, and at other times met with small vessels from which sponge-divers were carrying on their hazardous occupation. The captain bore down upon almost every island they came to, in accordance with the arrangement entered into with his passengers; but even without such arrangements, the captains of these small passage-vessels are accustomed to do so, seldom remaining more than eight and forty hours at a time at sea. In this part of the Mediterranean islands are so frequent, that the navigation seems rather inland than at sea. One cluster of islands is never lost sight of till another appears; and as the seamen who traffic from port to port form numerous acquaintances at each, a trip through the Archipelago is to a Greek, merely a succession of visits to old friends, since he only parts with one in the morning to sup with another at night. This circumstance has a singular effect on the navigation of these parts, for the reis, or captain,

does not trouble himself much about charts or log-books, observations or bearings: his vessel is to him as much a yacht as a merchant-vessel, and his voyage as much one of pleasure as one of business. This tendency in the Greek sailors to land, for enjoyment's sake, whenever an opportunity offers, has been humorously alluded to by a modern writer:—

A merchant, who, sailing from Greece to Trieste,
Grew vexed with the crew, and avowedly testy,
Because, as he said, being lazy and Greeks,
They were always for putting in harbours and creeks,
And instead of conveying him quick with his lading,
(As any men would who had due sense of trading,)
Could never come near a green isle with a spring,
But smack they went to it like birds on the wing.

After going to Rhodes and some other islands, Mr. Emerson made a further passage, in a small brig-of-war, of eighteen guns, which had formerly been employed by the Greek merchants to carry wheat to Spain and France, but had afterwards exchanged her grain for guns. Her cabin was high and roomy, built of unpainted fir, hung with arms and amber pipes, and surrounded by a divan, on which the captain and his second officer were wont to take their coffee and smoke their chibouques. The ship's company were a set of good-humoured but idle fellows; whose time was chiefly spent in sleeping, singing, or playing cards; and they would lie for hours together under the shadow of a sail, laughing and shouting over their favourite game of casino. Navigation appeared to be very little understood by the captain or his officer, for the cruises of the vessel were such as seldom kept it far distant from land.

By confining our attention, however, exclusively to the smaller maritime enterprises of the inhabitants of these islands, we scarcely do justice to the Greek seamen. Their general merits as mariners will be better understood from the following extract from a writer on this subject:—

The Greeks are universally addicted to commerce, and their marine is in many respects highly important. The islanders form the most enterprising portion of the nation, and carry on a petty trade in numberless half-decked boats, with high stems and sterns, and one thick short mast, with a long yard. They perform these voyages even as far as Constantinople and Smyrna, without chart or compass, and merely, as of old, by the observation of coasts and headlands. But they are acquainted with the management of the largest vessels of European construction, and besides navigating the Ottoman navy as seamen, they have large merchant-ships of their own, which trade as far as America and the West Indies, and make an occasional voyage to England. The natives of Hydra particularly, the most expert of the Greek mariners, have accumulated great wealth by their commerce, and have purchased from the Turks the independent election of their own magistrates. The number of Greek mariners actually employed at sea, is supposed to be not less than fifty thousand, and they are considered as capable of being trained to any kind of naval service.

With certain modifications resulting from the change in the relations between the Greeks and the Turks, the above account would be applicable in our own day.

In the stroke of War

Fell certain on the guilty head, none else—
If they that make the cause might taste the effect,
And drink themselves the bitter cup they mix;
Then might the Bard, the Child of Peace, delight
To twine fresh wreaths around the Conqueror's brow;
Or haply strike his high-toned harp, to swell
The trumpet's martial sound, and bid them on
When Justice arms for vengeance; but, alas!
That undistinguishing and deathful storm
Beats heaviest on the exposed and innocent;
And they that stir its fury, while it raves,
Safe and at distance, send their mandates forth
Unto the mortal ministers that wait
To do their bidding!

Crowe.

OLD ENGLISH NAVIGATORS.

WILLOUGHBY, CHANCELOR, AND BURROUGHS.

II.

WHEN Richard Chancellor parted from his commander he seems to have gone on considerably to the north, for he speaks of having arrived at a place, where was perpetual daylight,—“a continual light and brightness of the sun, shining clearly upon the great and mighty sea.” He must, however, have taken an easterly, and then a southern direction, before many days; for he succeeded without difficulty in reaching Wardhuys, where he waited for a considerable time for his companions; after which, disregarding the alarming reports of perils that would beset his farther progress, he pushed on gallantly towards his mysterious destination. The adventurers were guided to the entrance of an immense bay, which was no other than the White Sea, as yet unknown to Western Europe. They espied a little fishing-boat, the crew of which, having never seen a vessel of such a comparatively vast size as the Edward Bonadventure, took the alarm and fled at full speed. Chancellor, with his party, pursued and overtook them; whereupon they fell flat on the ground, half dead, crying for mercy. He kindly raised them; and by looks, gestures, and gifts, expressed the most kind intentions. Being then allowed to depart, they reported everywhere “the singular gentleness and courtesie of the strangers;” so that the natives came in crowds, and the sailors were well supplied with provisions and everything they wanted.

After inquiring on what part of the world they had been thrown, our navigators found that they were at the extremity of a vast country, but imperfectly known in Europe by the name of Russia or Muscovy, and then under the absolute rule of a sovereign named Ivan Vasilovitch, who held his court at Moscow, which was 1500 miles distant, and could only be reached by sledges over the snow. Chancellor sought, and obtained, permission to visit the capital. He was favourably received by the czar, and his able agency laid the foundation of that commercial intercourse, which has since subsisted with little interruption between England and Russia.

We are told that the English navigators were astonished at the pomp and magnificence of the Russian court. The czar behaved at first in a reserved and stately manner towards the strangers; but at another interview conversed more familiarly with them. “The prince called them to his table, to receive each a cup from his hand to drink, and took into his hand Master George Killingworthes beard, which reached over the table, and pleasantly delivered it to the metropolitan, who, seeming to bless it, said in Russ, ‘This is God’s gift;’ as indeed at that time it was not only thick, broad, and yellow coulered, but in length five foot and two inches of assize.”

In the following spring, Chancellor sailed from Archangel, and arrived safely in England, bringing with him a letter from the czar to Edward VI. This letter expressed a cordial desire to open an intercourse with England, and to grant to the Company of Merchants-Adventurers every privilege necessary to enable them to carry on traffic in his kingdom.

Thus the expedition had failed in its immediate object, besides the disastrous loss of Willoughby and his associates; but the prospect of establishing a trade with an extensive empire served as some compensation. A new charter was granted to the Society of Merchants-Adventurers, who assumed the title of “The Muscovy Company.” Chancellor was sent out again, with credentials from Philip and Mary, and commissioned to treat with the czar of Muscovy, respecting the commercial privileges and immunities which his majesty might be pleased to grant to the newly-chartered company. The original object, however, of a passage to India by

the pole, eastward, was still kept in view. The adventurers were instructed not merely to seek for commercial gain, but also to increase their geographical knowledge, and "to use all wayes and meanes possible to learne howe men maye pass from Russia, either by land or by sea, to Cathaia*."

But, before this expedition could produce its effects, another vessel was fitted up in 1556, the *Searchthrift*, and placed under the command of Stephen Burroughs, who, on the first voyage, had acted as master of Chancellor's vessel. The sole and express destination of this vessel was, the eastern passage by the pole to India. There was as much enthusiasm and hope upon this as upon the first occasion. Cabot came down to Gravesend with a large party of ladies and gentlemen; and having first gone on board, and partaken of such cheer as the vessel afforded, invited Burroughs and his company to a splendid banquet at the sign of the Christopher. After dinner, a dance being proposed, the venerable pilot, as Burroughs tells us in his journal, "for very joy that he had to see the towardness of our intended discovery, entered into the dance himselfe, amongst the rest of the young and lusty company."

Burroughs set sail from Gravesend on the 29th of April; but did not arrive at the islands and straits of Waygats, between Nova Zembla and the continent, before the middle of July. The crew were very much alarmed by the monstrous pieces of ice, which they saw floating about, and often became so entangled with them, that they could with difficulty avoid one mass without striking upon another. At one time a huge whale came so close to the ship, that they might have thrust a sword into him; but the commander, fearing lest the monster should overset the vessel, caused the men to shout with all their might, as Nearchus had done many ages before in the Arabian sea. The like effect was produced in both cases: this mighty animal, which is neither ferocious nor very courageous, plunged into the depths with an astounding noise.

Our navigators here fell in with a Russian sail. From their commander, Loshak, they learnt that the country about there belonged to the wild Samoiedes, who were described as cannibals, and worshippers of idols. Burroughs saw in one place more than three hundred of their idols, of the rudest workmanship ever beheld. They consisted of figures of men, women, and children, badly carved, with the eyes, mouths, and other parts stained with blood. These barbarians had no houses; but lived in tents made of deer-skins. Our navigators in all probability found the inhabitants of the polar islands and of the north of Asia, very similar to the occupants of these regions at the present day.

We have a curious story handed down to us of a scene witnessed by Johnson, one of the companions of Burroughs, among the Samoiedes at the mouth of the Pechora, a river at the north-east of European Russia. It is represented as a scene of magic incantation, performed by one of the great northern wizards, who live by deluding the borderers of the Arctic circle.

The magician first took a great sieve, something like a drum; then he began to sing, as people in England halloo, whoop, and shout after the hounds; to which the people present responded with—"Igha, igha, igha!" The conjuror at length fell into convulsions, and dropped down as if dead, though his breathing could still be heard. When Johnson asked the meaning of all this, he was told,—“Now doth our god tell him what we shall do!” After he had remained thus for a short time, the people began to cry "*Aghao, aghao!*"—upon which he arose, and again began to sing. Then he took a sword, and thrust it through his body, so that it entered at the breast, and came out at the back. We are told that Johnson saw it go into the shirt before, and issue out at

* Cathaia, or Cathay, is the name formerly given to China, and the east of Asia in general.

the shirt behind; but it does not appear that its actual passage was very narrowly scrutinized, which is quite sufficient to shew that the spectators were imposed upon. The magician then sat down with a vessel of hot water before him, and a line or rope of deer-skin wound round his body; over all of which, as well as himself, a large cloth mantle was spread. The ends of the line being left outside of the mantle, were drawn tight by two men in opposite directions, till something was heard falling into the vessel. Johnson was horrified at being informed that this was the magician's head, shoulder, and left arm, severed from the body by the violent pulling of the rope. When Johnson asked leave to lift the cloak, and view this sad spectacle, he was informed that no one could do so and live. After the multitude had sung and halloed for some time, the mantle was lifted up, and the conjuror came forth perfectly entire; all the parts cut asunder being understood to have been miraculously replaced. How far soever this gross and obvious imposture succeeded in deluding Johnson, it seems to have had an unlimited effect with the credulous and ignorant natives.

Our sailors had passed fifteen leagues beyond the mouth of the Pechora, and were nearing Nova Zembla, when the advanced season of the year prevented them from penetrating any further. Among other causes are mentioned the hindrance from the north and north-easterly winds, which seemed to the commander more powerful than in any other place; the immense quantity of ice, which seemed likely to be still further accumulated; the nights waxing dark, and winter with all its storms beginning to draw on. On these grounds it was decided to return, and winter at Colmogro; in order to resume their eastward navigation with the ensuing spring: but, in consequence of other employment, this design was not carried into effect, and the vessel returned to England in the succeeding year.

In the mean while Chancellor had proceeded on his mission to Archangel and to Moscow, where affairs had been well and prosperously carried on. The czar, Ivan Vasilovitch, sent back with Chancellor, Osep Nepea Gregorowitch, the regal ambassador and orator, as he was termed, with four ships heavily laden with furs, wax, train-oil, and other Russian commodities, to the value of upwards of 20,000*l.*, which belonged partly to the merchants, and partly to the orator. But the homeward voyage was most calamitous: two of the vessels were wrecked on the coast of Norway; a third reached the Thames; but the *Edward Bonadventure*, in which were the principal persons of the expedition, was driven by the storm into the bay of Pitsligo, on the north-east of Scotland, where it went entirely to pieces. Chancellor endeavoured, in a very dark night, to convey himself and the ambassador ashore in a boat. This boat was overwhelmed by the tempest, and Chancellor was drowned, together with most of his crew: the ambassador, however, by great good fortune succeeded in reaching the land. He was conducted to London with great pomp, where he was honourably treated by the English government; and the commercial relations of England and Russia were established on a closer and more solid basis.

These polar voyages were now suspended for a while, in consequence of the attention of the Muscovy Company being directed to the establishment of a new mercantile communication with the interior of Asia.

CREDULITY has been defined to be—Belief without reason. Scepticism is its opposite—Reason without belief.

HE who is governed by preconceived opinions, may be compared to a spectator who views the surrounding objects through coloured glasses, each assuming a tinge similar to that of the glass employed.—DR. PARR.

ON THE MEANS OF DIMINISHING FRICTION.

A LARGE portion of the force necessary to every kind of motion is consumed by various obstructions which the moving body has to encounter. The resistance of the air is one of the causes of retardation; a degree of cohesive attraction between the touching substances is another; but the chief impediment arises from the rubbing of the surfaces which come incessantly into contact. This obstructing power inherent to all bodies constitutes friction, which produces so many diversified effects and exerts so extensive an influence in diminishing the performance of all machinery. If we could procure a horizontal plane surface, perfectly free from the smallest inequalities, and then place upon it a flat surface also perfectly smooth, any amount of force applied to such body would set it in motion, and the motion would continue undiminished, except by atmospheric resistance. But when we find that a perfectly smooth surface does not exist in nature, and cannot be formed by art: that every surface, however smooth it may appear to the eye, is full of furrows, prominences, and roughnesses, we need not be surprised at the large amount of force necessary to be maintained for the production of motion of the simplest kind.

In the construction of machines, many ingenious and often complicated methods are devised for diminishing friction. When we find a principle everywhere and at every instant at work, tending to destroy the forces we are producing in the arts and ordinary concerns of life, we constantly complain of it as an evil, and do all we can to remove it; we would even destroy it if we could, and think that machine the most perfect which exhibits the least amount of friction. Yet, were it not for friction, the world would scarcely be habitable. Were there no friction—

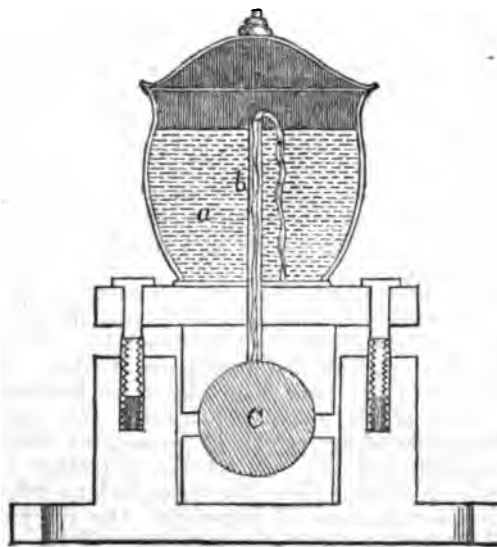
It would be impossible for a man to move from any position in which he might be placed, without the aid of some fixed obstacle by means of which he might pull or push himself forward. And were there no horizontal power of resistance in the ground on which he treads, to destroy the forward motion which he gives himself at every step, he would retain that motion until some obstacle interposed to destroy it; so that the principal part of his time would be spent in oscillating about between the obstacles, natural or artificial, which the earth's surface presented to his motion; an oscillation which would be common to all the objects, animate or inanimate, about him. The slightest wind would sweep him before it; the slightest inclination of his body would bring him to the ground; everything he put out of his hand would start away from him, with the lateral force which he could not fail to communicate to it, in releasing his hold. If he attempted to sit down, his chair would slip from under him; and when he sought to lie down, his couch would glide away from him. He would in all probability be driven to forsake the land, and dwell upon the waters as the more stable element*.

There are two general methods of investigating the nature and operation of friction. The first method is, to ascertain the weight required to draw a body under the pressure of a given load along the horizontal surface of another. The second is still simpler, and consists merely in raising the end of the upper plane, till it acquires the declination at which the load begins to slide. The extreme declination of the plane is hence called the angle of repose.

The angle of repose often determines the outline of natural objects. Thus, fine sand slides more easily than mould, and hence sand-hills have generally a softer ascent than the grassy flanks of mountains. The latter, without being broken into precipices, may rise at an angle of forty degrees; but the former will seldom support an acclivity above twenty-five degrees. The angle of repose of iron pressing upon iron being sixteen degrees, if the threads or spirals of a vice wind closer

than this inclination, the screw must hold at any place to which it is carried.

The means employed to diminish friction are of two kinds; viz., either by the interposition of unctuous or oily substances between the moving surfaces, or by certain mechanical arrangements. In delicate work, such as clocks and watches, where metal works against metal, the best substance perhaps is olive oil. But in some machines where the strain is very great, solid unguents appear to be preferable to oil, and in such case tallow or hog's lard is usually employed. The "Anti-Attrition Composition," which has been so much advertised for sale, is simply a mixture of four parts of hog's lard and one part of plumbago. In launching a ship the "ways" or sliders are smeared with soft soap. The slope of these sliders is in general not more than from 4 to 5½ degrees. The lowest friction is here exerted, all previous adhesion being destroyed by blows of the mallet, and shocks given in the act of withdrawing the wedges. The momentary friction being 4, leaves an accelerating force of 3, which hurries the vessel forwards, notwithstanding its immense pressure of perhaps 35 tons on every square foot of the slide. If any impediment in the track should stop the progress of the ship, it soon regains such adhesive power as to render its removal very difficult. A tremulous agitation is the only expedient to urge the ponderous mass forward*.



When oil is applied to lubricate large works, it is apt to drain off, unless means are taken to confine it. The best contrivance for preventing the waste of oil and for keeping gudgeons and axes properly supplied with it, is Barton's Patent Lubricator, the ingenious construction of which will be understood from the accompanying section and description. *a* is a section of a metallic vessel filled with oil and closed by a cover fitting tightly to keep out dust; *b* is a small tube rising nearly to the top of the vessel, with the lower part extending an inch or two below it, and inserted into an aperture made through the block directly over the shaft *c*: through this tube a few threads of woollen yarn are drawn, which reach to the bottom of the vessel, and conduct the oil by capillary attraction, as a syphon, in minute but regular quantities to the shaft or gudgeon *c*: the whole of the oil in the vessel is thus carried over, entirely free from dust or other impurities, and in the precise quantity required, which is easily regulated by the number of threads. The economy of this contrivance is equal to its ingenuity: the machinery to which it is applied will

* Hence the reason of the sudden falling down of weak or decayed structures. They are upheld long beyond the term of equilibrium, by the rusted adhesion of their parts; but any accidental shock dissolves this union, and the whole pile is precipitated to the ground.—LESLIE.

* MOSLEY'S *Mechanics applied to the Arts*, 2nd Edition.

run with less friction, last longer, and require less power. The Patent Lubricator has been applied to the wheels of gentlemen's carriages with considerable success: a half a pint of oil will keep the axle well lubricated for a considerable time, and the wheels never require to be taken off for the purpose of greasing.

The mechanical contrivances for the diminution of friction consist either in avoiding the contact of such bodies as produce much friction, or by substituting as much as possible the motion of rolling for that of sliding. Thus, if a heavy load be drawn upon a sledge, the motion is that of sliding which is accompanied by the greatest amount of friction; but if the load be placed upon rollers, the nature of the motion is changed and becomes that in which there is the least amount of friction. Large masses of stone or timber would require an enormous force to move them on a level road, but the motion is easily effected when rollers are put under them.

The wheels of carriages may be regarded as rollers which are being continually carried forward with the load. In addition to the friction on the road, wheels have the friction of the axle in the nave; but they do not have to encounter the friction of rollers with the under surface of the load, nor that of the carriage which bears the load. The advantages of wheel carriages in diminishing friction do not arise, as is sometimes supposed, from the slowness with which the axle moves within the box compared with the rate at which the wheel moves over the road: the amount of friction does not in any case vary considerably with the velocity of the motion. In wheel carriages the roughness of the road is more easily overcome by large wheels than by small ones. The former are not so liable to sink into holes as the latter, and in surmounting an obstacle, the load has to be elevated less abruptly. The smaller the rubbing axis of a wheel, the less the friction. Castors on household furniture act as wheels.

Friction is also diminished when the rubbing surfaces are made of different materials. Axles made of steel may with advantage be made to bear on brass; in small machines, such as time-keepers, the steel axle sometimes plays in agate or diamond cups.

Friction wheels or rollers are sometimes employed to remove the effects of friction. The axle of a wheel, instead of revolving within a hollow cylinder which is fixed, rests upon the edges of wheels which revolve with it. This is a species of motion in which the friction is of least amount. In Atwood's machine described in Vol. XIII., p. 181, of this work, friction wheels are admirably employed.

SWEET is the voice of well-earned praise
To every virtuous ear;
The inspiring meed of youthful days,
And e'en to manhood dear.
As opening flowers to sunny skies
Their blooming fragrance bring;
Warm'd by the approval of the wise,
Th' unfolding virtues spring.
Yet oft, with undiscerning mind,
The applause of man is given:
But, O my soul! what joy to find
Thy deeds approved in Heaven.

THE thief who picks our pocket does not so much harm in society, nor occasion so much pain, as they may be charged with, who shock the ear of piety with profaneness, or tear open the wounds of the bleeding heart by forcing upon it some painful recollection.—BEATTIE.

No species of reputation is so cheaply acquired as that derived from death-bed fortitude. When it is fruitless to contend and impossible to fly, little applause is due to that resignation which patiently awaits its doom.—ROSCOE'S *Lorenzo de Medici*.

PALIMPSESTS.

THE term "*Palimpsest*" has been applied to manuscripts, from which the original writing has been erased, or washed out, and which have been then written on again. The word is aptly chosen, as it implies, according to its derivation from the Greek, the fact of the material for writing on having been *cleansed again*.

The material which, from its tenacity and consistency, was best capable of being submitted to this process, was *parchment*: the reader will find a very interesting article, descriptive of the preparation of this substance, at Vol. XIII., p. 133, of this work.

It seems that the practice of re-cleansing parchment, or removing the first writing, was not confined to the middle or dark ages,—to the inhabitants of the cloisters, but was in vogue even before the Christian era: it was probably resorted to from the time of the first production of parchment itself; for we are told that this material was always a scarce commodity until rather recent times. A preparation for effacing the original writing on parchment was known in the time of Augustus Cæsar; and Cicero, when writing to one of his friends, commends him for having been so economical as to write on a palimpsest, but says that he should like to know what those writings could possibly have been which were considered of less importance than a letter.

The ancients were in the habit of using likewise leaves or strips of the papyrus plant for the purposes of writing. This plant is common in Abyssinia, Egypt, and Syria, and is also met with in Calabria and Sicily; it inhabits both stagnant waters and running streams. The English word "*paper*," is derived from the name of this plant. The ancients had also a method of cleansing the papyrus-leaves of the original writing, though this substance was naturally very delicate and friable.

That parchment was a very costly material in the middle ages may be known from the fact that when Guy, count of Nevers, sent a valuable present of plate to the Chartreux of Paris, the unostentatious monks returned it with a request that he would send them parchment instead.

The scarcity and expense of parchment, therefore, and the demand for the writings of the Fathers and books of devotion in those times, frequently induced the monks to erase or wash out the writings of the classical authors, to make room for those of the Fathers. The original writing upon the parchment could be scratched out, and a peculiar kind of knife belonged to the apparatus of a transcriber: the parchment scratched in this manner was rubbed over with pumice-stone, to render it more fit for writing. The practice of thus removing old writings for the sake of the parchment was so common in the fourteenth and fifteenth centuries, that when the emperor of Germany empowered the creation of an imperial notary, one of the chief articles of the diploma of this officer was, that he should not use scraped vellum in drawing deeds. The manufacture of parchment has certainly been carried on in all ages; but that of the ancients was distinguished for its beauty, strength, and whiteness; for which reason, in later ages, a palimpsest of the ancient parchment was preferred to all the preparations of the new.

But, in many cases, the monks were not able to obliterate entirely the ancient writings; and a careful examination of these palimpsest manuscripts has led to the discovery of some valuable works and fragments of the classical authors. Among the most important is the treatise of Cicero "*on the Republic*," which was found in the Vatican Library at Rome by Angelo Mai, in a manuscript which had been re-written with the Commentary of St. Augustin on the Psalms. The *Institutions* of Gaius, which contained the Roman code of laws at the commencement of the Christian era, were also recovered

in a similar manner in the library of the chapter of Verona.

This latter manuscript consists of 127 sheets of parchment, the original writing on which was the four books of the *Institutions*, by Gaius, a Roman, who lived about the year A.D. 150. This original writing had, on some pages, been washed out, so far as was practicable, and on others scratched out; and the whole, with the exception of two sheets, had been re-written with the Epistles of St. Jerome. The lines of the original and of the substituted writing run in the same direction, and often cover one another;—a circumstance which considerably increased the difficulty of deciphering the text of Gaius. In addition to this, sixty-three pages had been written on *three* times: the first writing was the text of Gaius, which had been erased; and the second, which was a theological work, had shared the same fate, to make room for the Epistles of St. Jerome. This work of Gaius was found and restored in the year 1816.

The re-production of the traces of the original writing on the parchments has not, however, always been found so difficult a matter as in the case of the *Institutions* of Gaius. As the transcribers in the middle ages, when the want of writing-materials was felt, in consequence of the great demand for missals, &c., often divided the large sheets of written parchment, the second set of lines is sometimes found diagonal to the first; so that the old and new cross each other, or the old lines have remained above the others.

We thus see that some valuable writings of the ancients have already been recovered from beneath monkish effusions or superstitious legends, by carefully following the traces of the pen or style, which had impressed the former performance upon the membrane; and which traces still continued to exist in spite of the impressions made by the second scribe. The original characters thus often remain legible, so as to be visible to the naked eye; or they may be made to appear with the assistance of chemical agents. Persons whose business it was in the middle ages to prepare parchments by erasing manuscripts, were called "parchment-restorers."

This subject has greatly attracted the attention of *philologists*, or lovers of literature, for some years past. The increasing zeal in the search for remains of classic learning has directed the attention of the most erudite scholars to these hidden treasures; and we may hope that the great collections of manuscripts at Rome, Naples, Oxford, Cambridge, &c., which have been as yet but little examined, will afford us many more remnants of the literature of olden time.

THE MECHANICAL PROCESSES OF SCULPTURE.

It is difficult to name a branch of art, the successful application of which requires a more varied combination of powers than that of sculpture. The artist places before him a lifeless, shapeless block of marble, and from this he elaborates a figure which represents all the personal beauties of the human form, and in some instances almost seems to represent *mind*, as manifested by the expression of the features. Not only must the sculptor be familiarly acquainted with the anatomy of the human form, and those nice gradations of expression which indicate the varied workings of the mind within, but he must also possess consummate mechanical tact, in cutting the block neither more nor less than is necessary for the production of the desired effect. There is one very marked distinction between the labours of the painter and those of the sculptor: if the former employ a wrong colour, or use it injudiciously, he can repair his error, either by removing the paint, or by working upon it; but if the sculptor were to chisel away too much of his marble at any one point, no subsequent repair would

adequately restore the deficiency. Having in another place treated of sculpture as a fine art, we now propose to give a brief description of the mechanical process of sculpture.

It must not be supposed that the sculptor produces a statue or bust without any copy to guide him. He *models* a figure in the first instance of some plastic and yielding substance, and when this model is completed he imitates it by cutting the block of marble to a similar form. The model is built up or formed piece-meal, not hewn or cut out of a solid lump, and the modeller is thus enabled to attain the desired form with more ease, because he can add or remove small portions of the substance at pleasure. It appears pretty certain that the ancients almost always formed their first models in wax, although in modern times clay is generally used for this purpose. This preference of the ancients for the use of wax did not result from their non-acquaintance with the use of clay, but from certain advantages which wax possesses over clay. Indeed, as has been observed by a recent writer, if clay could be made to retain its original moisture, it would undoubtedly be the fittest substance for the models of the sculptor, but when it is placed either in the fire, or left to dry imperceptibly in the air, its solid parts grow more compact, and the figure, losing thus a part of its dimensions, is necessarily reduced to a smaller volume. This diminution would be of no consequence if it affected the whole figure equally, so as to preserve the proportions unaltered, but in effect the smaller parts of the figure dry sooner than the larger, and thus losing more of their dimensions than the latter in a given space of time, the symmetry and proportion of the figure somewhat suffer. On the other hand, wax cannot be worked up so smoothly to represent the fleshy parts as clay, and hence the plan usually followed is a combination of both, by making a model of clay, then making a mould of plaster from this model, and lastly casting a second model, from this mould, in wax.

When the artist has prepared a drawing conveying a general idea of the figure to be modelled, he proceeds to build up his statue or group, for which purpose a general nucleus or skeleton is first formed of wood or iron: to this small crosses are generally attached, in order to form fixed points of support for the clay. The clay, carefully prepared for that purpose, is then laid on the skeleton, either by the hand, or by some convenient implement, and by means of small wood or ivory tools, with their ends pointed, round, square, or diagonal, he gives the clay the required form. Whether the figures are or are not to be covered with drapery, he models them naked, in order to insure correctness of anatomical detail, and afterwards, if requisite, forms the drapery by extra layers of clay.

When the model is completed, it is not often that the sculptor proceeds to chisel his marble from the clay model as a pattern, but he forms a plaster mould, from which to obtain a plaster or wax figure. Supposing, for simplicity of description, that the work is a bust, he encases the clay model of the bust with a thin stratum of cream-like plaster; but as this case has afterwards to be removed from the model, he adopts the following plan. A thin edge or ledge of clay is laid along the bust from the head to the base, on both sides, so as to form a separation between the front and back portions of the bust, and the front is first completed up to this ridge of clay, the moulder carefully casting the thin plaster into the recesses of the eyes, ears, nostrils, &c. A thicker plaster is then thrown on, till a thickness of two or more inches is obtained. The ridge of clay is now removed, the edges of the plaster are slightly touched with oil, and the back is covered in the same way, till the whole becomes a shapeless lump of plaster. This lump is, when dry, separated by a few blows with the mallet and chisel, so as to come off the model in two pieces, which together form a mould or counterpart of

the model. These two pieces, after being cleaned, are slightly moistened with oil, and united again with cords wrapped round them. A plaster cast from this mould is then obtained, by pouring liquid plaster into it, and by breaking or separating the two halves of the mould when the plaster has set: if the cast be of wax instead of plaster, the mode of casting is nearly the same.

When the clay, plaster, or wax model is completed, the sculptor proceeds to imitate it in marble. There are various contrivances for guiding him in this operation,—of which one is as follows. A number of small black points are marked upon the model in every principal projection and depression, to give the distances, heights, and breadths sufficient to copy the model with exactness. The ancients effected this by considering every three points on the figure as forming a triangle, which they made in the marble to correspond with the same three points in the model, by trying it with a perpendicular line, or some other definite line, both in the marble and in the model.

Another contrivance, suggested by the Academy of Painting at Rome, is the following. The statue or model which is to be copied is inclosed in a frame that fits it exactly; the upper part of which is divided into a certain number of equal parts; and to each of these parts a thread is fixed, with a piece of lead at the end of it. These threads, hanging freely downwards, shew what parts of the stone are most removed from the centre, with much more perspicuity and precision than the dots before spoken of; and they also afford the sculptor a tolerable rule by which he may measure the more striking variations of height and depth. But a serious difficulty nevertheless attends the use of this method; for as it is impossible by means of a straight line to determine with precision the direction and nature of a curve, the sculptor has no certain rule to guide him in his contours; and whenever the line which he is to describe deviates from the direction of a plumb-line or vertical, he must necessarily feel at a loss, and proceed somewhat on conjecture. Another inconvenience attending this method is, that there is no certain rule to determine exactly the proportion which the various parts of the figure ought to bear to each other. Even if horizontal lines be drawn intersecting the plumb-lines, the difficulty is not wholly removed; for the squares formed by transverse lines that are at a distance from the figure, although they be exactly equal, yet represent the parts of the figure greater or smaller, according as they are more or less removed from our position or point of view. Still however, notwithstanding these defects, this method is deemed by some persons the best that has been devised.

A third method, and the one most generally adopted in modern practice, is the following. When the block of marble is ascertained to be of sufficient size, it is fixed on a basement of stone, or a strong wooden bench called a *banker*, in front of which is a long strip of marble, divided into feet and inches. Another strip of marble divided in the same manner, is placed below in front of the model; and a wooden perpendicular rule, the height of the work, is placed so as to be moveable from the strip of marble or scale under the model to that which is under the block to be cut. This wooden rule is first placed on the scale of the model; and the exact distance from it to any prominent part, such as the nose or chin, for example, having been taken, the rule is removed to a corresponding position on the other scale, and the workman cuts away the marble to the same distance from the perpendicular at the same height, that is, till he has arrived at that point of the block which is to form the prominent part in question. The sculptor then proceeds in the same way with other prominent parts; and afterwards to the depressions which intervene between them; until he has at length obtained a rough figure, containing within it all the other minute

details which remain to be brought out by the skilful hand of the master.

A variation of the above method is practised by some sculptors. The model and block of marble being ranged side by side on the bench or platform, a brass frame is placed in front, on which slides a brass perpendicular joint. This joint carries a tube through which a rod passes, and which is brought in front of the model, to some particular part of which the point of the rod is applied; the point being set, it is retained at that distance in the tube by a screw. The instrument is now placed in a corresponding position in front of the block, on which the position of the point is marked by the end of the rod. A hole is now drilled in the block in this place, to such a depth as to allow the sliding rod to penetrate it to the proper distance. Another point is now taken, and the block drilled in a similar manner; till at length it is pierced in every direction. These parts are then cut away with the chisel, care being taken never to remove any part below where the drill has been. Mr. Behnes, the sculptor, has invented a very ingenious machine for producing the required effect somewhat in this manner.

When the assistant workmen have, in some one of the ways described above, brought the block of marble to a rough stage of approximation to the desired form, the master-hand proceeds with his delicate and difficult work. He chisels the figure with a flat-ended steel tool about half an inch broad. In the plain parts he cuts a channel in the surface from one given point to another; then cuts other channels parallel with it, leaving intervening ridges about an eighth of an inch broad; then cuts other channels in a direction at right angles with the former; and lastly cuts away the remaining rough surface. It is found that by no other means can he produce a level and regular surface; but this being once produced, he can easily vary it with the requisite undulations. Generally speaking, the chisel and hammer are the tools employed; but when the hollows are so deep and intricate as not to be easily reached by this means, drills of different kinds are employed, followed by other tools furnished with long handles, and worked by the hand only, without the use of a hammer. It need scarcely be observed, that to produce a successful imitation of the fulness of muscle, the pliability of the softer parts, the strength of tendons, and the firmness of bone, requires that the sculptor should be well acquainted with the anatomical characteristics of the several parts. The light, soft, and curly appearance of the hair requires considerable manual dexterity to imitate.

When the chiselling is completed, the surface of the marble requires another process to bring it to a smooth state. This is effected by the use of rasps and files, made for this purpose in Italy; coarser rasps being used first, and then very fine files. If any part of the piece of sculpture is required to have an unusually smooth surface, it is rubbed over with pumice stone after the file has been used; and sometimes the whole surface is rubbed or ground carefully over with small pieces of grit-stone, accommodated to the various forms of the surface, as to flat spaces, rounds, hollows, &c. The hair does not admit of being finished in this way, as the delicacy and lightness of its appearance requires that the finishing touches should be given by a very fine and keen-edged tool.

If the bust or figure on which the sculptor is at work be not very large, he places it on a large, square, four-footed stool, provided with a movable top which turns round on brass or iron balls.

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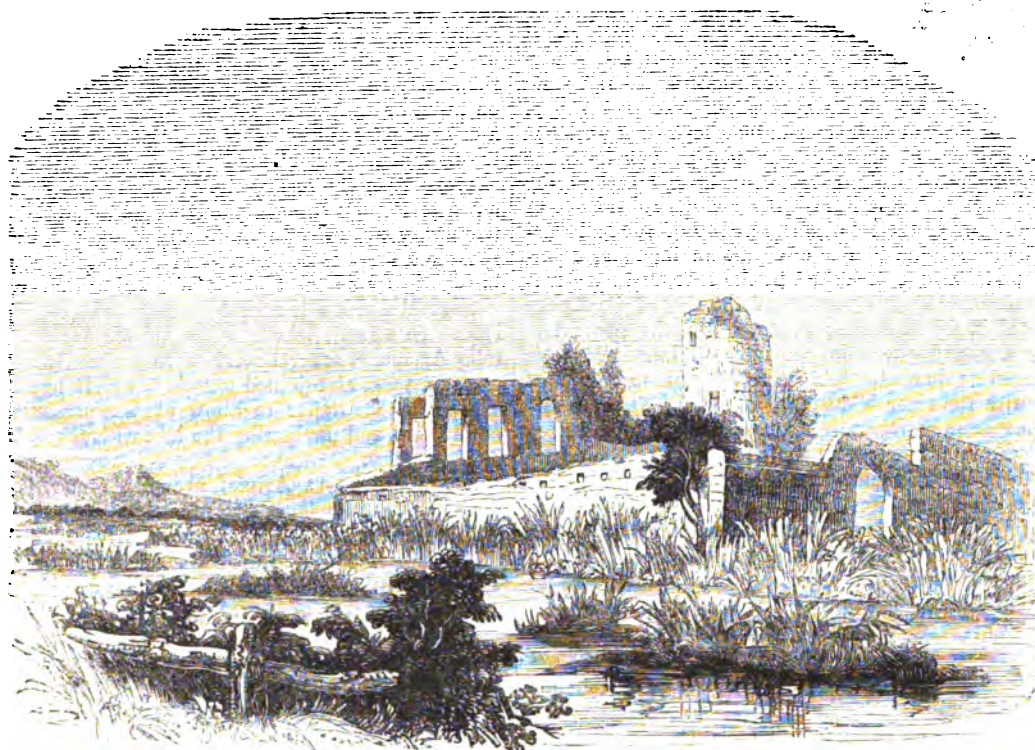
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FLOATING ISLANDS.



THE LAKE OF THE FLOATING ISLANDS.

It was a fancy of the ancient Greeks, that Delos, one of the Cyclades, in the Archipelago, was originally an island floating on the waves, and exposed to all the casualties of storm and tempest, but that Neptune, out of pity for its forlorn condition, made it stationary, and in order to fix it securely, begirt it with the two islands, Mycone and Gyaros. Absurd as this idea may appear to us, there are many instances of floating islands really existing at the present day, and it is only the size and *situation* of Delos, with the superstition respecting Neptune, that make the story of the Greeks incredible.

In various parts of the world these islands are formed, either naturally or artificially, on lakes and rivers; but perhaps the most celebrated among them are the *Chinampas*, or floating gardens of Mexico. It is said that they owe their origin to the extraordinary situation in which the Aztecs were placed on the conquest of their country by a neighbouring nation. They were driven to take refuge in small islands on the lake, and were obliged to exercise the utmost ingenuity in order to provide a sufficiency of food for their sustenance. Humboldt thinks that the idea of these gardens was suggested by Nature herself, since on the marshy banks of the lakes of Xochimilco and Chalco, the agitated waters, in the time of the great floods, carry away pieces of earth, covered with herbs, and bound together with roots. Whatever may have first prompted the idea, we find that the early Chinampas were generally composed of fragments of earth, artificially joined together and cultivated, and that their use was for some time confined to the growth of maize and other necessaries of life. When the Mexicans had delivered themselves

from their unhappy condition, the floating gardens of their lakes were no longer appropriated to the exclusive cultivation of necessaries, but became the means of adding to the luxuries of the people, and teemed with delicious fruits and fragrant flowers. These gardens are now extremely common in Mexico, and are of two kinds: those which are always floating about on the water, and are wafted hither and thither by the capricious winds; and those which are attached to the shore by chains, for the convenience of the proprietor, who perhaps has his dwelling on the adjacent bank. But even in this latter case, if the owner of the Chinampa becomes dissatisfied with his situation, or has some disagreeable neighbour whom he wishes to avoid, he has nothing to do but to unloose the chains which bind his island to the spot, and with his hut and his plantation, float wherever he pleases.

The principal supply of flowers and roots required in the city of Mexico is obtained from these gardens, nor is the cultivation of the useful vegetables neglected. Some of these fertile spots are devoted to the rearing of beans, artichokes, and cauliflowers, round which a hedge of rose-bushes gives solidity to the soil, and in the time of their blossoming, a lovely and fragrant ornament to the whole. In the driest seasons these Chinampas are always productive, and when it is necessary to renew the powers of the soil it is easily done by means of mud taken from the bottom of the lake, which is of a highly fertilizing quality. The gardens are sometimes of considerable extent, but more frequently they are small, and contain no other dwelling than a little hut to shelter the cultivator from heat or storms, or a cottage

for the habitation of an Indian, who has the charge of a contiguous group of gardens. It is said to be a very pleasing sight to watch the arrival of the innumerable rafts, descending at sunrise towards the city by the canals of Chalco and Istacalco, and bearing the rich productions of these floating islands. It is likewise a favourite recreation of the citizens of Mexico to proceed towards evening in small boats, and row in among these luxuriant gardens, where the vegetation is always fresh and brilliant, and where they find an agreeable sojourn after the fatigues of the day.

Floating gardens of a more fragile kind than those of Mexico are very numerous in the lakes of Cashmere. It may be known to many of our readers that the celebrated land of Cashmere consists of one vast valley, encircled by lofty mountains, and bearing strong evidence of having been, at some distant period, one immense lake. Horizontal lines, running along the face of the mountains on both sides, mark the gradual subsidence of the waters, while the wondrous fertility of the soil warrants the conclusion that at one time an immense quantity of material was furnished by the surrounding elevations. A considerable portion of the city of Cashmere is situated in a part of this valley, where the ground is still marshy, and where, in considerable inundations, it is liable to be flooded. There are also numerous lakes which, with the river Vidusta, separate the city into different insulated portions. Hence many inconveniences arise to the inhabitants, and the cultivation of their gardens is checked by the expectation of a flood, which will render their labour useless, by sweeping away the products of the soil. These circumstances have led to the practice of forming floating gardens, or rather, of taking advantage of those partially formed by nature. In an account of the natural productions of Cashmere Mr. Moorcroft gives an interesting description of these gardens. Various aquatic plants spring from the bottom of the lakes, such as water-lilies, confervæ, sedges, reeds, &c., and the boats which traverse these waters, taking in general the shortest way to their places of destination, cut, as it were, a track through the weeds in various directions. In these patches of sedge and rushes the farmer establishes his melon and cucumber floats, by cutting off the roots of the aquatic plants about two feet under water, so that they lose all connexion with the bottom of the lake, but still continue attached to each other. He then presses them together in closest contact and forms them into beds of about two yards in breadth, and of an indefinite length. The heads of the sedge, reeds, and other plants are then cut off, and left on the surface of the float, which is next overlaid with a thin coat of mud, which gradually insinuates itself into the mass of matted stems. The float is prevented from being wafted about by the wind by stakes of willow, which are driven through it at each end, and which do not prevent its rising and falling with the rise and fall of the water. When the gardens are thus prepared for the reception of the vegetable to be raised on it, the gardener has in readiness a number of cucumber and melon plants, which he had previously raised under mats. Such of these as have four leaves, he places upon the floating mass at about two feet distance from each other. After the planting, no further labour is necessary, and the only remaining care is to collect the fruit. Some of these islands will bear a man's weight, but the fruit is generally gathered by a person sitting in a boat; and owing to the small breadth of the garden, all the operations connected with it may be conducted in the same way.

Thus it will be seen that the floating gardens of Cashmere are of an inferior description to those which have excited so much interest in Mexico, and are not capable of producing an equal variety of plants; yet they are sufficient for the wants of the people, and yield in abundance the fruits for which they are prepared. Mr. Moorcroft thus speaks of their luxuriance:—

I traversed a tract of about fifty acres of these floating gardens in cucumbers and melons, and saw not above half a dozen unhealthy plants, nor have I seen in the cucumber and melon grounds, in the vicinity of very populous cities in Europe, or in Asia, so large an expanse of plants in a state equally healthy, though it must be observed, running into somewhat too great luxuriance of growth.

In China, also, where an excessive population renders it imperative on the inhabitants to have recourse to every expedient for increasing their means of subsistence, rafts and floating islands are formed on the surface of their numerous lakes and rivers, the whole of which are teeming with life and vegetation. In the neighbourhood of the city of Canton alone it is calculated that more than forty thousand persons live on the river, in islands, on rafts, or in boats. These persons are considered as a distinct part of the population, being under a separate regulation, and not allowed to intermarry with those on shore. Even the large rafts of timber which are floated down to Canton from the north and west, become the temporary abodes of numbers. Huts are erected on them and families of young children may be seen sporting fearlessly on these plains of floating timber.

Several floating islands have been observed in Lapland. In a small lake near the Gothic fortress of Castello Archione, several have been naturally formed by plants matted and joined together, which have attained sufficient consistence to allow of the peasants getting upon them, and navigating the lake with them, by means of long poles.

A small lake at Artois, near St. Omer, is covered with floating islands, and we are told that the neighbouring farmers draw them near the shore, and drive their cattle on them, to feed upon their rich pasturage, afterwards unloosing the islands again, and allowing them to drift at the mercy of the winds. Some of these islands exist in the Lake Gerdan, in Prussia, and are of considerable importance, if the account be correct which informs us that a hundred head of cattle find pasturage on them. An island of this description which exists in the Lake of Kolk, in Osabruck, is said to be covered with fine elms.

Small floating islands exist in the beautiful Loch Lomond, and in other waters of Scotland and Ireland, nor are the lakes of Cumberland without a specimen of this curiosity. A very remarkable one has emerged from the bottom of the Derwent, three times within the last thirty years. It was formed by the gradual deposition of decayed aquatic plants. In a small sheet of water connected with Esthwaite Lake, Hawkeshead, a floating island, thirty yards long, by five broad, has existed for many years. Some years back a heavy flood lifted it half on land, where it remained stationary, until some young men, taking advantage of a high state of the water, re-launched it, and sailed across the lake upon it. It has frequently been guided from the smaller to the larger lake, and *vice versa*, and on one of its trips it bore fifteen persons across the waters. The shrubs of various sorts growing upon it supply the place of sails.

These islands, generally speaking, may be regarded rather as a matter of curiosity, than of economic importance. They occur in almost every part of the world where a marshy soil is prevalent. In the Nile, in the Congo, in the Lake of Tivoli, in the marshy lakes of Commachio, near the Gulf of Venice, in Guayaquil, in the kingdom of Quito, and many other places, we read of the frequency of floating islands, but we do not find them appropriated to useful purposes except in a few instances. It has been suggested that the water-surface of our own islands might be called upon to contribute to the support of our increasing population, but it is very much to be questioned whether the plan would be attended with beneficial results in such a climate as ours.

Our engraving presents a view of one of these lakes in the Campagna Romana, about fourteen miles from the city

of Rome, of volcanic origin. Its ancient name was *Aque Albula*, since called *Lago Tartari*, *Lago Solfatara*, or *Lake of the Floating Islands*. The water is of a bright blue colour, highly charged with sulphur; it is much warmer than the atmosphere, extremely disagreeable to the taste, and possesses the property of petrifying all substances with which it comes in contact. Thus, the decomposed rushes and rank weeds with which the lake is bordered, falling therein, become hardened in very large masses, and float on the surface: hence the name, *Lake of the Floating Islands*. Its waters are reported to be fathomless, and no fish can live within its depths. On the side of the lake are the remains of the baths, erected by M. Agrippa, frequented by Augustus, and subsequently repaired by Zenobia, Queen of Palmyra. In consequence thereof, these ruins are now called *Bagni della Regina*, or Baths of the Queen.

It is an imperative duty to maintain at all times an important truth; for even should we despair of seeing it immediately recognised, we may so exarouse the minds of others, as to lead them in time to a greater impartiality of judgment, and in the end to a perception of the true light.—SILVIO PELLICO.

MARRIED life appears to me a sort of philosophical discipline, training persons to honourable duties, worthy of the good and wise. Few unmarried people are affected as they ought to be towards the public good, and perceive what are really the most important objects in life.—MELANTHON.

To me there is something affecting in the *last look*, on whatever object it is cast, for the last of everything reminds us of the last of life, the last day we shall spend on earth—the last look we shall fix upon terrestrial scenes—when we must turn from the beloved objects, whose society and sympathy have sweetened our cup of woe, and filled our span of time, to the loneliness of death and the realities of eternity.—SIR THOMAS RAFFLES.

TRUE wisdom bids her disciples search into the mysteries of nature as far as nature's ways are penetrable by man; but, although they scorn to hoodwink reason, they perceive and acknowledge that there is no surer sign of rationality than the forbearing to torture reason with inquiries beyond its scope and ken. True wisdom teaches that, besides the things which are revealed, there yet remain secrets, which belong not to us or to our children; still the knowledge attained and attainable by them is great; and they love not less because they know not more. And how different must be the feelings of one, who sees in all the mechanism and adaptations of the universe but the effects of chance, the results of a blind impulse of mutation, from those with which the self-same wondrous works are beheld by him who traces throughout the whole creation the finger of the great Creator; the former misinterprets the book of nature, and reads therein a melancholy tale, by which he is taught, not in humility, but in despondence, to "say unto corruption, thou art my father, and unto the worm, thou art my sister and my mother;" while to the latter, the heaven and the earth, and all that they contain, become narrators of the wisdom and benevolence of HIM who made them. Yes; for, although there is neither speech nor language, (by reason's ear) voices are heard among them; and the true philosopher, instead of bewildering himself in unsound metaphysical speculations, perceives, even in those things which are the least understood, sufficient evidence of design to forbid their production to be attributed to chance: he recognises at once proofs of skill in the design, that he cannot fathom; and of power in its execution, that he can neither measure nor comprehend. Yet, although incomprehensible, and hence, to some a stumbling-block, and to others foolishness, he beholds in these obscurities many sure manifestations of a wisdom without limit, and of a power without control. Yes, these clouds, which bound the horizon of human knowledge, are clouds of witnesses, for o'er their dirkness he sees extended a bow of promise, a standard of the Deity; and therefore, joining in the common theme of praise, with mingled sensations of gratitude and love, he humbly yet confidently declares, "MY FATHER made them all."—GILBERT T. BURNETT.

ON CHESS. XXIV,

CHESS WITHOUT THE BOARD.

THE severe mental exercise necessary for conducting a game of chess, without the help of board or men, was practised at a very early period in the history of the game. So far back as 970 years after Christ, an individual named Joseph Tchelebi is said to have acquired a facility at playing chess, blindfold; nor was this at all an unusual case in the East. The chess-board and men were, however, *handled* by these persons, and the difficulty of conducting the game was thereby greatly lessened.

Far more difficult was the task, and far higher rose the fame of the celebrated personage who appeared in 1266, and astonished the people of Italy by his performances. The name of this man was Buzecca, a Saracen, who visited Florence at the period above mentioned, and gave play at the same time to three of the best artists in chess which Italy could produce. These games were played in the presence of numerous persons of distinction: two of the games were conducted by Buzecca without seeing the board, while the third was going on between himself and an antagonist in the ordinary manner. Great was the astonishment and admiration of those who witnessed this trial of skill to find the Saracen winning two games and drawing the third. The opponents of Buzecca being on this occasion chosen men, and of a country which had become renowned for skilful chess-players, there is the more reason to admire the talent by which he was able to defeat them, and to remark on the high state of cultivation which the science of chess must have arrived at in the East.

Several persons are mentioned as excellent blindfold players, at the close of the sixteenth and commencement of the seventeenth century, especially the celebrated Ruy Lopez, chess-professor at the Spanish court, who wrote an elaborate treatise on chess, but with unusual modesty omitted to mention his own attainments as a blindfold player. Mangiolini of Florence, Zerone, Medrano, Leonardo da Cutri surnamed Il Puttino, and Paolo Boi, are some of the distinguished names of this period in that branch of chess-playing now under consideration. The last-mentioned individual was in the habit of playing three games at once without seeing any one of the boards, and without intermitting his usual strain of lively conversation. He was contemporary with Ruy Lopez, who was decidedly his inferior, and with Leonardo of Cutri, who was by many persons deemed his equal. The life of Paolo is sketched by two historians, Carrera and Galvio, and contains many interesting particulars, which we have given in our notice of celebrated chess-players. Paolo was the conqueror of every chess-player of his day, except Leonardo da Cutri. The contest between Leonardo and Paolo was very severe. They played a match which lasted three whole days. During the first two days they were exactly equal, but on the third Paolo, who was suffering in health at the time, lost ground, and was finally defeated. The two heroes never encountered each other again. Respecting the style of play of these two men we read that Paolo was rapid in his moves, while Leonardo was extremely slow and cautious.

Girolano Saccheri, a priest of the order of Jesuits, is spoken of by Keyser, the historian of Turin, as a man of extraordinary chess attainments. He lived at the early part of the last century, and was of so precocious an intellect, that, before he was ten years old, he could solve the most difficult problems in algebra and arithmetic, and was afterwards constituted public lecturer on mathematics at Pavia. He could play three games, or according to some writers even four, at the same time, with perfect clearness and accuracy, without seeing any one of the boards.

The practice of playing chess blindfold, had, for sq
608—2

many years fallen into disuse that when the astonishing performances of Philidor were made known, they were regarded as a feat of intellect altogether new and peculiar to that great player. In our biographical sketch of Philidor we have spoken of his achievements in this difficult department of the game, and pass on now to say a few words respecting the most celebrated blindfold players of our own day.

The faculty of playing chess without seeing the board is not the invariable, or even general accompaniment of excellence in that science. Many first-rate players have been unable to attain it, while some who have accepted odds of these, have found little difficulty in carrying out a game to its termination blindfold. Those who study chess chiefly from books, find less difficulty in playing without the board, than those who have acquired their knowledge chiefly from practice. There have been very eminent men who never looked in a chess-book until their own high standing was already taken—of such were La Bourdonnais, Deschappelles, St. Amant, Boncourt,—again there were others who were essentially book-players, and likewise excelled. Mr. Mac Donnell, one of the best players Great Britain has ever produced, studied much from books. In the blindfold games played by him, moves were made more quickly than when he saw the pieces.

He expressed some feeling of annoyance, (says Mr. Walker,) if the bystanders spoke in whispers, but had no objection to conversation being carried on around him in a natural tone of voice.

But since the time of Philidor no one has excelled so highly in the art of blindfold playing as the late M. de la Bourdonnais. With very little practice he was able to play one game at a time, within a pawn of his strength, as he proved by playing publicly with MM. Boncourt, Jouy, Bonfil, and others. He afterwards played two games at once against third-rate players, and was preparing to play three blind-fold games at once against the best players, when an alarming rush of blood to the head was the result of this severe, and we may add useless, mental exertion. A long illness was the consequence, and M. de la Bourdonnais was compelled to relinquish all further attempts at playing without seeing the board.

The difficulties attendant on acquiring skill in chess can scarcely be exaggerated even when playing in the usual manner with unlimited time at command to expend in surveying the forces on the field before us. In how vast a degree must these difficulties be multiplied when the mechanical objects of the chess-men and chess-board are abstracted, and no longer exist save in the powers of the mind; when the windows of the brain are closed down, and the faculties of sight are hermetically sealed; when a bare idea alone remains and all abroad is darkest night; when all that is left of the chess-board and men is their vague and timid shadow, wandering, spectre-like, across the mental chamber, like objects on a camera obscura; when memory and the perceptive faculties of the brain must be taxed, unaided, to name the position of every piece, pawn, and square of the chequer! And when these efforts of the reasoning and thinking powers require to be uninterruptedly prolonged and sustained, during a period of possibly several consecutive hours, without the slightest relief, break, pause, rest, or relaxation; then, I say, the art of playing chess without seeing the board, becomes, fairly considered, an extraordinary effort of the mind; and one which must be allowed to be, in the eyes of the metaphysician, equally curious as interesting.

These remarks by Mr. George Walker apply, of course, to first-rate players who conduct the game blindfold within a pawn of their strength, and in this way play two or even three games at the same time. But to play one game badly without seeing the board is comparatively easy, and may be done by many a second or third rate player who is willing to bestow a little time on the exercise.

Mr. Walker gives some very sensible directions for the guidance of those chess players who are desirous of playing without seeing the board. Referring such as are

interested in the subject to his article in *Fraser's Magazine*, Vol. XXI., p. 302, we pass on to notice the "Art of Playing without seeing the Board," by Carrera, whose remarks are not so well known nor so accessible as Mr. Walker's.

Those who are desirous of learning the art of playing without seeing the board, must have in their mind all the squares of the chess-board, and all the pieces that are or were on them. It is not sufficient, as some think, to know that such a square belongs to such a piece, or has such a number, because much more than this must be learned. In the first place, the player may take as a certain rule, that on the perpendicular lines all the odd numbers are of the same colour; for example, if the first square of a line be white, then the third, fifth and seventh squares will also be white; if the first be black, the third, fifth, and seventh will be black. It is different with the oblique lines, which are either all white or all black; for example, the oblique line which begins at the white king's rook's square is entirely white, and that beginning at the white queen's rook's square, entirely black; and as all the straight lines have neither more nor less than eight squares, it is not necessary to say anything more respecting them; but it is very different with the oblique lines; only two of these contain eight squares, namely, those which begin at the rook's squares, one of which is white, and the other black; those lines which begin at the knight's squares having only seven squares, one line is black, the other white; moreover from the knight's white square on the left hand is another line containing only two squares, and from the king's black square on the right hand, is also a line containing only two squares, but it would be tedious to mention all the squares of the oblique lines; suffice it to say, that all the squares whether black or white, on the right hand or on the left, should be remembered by the student. This is the more required, because it is not only necessary to know the squares from the beginning, but also from the middle and end of the lines: for example, the third square of the white queen is white, which branches into an oblique line of four squares forwards on the king's side, and backwards on the same line two squares on the queen's side; forwards to the left is another line of three squares, and backwards on the king's side two squares; it is also necessary to know which of these squares is the king's fourth, adversary's bishop's fourth, king's third, rook's second, &c.

With regard to the pieces and pawns, it is necessary to have well fixed in the mind their position when on their own squares, in order to know what squares they attack: for example, it is not sufficient to know the situation of the king's pawn at its own square; you must also know that it attacks the queen's third, and king's bishop's third square; the same with the pieces; the white king's knight on its own square attacks the king's second, bishop's and rook's third square: it is much more difficult, when the pieces have quitted their own squares to know what squares they attack, so that the essence of playing without seeing the board consists in the knowledge of the relative position of the squares, and of one's own and one's adversary's pieces, so that the player may not mistake, when he checks the adversary, if he can give him check mate, or if he can interpose any piece or pawn &c., &c.; all which requires, too, a perfect knowledge of the pieces exchanged and taken, for without it one cannot possibly play without seeing the board.

Of the pieces, the knight is considered the most difficult to remember, on account of the peculiarity of its move, and therefore I shall make a few remarks on it; from the square on which the knight is, counting two squares forward, backwards or sideways, the knight attacks the square adjoining the third square to the right and left; the smallest number of squares that the knight can attack is when it is on one of the rooks' squares, as it attacks only two squares; if it be on its own square it attacks three squares; four squares, if it be placed on the bishop's, king's, queen's, knight's second, or rook's third or fourth square; if it be placed on the king's third or fourth, queen's third or fourth, or bishop's third or fourth, it attacks eight squares; if it be placed on the remaining squares it attacks only six squares.

The pawns are more easy to keep in mind, because they never attack more than two squares, and the rook's pawns only one; after the pawns, the piece the easiest to remember is the king, then the rook, then the bishop (because it is easier to remember the perpendicular than the oblique line), then the queen. Besides to play well without seeing the board, it is necessary to play often, which is not a little fatiguing; no one can play so well from memory as if he

saw the board: this is allowed by all who profess to play without seeing the board. I grant that some succeed better than others, but none so well as if they saw the pieces. It is not necessary to be very skilful in order to play without seeing the board, for common players succeed in it; allowing the difference in play between seeing and not seeing the pieces.—*Lewis's Translation of Carrera.*

In the education of the intellectual powers, two chief ends are to be kept in view: first, the most advantageous development of these powers themselves; and, second, the communication of the greatest amount of knowledge capable of being brought into useful application.—*British and Foreign Medical Review.*

It must always be the condition of a great part of mankind to reject and embrace tenets upon the authority of those whom they think wiser than themselves.—*DR. SAMUEL JOHNSON.*

A MAN'S OWN heart must ever be given to gain that of another.—*GOLDSMITH.*

To adopt popular opinions without the slightest hesitation, is to run the risk of introducing into science, to its great injury, a multitude of confused notions founded on phenomena imperfectly seen and inaccurately examined; but to reject such opinions without examination, is often to lose an opportunity of important discovery.—*Magazine of Popular Science.*

UNION BETWEEN SOUL AND BODY.

WHEN we die, we do not cease to be, nor cease to live, but only cease to live in these earthly bodies; the vital union between the soul and body is dissolved, we are no longer encloistered in a tabernacle of flesh, we no longer feel the impressions of it, neither the pains nor pleasures of the body can affect us: it can charm, it can tempt no longer. This needs no proof, but very well deserves our most serious meditations.

For this teaches us the difference and distinction between soul and body, which men who are sunk into flesh and sense are apt to forget; nay, to lose the very notion and belief of it. All their delights are fleshly; they know no other pleasures but what their five senses furnish them with: they cannot raise their thoughts above this body, nor entertain any noble designs, and therefore they imagine that they are nothing but flesh and blood, a little organized and animated clay; and it is no great wonder that men who feel the workings and motions of no higher principle of life within them, but flesh and sense, should imagine that they are nothing but flesh themselves. Though methinks, when we see the senseless and putrefying remains of a brave man before us, it is hard to conceive that this is all of him; that this is the thing which some few hours ago could reason and discourse; was fit to govern a kingdom, or to instruct mankind; could despise flesh and sense, and govern all his bodily appetites and inclinations, and was adorned with all divine graces and virtues; was the glory and pride of the age. And is this dead carcass, which we now see, the whole of him? Or was there a more divine inhabitant, which animated this earthly machine, which gave life and beauty to it, but which is now removed?

When we consider that we consist of soul and body, which are the two distinct parts of man, this will teach us to take care of both. For can any man who believes he has a soul be concerned only for his body? A compound creature cannot be happy, unless both parts of him enjoy their proper pleasures. He who enjoys only the pleasures of the body is never the happier for having a human and reasonable soul: the soul of a beast would have done as well, and it may be better; for brute creatures relish bodily pleasures as much, and it may be more, than men do; and reason is very troublesome to those men who resolve to live like brutes, for it makes them ashamed and afraid, which in many cases hinders, or at least allays their pleasures. And why should not a man desire the full and entire happiness of a man? Why should he despise any part of himself, and that the best part too? And therefore, at least, we ought to take as much care of our souls as of our bodies. Do we adorn our bodies that we may be fit to be seen, and to converse with men, and may receive those respects which are due to our quality and fortune, and shall we not adorn our souls too with those Christian graces which make us lovely in the sight of God and men?—*DEAN SHERLOCK.*

THE ART OF DECIPHERING THE EFFACED INSCRIPTIONS OF COINS.



It is obvious that we can have no guarantee that specimens of the works of antiquity,—relics of the times gone by,—should pass through the long vale of years, unmutated, and uncontaminated: for such works were neither laid up for the benefit of the moderns, nor were many of them, individually at least, held to be of extraordinary value at the time of their production. To this number may be referred the coins and medals which were struck by races of people long ago extinct, and which now speak so much for their general history, their manners, customs, laws, religion, and arts.

As we cannot therefore hope to handle a coin clean from the Greek or Roman mint, and as we are naturally curious to know from what part of the entire body, a fragment of antiquity may have fallen off, so, when we hold in our hands a piece of money, used perhaps for the commonest purposes of life, by our terrestrial predecessors of 1500 or 2000 years ago, we are eager to find out from it the nation it once belonged to, the prince whose portrait seems to glimmer through the metallic mist, and all the subsidiary information, which it may furnish, and which our general knowledge of the history of that nation concurs to elucidate. When, therefore, the coin has become much or wholly defaced by accident, or the wear and tear of time, it is evident that any means which shall bring again to light that which has been effaced, are desirable to practise, even if the coin should be so eventually injured; for it is plain that an illegible coin or medal is of no use whatever, beyond its mere weight of metal.

It has been for a long time known that the legend, or inscription, on a worn-out coin may be traced and deciphered by putting the coin on a hot iron. It is not known who first made this discovery, nor was an explanation of this fact ever afforded until very lately.

When the coin is laid upon a red-hot iron, an oxidation takes place over its whole surface. The term *oxidation* implies a combination of the metal with the oxygen of the atmosphere; and the oxidized portion therefore, covers the metal like a thin plate, depending for the colour or tint which it assumes upon its thickness. The film of oxide produced by laying the coin upon a hot iron changes its tint with the intensity or continuance of the heat. The parts, however, where the figure or the letters of the inscription had existed, oxidate at a different rate from the surrounding parts; so that these letters exhibit their shapes, and become legible in consequence of the film of oxide which covers them having a different thickness, and therefore reflecting a different tint from that of the adjacent parts*. The tints thus developed sometimes pass through many orders of brilliant colours, particularly pink and green, and settle in a bronze, and sometimes in a black tint, which rests upon the figure and inscription alone. In some cases the tint left on the trace of the letters is so very faint that it can but just be seen, and may be entirely removed by a slight rub of the finger.

The curious results obtained in the manner just described, are thus accounted for by Sir David Brewster. When we take a plane disk of silver, that has never been hammered or compressed, its surface will oxidate equally,

* For the colours of thin plates, as depending upon their thickness, see the papers on the SOAP-BUBBLE, Vol. XV., p. 199, *et seq.*

if all its parts be equally heated. But, in the process of converting this disk into a coin, the sunk parts are those which were most compressed by the prominent parts of the die; and the elevated parts are those which were least compressed; the metal being in the latter condition left, as it were, more in its natural state. The raised letters and figures on a coin have, therefore, less density than the other parts, and these parts oxidate sooner or at a lower temperature. When the letters of the legend are worn off by friction, the parts immediately below them have also less density than the surrounding metal; and the site, as it were, of the letters therefore, receives from heat a degree of oxidation, and a colour, different from that of the surrounding surface. Hence ensues the revival of the invisible letters by unequal oxidation.

The influence of the difference of density may likewise be observed in the beautiful oxidations which are produced on the surface of highly polished steel, heated in contact with air, at temperatures between 430° and 630°. When the steel has hard portions, called by the workmen, *pins*, the uniform tint of the film of oxide stops near these hard portions, which always exhibit colours different from those of the rest of the mass. These parts, owing to their greater density, absorb oxygen from the air in a less degree than the surrounding portions. The steel, then expanded by heat, absorbs oxygen, which, being united with the metal, forms the coloured film. As the heat increases, a greater quantity of oxygen is absorbed, and the film increases in thickness.

When the experiment is often repeated with the same coin, and the oxidations successively removed after each experiment, the film of oxide continues to diminish, and at last, ceases to appear at all; but it recovers the property in the course of time. When the coin is put upon the hot iron, and when the oxidation is greatest, a smoke arises from the coin, which diminishes, like the film of oxide, by constant repetition. Sir David Brewster has found from many trials that it is always the raised parts of a coin, and in modern coins the elevated ledge round the inscription, that first become oxidated.

There is a very curious experiment connected with this subject, which goes beyond anything hitherto related. This to take a silver coin, (which answers the purpose best), and after polishing the surface as much as possible, to make the raised parts rough by the action of an acid, the sunk parts being left clean, and polished. If the coin thus prepared be placed upon a mass of red-hot iron, and removed into a dark room, the inscription upon it will become more luminous than the rest, so that it may be distinctly read off. The coin should be viewed, during this experiment, through a tube blackened on the inside; by which means the eye will be in a fitter state for observing the effect, and will be somewhat protected from the heat and smoke. If, instead of polishing the depressed parts, and roughening the raised parts of the coin, we polish the raised parts, and roughen the depressed parts, the inscription and figure will be less luminous than the depressed parts; but we shall be able to distinguish them, from their seeming to be traced in black characters on a white ground. The different appearances of a coin, according as the raised parts are polished or roughened, are shown in the figures at the head of this article. In the left hand cut, the raised parts are polished: in the right hand cut they are roughened.

The most surprising form of this experiment is when we use a coin from which the inscription has been either wholly obliterated, or so much obliterated as to be illegible: such are the shillings and sixpences of the last generation: those of England, France, and Spain, serve the purpose of the experiment very nicely. The results with copper coins are more difficult to obtain, and are less palpable: but when we lay a silver coin upon the red-hot iron, the places of the letters and figures become

oxidated, and the film of oxide radiating more powerfully than the rest of the coin will be more luminous than the other parts; so that the inscription, illegible before, may be now distinctly read. The acid is not absolutely necessary to this experiment, when using a thin silver coin.

To understand the reason why inscriptions become legible in the dark, whether the coin is in a perfect state, or the letters of it are worn off, we must remember that all black or rough surfaces radiate light more than polished or smooth surfaces; and hence the inscription is luminous when it is rough, and obscure when it is polished; and the letters covered with black oxide are more luminous than the adjacent parts, on account of the superior radiation of light by the black oxide which covers them.

Sir David Brewster suggests that by means such as these, invisible writing might be conveyed from one place to another, by impressing it upon a metallic surface, and afterwards erasing it by grinding and polishing that surface quite smooth. When exposed to the requisite degree of heat, the secret writing would start forth in oxidated letters.

Some old coins, when being heated, have given out brilliant red globules, accompanied with a smell of sulphur; and sometimes, small globules, like those of quicksilver, have exuded from the surface. Some coins give out an intolerable smell; and an Indian pagoda became perfectly black, when placed upon the heated iron. These results are due to the impurity of the metal and the nature of the alloy.

The cut at the head of this article shows the reverse of a Roman coin of the second century, in which the province of Britain is personified. The figure BRITANNIA is found upon many other Roman coins, which were struck for Britain, and has been now used in the English copper coinage for 168 years past. The legend implies that the emperor Commodus, whose bust is on the obverse, was "Pontifex Maximus,"—"in the 10th year of his tribunal authority,"—"in the 7th year of his reign," or A. D. 186,—and, "in the 4th year of his consulship:"—also, that he was "Father of his country."

BOWN up amid the thousand ties
Of man's mysterious sympathies,
Is that strange feeling, that hath birth
While, gazing on our parent earth,
The spirit to itself transfers
The sunshine or the gloom of hers.
Who hath not felt the peace that lies
On fields that smile 'neath summer skies
Who to th' eternal hymn of ocean
Responds not with a pure devotion,
Nor drinks a joy of sterner mood
From rugged hill or pathless wood!—HANKINSON.

WHEN Smeaton had reflected long, in search of that form which would be best fitted to resist the combined action of wind and waves, he found it in the trunk of the oak. When Watt was employed to conduct the supply of water across the Clyde to the city of Glasgow, he borrowed his admirable contrivance of a flexible water-main from considering the flexibility of the lobster's tail; and so, when Mr. Brunel was engaged in superintending the construction of the tunnel under the Thames, it was from observing the head of an apparently insignificant insect, that he derived his first conception of the ingenious shield, which he introduced in advance of the workmen, to protect them from being crushed by the falling in of the earth. It becomes us, then, while we trace the operations of human ingenuity in adapting means to its proposed ends, to raise our thoughts to that Divine architect who has imprinted traces of his wisdom and power on all his works: causing the heavens to declare his glory, and the earth, throughout all its domains of land, sea, and air, to show forth his handiwork.—DR. PORTER.

RURAL SPORTS FOR THE MONTHS DECEMBER.

We have chosen the Ptarmigan as the subject of our present article, not because the pursuit of that bird is esteemed by sportsmen as deserving particular notice,—on the contrary, it is characterised as a tame and uninteresting sport, requiring little enterprise, and gaining little merit.—but that we may draw the attention of our readers to some remarkable circumstances in the natural history of this tenant of the regions of frost and snow.

The ptarmigan belongs to the grouse family, and is sometimes called the "white grouse." Its home is near the tops of elevated mountains, and it seems so averse to the kindly influence of the sun's rays, that as soon as the snow begins to melt on the sides of the hills, it ascends still higher, until it gains the summit, where it forms holes, and burrows in the snow. Most of the Alpine districts of Europe abound in ptarmigans, and even as far north as Greenland they are very numerous. The Greenlanders catch them in nooses dropped over their necks, and account them a great luxury: they eat them, either dressed or raw, and do not object to them in a decaying state; the intestines are reckoned a great delicacy, and are eaten with train-oil and berries. The Greenland women adorn themselves with the tail feathers of the bird, and the men wear shirts made of the skins, with the feathers next the body. The Laplanders take these birds by making a hedge of birch branches with small openings at intervals. In each of these openings is a snare, and the ptarmigans in their search after the young buds and catkins of the trees are easily caught.

The Hudson's Bay ptarmigan, otherwise called the *willow partridge*, is remarkable on account of the immense numbers which are taken. Their flesh is much esteemed by the Europeans of the settlement, and they are said to be as tame as chickens. The usual mode of taking them is by fixing a net twenty feet square, to four poles, and by means of a rope fastened to these props to have the power of pulling down the net at any moment. Persons are employed to drive the birds in the direction of the net, and when a sufficient number are assembled, the concealed manager of the rope lets down the net, and often entraps from fifty to sixty. From November to the end of April it is reckoned that ten thousand of these birds are taken for the use of the settlement. The name of willow partridge has been given to the ptarmigans of that country from their assembling in large flocks at the beginning of October to feed among the willows.

In Britain, this bird is only to be met with on the summits of the highest hills, among the Highlands of Scotland, in the Hebrides and Orkneys, and sometimes on the lofty hills of Cumberland and Wales. We may traverse the heights covered with heather, and still be far below the abode of the ptarmigan. To reach his clifty and desolate abode you must ascend until, in the language of one of our popular writers,

You begin at last to feel alone, severed entirely from the world of society, of life, and of growth, and committed to the solitude of the ancient hills and immeasurable sky. The snow lies thick on the side of the summit, and even peers over the top, defying the utmost efforts of solstitial heat. There is no plant under your feet, save lichen on the rock, apparently as hard and stony as that to which it adheres—it can hardly be said to grow—and moss in some crevice, undistinguishable from the dull and cold mud into which the storms of many winters have abraded the granite.

And what are the objects which present themselves to notice in this region of snow?

A few mottled pebbles, or at least what appear to be so, each about twice the size of your hand, lie at some distance, where the decomposed rock, and the rudiments of what may be called the most elevated mountain vegetation, just begin to ruffle the surface. By and by, a cloud shadows the sun, the air blows chill as November, and a few drops fall, freezing

or melting in their descent, you cannot tell which. The mottled pebbles begin to move: you throw a stone at them, to show that you can move pebbles as well as the mountain. The stone hits beyond them; they run towards your feet as if claiming protection: they are birds,—ptarmigan,—the uppermost tenants of the island, whom not even winds which could uproot forests, and frosts which could all but congeal mercury, can drive from these their mountain haunts. It has often been observed that of all the human inhabitants of the earth, the mountaineer, be his mountain ever so barren, is the last to quit and the same holds true of the mountain-bird.

The sportsmen who find pleasure in climbing the granite cliffs, and wading the winter snows in which the ptarmigans delight to bury themselves, are few indeed. An excursion of this nature must be regarded as a journey of curiosity, for the purpose of viewing the wilder and more imposing features of our country, rather than as a sporting engagement which is to yield any profitable return. The flesh of the ptarmigan except when taken very early in the season, is much inferior to that of the red-grouse, being less juicy, and deficient in flavour. The chief interest attaching to the bird arises from the peculiarity of its haunts, the simplicity of its habits, and the periodical changes in the colour of its plumage.

The plumage of the ptarmigan has been called "a natural thermometer," on account of its variations in colour with the variations in temperature during the different seasons of the year. The summer plumage is yellow, more or less inclining to brown, and elegantly mottled with black, grey, and white: the quills of the wings, twenty-four in number, have black shafts and white webs. The tail feathers are sixteen in number, seven on each side, and two in the centre, the shafts of which are black. As autumn advances, these colours undergo a gradual change: the black and brown become paler and paler; then the grey fades, until when the winter is fully set in, the whole plumage becomes of a snowy white, except the eye-streak in the male, the outer tail feathers, and the shafts of the middle ones. This change does not take place in consequence of a moult, or falling-off of coloured feathers, to be replaced by white ones; but the change actually takes place in the colour of the feathers themselves, while at the same time the plumage becomes fuller, thicker, and more downy; the bill is almost concealed, and the legs are covered down to the very toes with hair-like feathers.

These changes in colours, have been attributed to a kind provision of nature to enable the birds more effectually to escape their enemies. Now it is certainly true, that the summer vest of the ptarmigan bears some resemblance to the broken tints produced by the brown patches of heath on the mountain slopes, which this bird frequents, and so far screens it from observation: so also does its white livery serve the purpose of concealment when its home is in the snow. But if this be one of the reasons for the change, it is not the principal one. Many of the polar animals, and others which inhabit the colder regions of the temperate zone, undergo a change in colour similar to that of the ptarmigan, and the rapidity of the change has been observed to depend upon the severity of the season. A little attention to the science of heat, will assist us on the present occasion. The temperature of all bodies is greatly influenced by the colour of their surfaces; those which are white reflect most of the heat which falls upon them: those that are black absorb it; so that if a white and a black body be exposed to a high temperature, the latter will be heated much sooner than the former. But on the other hand, a white body parts with its heat slowly,—a black body quickly; hence, if both be placed in a low temperature, the latter will cool much sooner than the former. These facts have long been established with respect to inanimate matter, but they apply with equal force to animals: by the healthy performance of certain functions (chiefly, respiration and the circulation

of the blood), heat is constantly supplied, and thus is maintained a temperature necessary to perpetuate the functions of life: a portion of the animal heat always escapes from the surface of the body by radiation: if the heat escape faster than it is formed, the temperature of the animal body will fall to such a point, that it is no longer sufficient to maintain life;—but, if the body be protected by substances which conduct and radiate heat very slowly, such for example as our winter clothing and the feathers, wool and fur of animals, heat escapes less quickly than it is formed, and the animal is thus enabled to inhabit a spot, the temperature of which is greatly below that of its own body.

Not only is the plumage of the ptarmigan adapted by Providence for the peculiar situation in which the bird is placed, but in respect of its general form the same adaptation is apparent. It stands more firmly on its legs than the other birds of its race, and presents but little resistance to the wind, in consequence of its crouching attitude. Its feet and claws, though feathered down to the very toes, are not impeded or encumbered on this account, for the surface of the mountains is generally dry, and pools of water are speedily converted into ice. The bill is remarkably strong, and is well fitted to crush the hard berries, lichens, &c., on which the bird feeds. It is a habit with the gallinidæ in general to swallow gravel, and the proportion found in the stomach of the ptarmigan is said to exceed that of any other bird. In winter these birds congregate, and live peaceably together, sheltering themselves in holes in the earth, or snow, and even burrowing through the latter until they contrive to reach the scanty vegetation lying beneath its surface. About the month of June they disperse in pairs, and make circular nests a little lower down the mountain. The number of their eggs varies from six to twelve or fifteen; and the young birds are covered with down, of a colour similar to that of their parents' summer plumage. This descent of the ptarmigan to a somewhat lower situation during the breeding season, is probably with a view to find more abundant food for their young, but it subjects them to many dangers, which in their more elevated home they had altogether escaped. The old birds are often obliged to fight desperately in defence of their young, and as soon as possible they lead them away to a place of greater security in the mountain tops. Ptarmigans are the favourite food of the great snowy owl, which is also an inhabitant of the most desolate regions of the North. On perceiving this well known and powerful enemy the affrighted birds dive instantly into the loose snow, and make their way beneath it to a considerable distance. In its favourite mountain summit, the ptarmigan has few enemies, being above the range of the fox, the mountain cat, and the martin, and also out of the usual hunting scenes of the raven and the eagle, so that is not so liable to the attacks of these formidable enemies, as are the red grouse, and other tenants of the heathery regions below. As this bird is thus exempted from some of the dangers common to its kind, so is it apparently deficient in sagacity and resource when attacked. The expression of the head is stupid or simple. Mr. Daniel calls them silly birds, that are tame enough to bear driving like poultry, and suffer a stone to be flung at them without their rising; with all this gentleness of disposition, it is however, difficult to domesticate them. Yet in their own regions they soon become reconciled to the sight of man, and may be caught and destroyed by any device he may choose to employ against them. They are so little anxious to hide themselves that a sportsman meeting with a party may shoot them one by one, till he has destroyed them all, the survivors after each discharge making no attempt to get out of the reach of the shot. They never, on any occasion take long flights or soar aloft in the air, but fly by taking a short circle like pigeons.

Another species of ptarmigan, known as the rock ptarmigan, has lately been brought into this country, but it is extremely rare. It is somewhat smaller in size, and may be distinguished from the common ptarmigan, by the black feathers of the back being cut into upon the edges, with patches of yellow only; which, contrasted with the larger size and grey plumage of the other, serves to render it conspicuous.

ENTRANCE INTO THE TROPICS.

As we found our way into the Tropics, we observed that the atmosphere became clearer and clearer; no mists were perceptible, the sun seldom obscured, and the appearance of the sky and stars at night peculiarly bright and clear. The moon, in these latitudes, often assumes an almost vertical position; and many of the stars which belong to the southern hemisphere are visible. Before daylight one morning, the captain called me upon deck to look at the Southern Cross; which is certainly a constellation of rare beauty. One of the five stars which form the cross, however, is of inferior magnitude, and not in the true position; which somewhat mars the image. When I turned towards the east, I enjoyed a still finer spectacle. The horn of an almost expiring moon, Venus, and Mars, were in all their splendour: and the profusion of azure, lilac, ultramarine, pea-green, orange, and crimson, which mantled the sky about half an hour before sunrise, I never before saw equalled.—GUMMET.

To ask the question, "What is knowledge?" is but another way of inquiring, "What is God?" for human learning deserves the name of knowledge only in the proportion in which it is able to display the workings of the All-wise Creator in the visible and unseen universe of which we form a part. There is, indeed, a mass of general information that is useful to the individual in his relations to the society of his home and country; but this is, for the most part, confined to transient customs and opinions, and is for ever being swallowed up in that flood of knowledge which has increased from age to age, spreading its waves with a wider sweep through each succeeding generation, and which will ere long embrace in one common bond of intelligence the great human family upon earth.—*Manuscript Letters.*

THE real philosopher, who knows that all the kinds of truth are intimately connected, and that all the best hopes and encouragements which are granted to our nature must be consistent with truth, will be satisfied and confirmed, rather than surprised and disturbed, to find the natural sciences leading him to the borders of a higher region. To him it will appear natural and reasonable, that, after journeying so long among the beautiful and orderly laws by which the universe is governed, we find ourselves at last approaching to a source of order and law, and intellectual beauty:—that, after venturing into the region of life, and feeling, and will, we are led to believe the fountain of life, and will, not to be itself unintelligent and dead, but to be a living mind, a power which aims as well as acts. To us this doctrine appears like the natural cadence of the tones to which we have so long been listening; and without such a final strain our ears would have been left craving and unsatisfied. We have been lingering long amid the harmonies of law and symmetry, constancy and development; and these notes, though their music was sweet and deep, must too often have sounded to the ear of our moral nature, as vague and unmeaning melodies, floating in the air around us, but conveying no definite thought, moulded into no intelligible announcement. But one passage which we have again and again caught by snatches, though sometimes interrupted and lost, at last swells in our ears full, clear, and decided: and the religious "Hymn in honour of the Creator," to which Galen so gladly lent his voice, and in which the best physiologists of succeeding times have ever joined, is filled into a richer and deeper harmony by the greatest philosophers of these later days, and will roll on hereafter, the "perpetual song" of the temple of science.—*History of the Inductive Sciences, by the REV. WILLIAM WHEWELL.*

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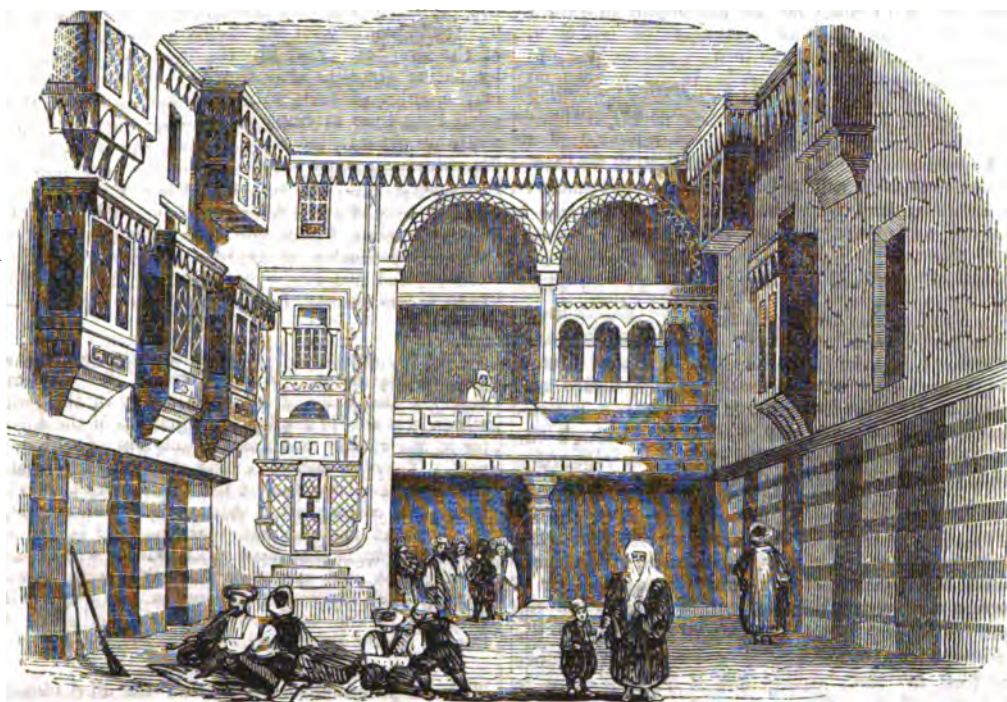
SUPPLEMENT,



DECEMBER, 1841.

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THE HOUSES OF ALL NATIONS. III.



INTERIOR OF AN ORIENTAL HOUSE.

1. HOUSES OF NORTHERN AFRICA AND EGYPT.

THE inhabitants of Northern Africa have for several centuries been connected together by certain ties which enable us for some purposes to consider them as one people. Morocco, Tunis, Fez, and till lately Algiers, have all had Mohammedanism as the recognised religion of the state. Their mosques are similar, their manners are similar, and, as may be supposed, their dwellings also belong, in their general characters, to one class. All the countries which we have mentioned, lie pretty nearly under the same latitude, and are exposed to about an equal temperature, a circumstance that has much influence on the form of the buildings. Under the general name of *Barbary*, therefore, we will now consider the principal features in the houses of the better classes of the inhabitants.

Large doors, spacious chambers, marble pavements, cloistered courts, and fountains, are very general in these countries, and accord well with the nature of the climate. The windows, too, open not into the street, but into the central courts or quadrangles, a type of the jealous dispositions of the inhabitants. The streets are generally narrow, probably to shield the houses as much as possible from the sun. The entrance to a house from the street is through a porch or gateway, with benches on each side, where the master of the family receives visits and despatches business. From hence an opening is seen into the quadrangle or court, which is open above, and is generally paved with marble. When a large assembly is to be received, such as upon the occasion of any grand entertainment, the court is the place of reception, where mats and carpets are spread for the company. It has been supposed by Dr. Shaw, that on most of the occasions when our Saviour and his apostles are said to have entered houses and preached there, &c., the court or quadrangle was the place of reception; for there are many points of resemblance between the houses of Judæa and those of Barbary

Vol. XIX.

In the warm season, this court is covered by an awning to protect the visitors from the heat of sun: this awning is stretched out by ropes, and can be folded or drawn out at pleasure. The court is generally surrounded with a colonnade, over which there is a gallery of the same width as the colonnade, with a balustrade or lattice-work in front of it. From the colonnade and gallery there are openings into large spacious chambers, of the same length with the court, but seldom communicating with one another. One of them frequently serves for a whole family, particularly when a father allows his married children to live in the same house with him, or when two or more persons join in the rental of one house. The walls of these chambers, in the houses of the wealthy, are covered, from the middle downwards, with white, blue, red or green hangings, either of velvet or of damask: these are suspended by hooks, so as to be taken down at pleasure. Above these hangings is a more permanent covering for the wall, such as stucco, fretwork, paintings, &c. The ceiling is generally of wainscot, and painted in various devices, frequently including sentences from the Koran. The floors are generally covered with painted tiles: but as the Moors seldom use any sort of seat equivalent to our chair, the floor is covered with carpets and mats of rich materials, on which the inmates either sit cross-legged or lie at full length. Near the wall, however, is frequently placed a kind of raised platform, on which are narrow beds or mattresses, as well as pillows.

The stairs to the upper story, when there is more than one, are situated sometimes in the porch, and at others in the court. This staircase leads not only to the upper story, but also to the gallery and to the roof of the house, where the Moors pass much of their time in the evening. The flat roofs are covered with plaster, and are surrounded either by low walls or by balustrades. The terraces serve for many domestic purposes for the use of the inmates: linen is dried there: figs and raisins are exposed there to the heat of the sun: it is also frequently used as a place of devotion.

609

Many of these houses have a smaller one attached to them, consisting of one or two rooms and a terrace. Some of them are built over the porch or gateway of the larger house, to which there is a door of communication. These smaller houses are frequently used as places of retirement from the bustle of the central quadrangle. It has been supposed that many of the houses in Syria, Palestine, &c., were anciently provided with little retired chambers such as we here speak of,—that is, chambers secluded in some degree from the rest of the habitable mansion. The following passages in the Bible seem to allude to some arrangement of this kind: 2 Kings 4. 10, "Let us make a little chamber, I pray thee, on the wall; and let us set for him there a bed, and a table, and a stool, and a candlestick,"—Judges iii. 20, "And Ehud came unto him; and he was sitting in a summer parlour, which he had for himself alone."—2 Sam. xviii. 23, "And the king was much moved, and went up to the chamber over the gate, and wept." While we are on this subject, we may briefly allude to an explanation which Dr. Shaw has offered of a part of Scripture, which, without knowing the structure of the houses in the countries alluded to, cannot be well understood. In St. Mark ii. 2, we read, "And they came unto him bringing one sick of the palsy, which was borne by four. And when they could not come nigh unto him for the press, they uncovered the roof where he was: and when they had broken it up, they let down the bed wherein the sick of the palsy lay." Now in such houses as we are accustomed to, it would appear more difficult to make a sufficiently large hole through the roof than to force a passage through the throng. But by considering the nature of the houses in those climates, Dr. Shaw thinks the following explanation will remove every difficulty. The only part of a house large enough to admit a multitude of people was the open court or quadrangle. This court was covered in hot weather by an awning capable of being drawn aside by means of ropes. The tops of the houses were flat, so that persons could walk from roof to roof without difficulty, and stairs led up to the roof. It therefore seems probable, that the sick man was carried up to the roof of the house, that the awning was drawn aside, and that he was lowered into the open court by ropes.

That portion of Northern Africa occupied by Algiers need not claim our attention here, for in so far as it differs, in the construction of its houses, from the countries of Barbary generally, the Supplements which have been given on the subject of Algiers in the *Saturday Magazine* will have conveyed a sufficient idea. We will therefore proceed eastward, and approach countries which have filled a more important page in history. The territory once known by the famed name of Carthage occupied a portion of the space between Egypt and what is now called Algiers, but at present, little exists here to claim notice in this paper.

Egypt has many remarkable peculiarities, chiefly arising from the mixture of Turkish and Arabic manners and modes of living prevalent in the country. The houses of Egypt depend a good deal, for their form and character, on the religion of the inhabitants; they have in general either one or two stories above the ground floor, and there is often a small unpaved court in the middle of the building, with various apartments surrounding it. There is a narrow passage leading into this court from the street, and in the passage is a stone seat for the porter and other servants. In the court itself is generally to be seen a well for supplying the house with water; and the windows of the principal apartments look into the court, several doors leading from the court to the rooms: in all these cases there is one door leading exclusively to the women's apartments. The apartment in which strangers are received is generally on the ground floor, with a grated or latticed window looking into the court. This reception-room has generally a fountain in the middle, and is paved with black and white marble. Along two sides of the room runs a raised platform covered with mats and carpets, and visitors generally take off their shoes before they step upon this. The mode in which persons seat themselves in such countries will assist us in explaining many of the customs mentioned in the Holy Scriptures. The matted or carpeted floor is frequently the only seat, and if shoes, soiled with the dust of the streets, were to tread on this matting, the garments would certainly be disfigured by it: hence a sense of cleanliness, as well as certain rites connected with religion, lead the inhabitants to take off their shoes previous to stepping upon the raised platform. There are, however, frequently mattresses and cushions, stuffed with cotton and covered with cloth or silk, ranged round the sides of the

apartment. The walls of this apartment contain recesses and cupboards, for the reception of water-bottles, coffee-cups, and other domestic vessels. The ceiling of the room is divided into compartments: those parts over the two raised platforms being formed of carved beams of wood; while that over the central part is carved into highly decorated and fanciful ornaments, and painted of very diverse colours. A chandelier is frequently suspended from the centre.

All the apartments are lofty, generally about fourteen feet high. The upper rooms have often, besides lattice-work windows, others of coloured glass, representing flowers, fruit, birds, &c. These coloured windows are about two feet high and one wide: they are placed above the other windows, and are more for ornament than for use. "On the plastered walls of some apartments," says Mr. Lane, "are rude paintings of the temple of Mekkeh, or of the tomb of the Prophet, or of flowers and other objects, executed by native Mooslim artists, who have not the least notion of the rules of perspective, and who consequently deface what they thus attempt to decorate. Sometimes, also, the walls are ornamented with Arabic inscriptions, of maxims, &c. which are more usually written on paper, in an embellished style, and inclosed in glazed frames. No chambers are furnished as bed-rooms. The bed, in the day-time, is rolled up, and placed on one side, or in an adjoining closet, called *khuzneh*, which, in the winter, is a sleeping place: in summer, many people sleep upon the house-top. A mat or carpet, spread upon the raised part of the stone floor, and a *deewan*, (a row of cushions round the wall,) constitute the complete furniture of a room. For meals, a round tray is brought in, and placed upon a low stool, and the company sit round it on the ground. There is no fireplace: the room is warmed, when necessary, by burning charcoal in a chafing-dish." The kitchens, however, have several small receptacles for fire, constructed on a kind of bench of brick. Many houses have at the top a sloping shed of boards, directed towards the north or north-west, in order that the cool breezes which blow from those quarters may be conveyed to an open apartment below. The roof of the house is flat, and generally covered with a coating of plaster.

For a notice of the houses and domestic arrangements of Cairo in particular, we refer to our recent sketches of that capital.

2. HOUSES OF ASIATIC TURKEY.

Africa is united to Asia in a singular manner. The two continents are connected only by a narrow slip of land,—the isthmus of Suez,—and this isthmus, as well as the country near it, is little better than a dreary desert. Having passed this desert, we come to Palestine, and, keeping along the eastern shore of the Mediterranean Sea, we arrive at Jaffa, Acre, Aleppo, and other towns. After this, the great peninsula of Asia Minor brings us to the Black Sea, and the provinces of European Turkey. Now throughout this range of country, Turkish influence is more or less prevalent, and there are a good many features common to all the towns extending from Jerusalem at the south-east to Smyrna at the north-west. The city of Aleppo is well situated as a representative of the towns of Western Asia generally. To the north of it is Asia Minor: to the south, Palestine; and to the east, are those numerous provinces which have, at one time or other, formed part of the Persian Empire. Its houses, as well as its inhabitants, present features of the Turkish, Persian, Syriac, and Arabian countries: and we shall do well to consider rather minutely the nature of the dwellings.

Aleppo is governed by a bashaw or officer, and the residence of this officer, as well as of the other principal officers of state, are called *Seraglios*, (a Persian word for a palace or great house.) These seraglios are huge piles of building, with nothing like architectural grace about them. The entrance is through a large court; and the gate is arched and decorated with marble. Persons of rank pass on horseback directly to the foot of the grand staircase. The state apartments are of an oblong form, with lofty flat ceilings, and are well lighted by a row of large windows. The walls and ceilings are adorned with flowers, fruit, and fanciful ornaments, painted, gilt and varnished: and verses from the Koran are seldom omitted as part of the decoration. Each state apartment has an elevated platform on each side constituting a *divan*, where distinguished visitors are invited to seat themselves. The divan is covered with mattresses, over which is thrown a covering of cloth; and oblong cushions, stuffed with cotton and faced with silk or velvet, are ranged round next the wall:—the corners of

these divans are considered as the places of honour. The lower and central part of the apartment is occupied by pages and others; indeed all visitors, except those of rank, are to remain on the central division of the room, and must not presume to step on the divan.

The apartments of the principal officers are fitted up on the same plan, but with less splendour: the divans in their rooms being made to serve as beds at night, by employing additional mattresses and coverlids.

The women's apartments are always separated from the main part of the building, and consist of several suites of rooms, ranged round an open court. This court contains a shrubbery, a basin with a fountain, arbours of slight latticed frames, and other arrangements for producing a cool place of retreat from the heat incident to the climate. There are also two open apartments, called the *dewan*, and the *kaah*, which are a sort of open reception rooms, where the different members of a family may congregate. These are particularly delightful, from the means taken,—such as fountains, &c.,—to make them cool. The private apartments of the females are ranged round the court, with windows looking into the court, to the exclusion of any other. The sleeping rooms are usually on the ground floor, and the visiting, or reception rooms are above them.

Such are the general modes of construction in the mansions of the bashaws, agas, effendis, and officers of government, at Aleppo.

The houses of the merchants seldom have a court in front, the entrance being immediately from the street, by a large door. The outer apartments are small, and furnished in a plain but neat manner. They serve only for the reception of familiar visitors in the morning, or at supper: for on extraordinary occasions, the harems, or female apartments, are made use of, which, in point of elegance, often rival those of the seraglios, and in the richness of the furniture sometimes excel them.

The houses of the Turks of middle rank have seldom more than one court; but many of them have a *kaah*, and all have a divan, with a little garden and fountain before it. Their habitations are thus airy, and kept very neat. From this rank, down to the lowest order of Turks, there are houses of various degrees of comfort; but they have nearly all something which they can call a divan, and a few bushes or shrubs by way of garden:—their best room is rudely painted, and decorated with such ornaments as they can procure.

The houses of the Christians of the upper class consist generally of a central court surrounded by apartments. The entrance to these houses is scarcely to be distinguished from those of the Turks; and the interior is fitted up with a good deal of taste and neatness.

The Jews, both European and native, have houses built much on the same fashion as the other inhabitants of the city; and in some instances their dwellings display no little magnificence within. The poorer classes of Jews, however, are worse lodged than the poor of the other religious communities.

The roofs of nearly all the better kinds of houses are flat, and plastered with a composition of mortar, tar, ashes, and sand, which in time becomes very hard; but, when not laid on at the proper season, the terrace is apt to crack in the winter. These flat roofs or terraces are separated by parapet walls, and most of the natives sleep on them in summer. The Europeans who live contiguous have doors of communication, and by means of the terraces on their own houses and those on the bazaars, can make a large circuit without descending into the street. The native inhabitants, however, do not throw open a whole line of terraces in this way; but frequently heighten the wall of division by means of a screen.

We will avail ourselves of the present opportunity for speaking of a part of the domestic arrangement which in warm climates has a considerable influence on the construction of a town, as well as upon the manners of the inhabitants,—we mean the custom of bathing. Not only does a sultry climate occasion a necessity for a frequent use of the bath, but the Mohammedan religion requires that ablutions should be made at certain hours of the day. Most of the large mansions in Persia, Turkey, Syria, Egypt, Barbary, &c., have baths within them; but the general custom is, to attend public baths, a large number of which are to be found in most of their cities. These baths or bagnios being pretty nearly the same everywhere, we will take those of Aleppo as a general representative of all, and will avail ourselves of Dr. Russell's account of them.

The outer room of the hummam or bagnio is called the *burany*, and is large, lofty, covered with a dome, and paved with marble. It has windows towards the street, but is lighted chiefly by the lantern of the dome. A broad stone platform, or *mustaby*, about four feet high, is built close to the wall on each side, which being spread with mats and carpets, forms a divan on which the bathers may undress and repose. A large marble fountain in the middle serves both as an ornament, and for rinsing the bagnio linen, which is afterwards hung to dry on lines stretched above. The bathers, as well as the servants, walk in this outer chamber in slippers, for the stoves having but small influence there, the wet pavement is cold to the naked feet.

From the *burany* a door opens into a narrow passage, leading to the *wastany*, or middle chamber, which has a *mustaby*, or raised platform, for the accommodation of such as may choose to sit there, and is furnished with several round or oblong stone basins, about a foot and a half in diameter, into each of which two pipes open with brass cocks, the one conveying hot, the other cold water. These are called *jurus*, and are fixed to the wall two feet from the pavement. There are also brazen bowls for laving out the water. The thermometer in the *burany* is about 64° Fahr.—in the passage 78°—and in the *wastany*, or middle chamber, 90°.

From the middle chamber, a door opens immediately into the inner chamber, or *juany*, which is much larger than the *wastany*, and heated to about 100°. It has no *mustaby*, or platform, so that the bathers sit or recline on the pavement, which towards the centre is excessively hot. The middle and inner rooms are less lofty than the outer one, and are covered with small cupolas, from which they receive a dull light, by means of a few round apertures, glazed with a thick coloured glass. At each corner of the *juany* is a small open recess, in one of which there is a basin about four feet deep, called the *mirtas*, serving occasionally for a temperate bath. The bagnios are heated by stoves underneath, and the ordinary temperature is about 100°.

It must be borne in mind, that the mode of bathing adopted in these countries is altogether different from that employed in England. There is no plunging into a large body of water, and in a few minutes emerging from it. The bather, first, in the outer room, throws off his usual dress, and puts on a slight bathing dress. He then passes into the middle room, and gets gradually warmed by its temperature. From thence he passes into the inner or bath room, which is heated so highly that in a few minutes he is in a profuse perspiration. He then lies down on the warm marble pavement, and is rubbed all over by an attendant, with a kind of perfumed soap; after which he is well drenched by bowls of warm clean water, and rubbed with dry towels. The bathing being thus completed, he passes into the middle room, puts on his slippers, wraps himself completely in a blanket, and then smokes a cigar, drinks coffee, and converses with his friends or neighbours:—indeed, this middle room is a general place of rendezvous for friends, who often go to the bath as much to meet one another as for the pleasure of bathing. This is particularly the case with females: by the customs of the country they are so much immured, that they are glad of the relief from constraint afforded by the bath; and it is not unusual for them to take sweetmeats, fruits, spices, &c., to regale themselves and friends in the middle chamber, after having taken the bath. Lady M. W. Montagu tells us that this is then a famous place for gossip. When the bathers have remained as long as they please in the middle room, they proceed to the outer room, resume their dresses, and leave the place. There are some baths for men, and others for women; and a third class devoted to women in the forenoon, and men in the afternoon; the bathers being attended by servants of their own sex.

3. HOUSES OF PERSIA AND ARABIA.

The most general characteristics of the houses of the wealthier classes in Persia have been the same from age to age, and the accounts of different travellers pretty well agree on the subject. Generally speaking, such houses are built in the middle of a fine garden, and present little or none of their beauty to the street; for there is little else to be seen but a dead wall, with a great gate in the middle of it, and perhaps a screen or wall within the gate, to prevent passers-by from seeing the mansion,—great privacy being sought for in this respect. It is not often that the Persian mansions have more than one story,—indeed, in most warm climates, the houses are more remarkable for length and depth than for height. In the portion of the house nearest the entrance gate is generally a little piazza

or open room, where the general business of the inhabitant is transacted. Beyond this piazza is a large hall, from twelve to twenty feet high, which is the place of meeting, on the occasion of great entertainments, &c. On the hinder side of the house is often another piazza, with a fountain playing in front of it, beyond which shady walks are frequently seen. At each corner of the large hall is a parlour, or dwelling room, between which are small open square courts, with entrances from the great hall: the object of this and similar arrangements seems to be, that in a climate so sultry as that of Persia, it is desirable to have as many open doors as possible, to admit air into the central hall: there is often a fountain playing in the middle of the hall.

The walls of the houses are built sometimes of burned bricks, and sometimes of bricks dried in the sun. The walls are of considerable thickness, and the roof of the great hall is arched, and some feet higher than the smaller rooms near it. The roofs of the buildings on every side of the hall are flat, and have stairs leading up to them. These flat roofs form one of the most distinguishing features of Asiatic dwellings. Nothing can exceed the beauty of the sky at those hours of the evening when the sun has withdrawn his scorching rays. It is at such a time that the Persian, taking up a mattress to the roof, there luxuriates in the indolent enjoyment of the open air:—often, indeed, he passes the night there, except at certain seasons, when, in consequence of the powerful evaporation during the day, a piercing cold is felt at night.

The kitchens, and other domestic offices of the house, are generally at some distance to the right or left, and the hall is the medium of communication between all of them. Sometimes the rooms have chimneys, but at other times there is an arrangement of a charcoal fire thus managed:—A hole, four or five feet in diameter, and one or two deep, is sunk in the floor of the room, and in this is kindled a charcoal fire. The hole is covered over with a thick board, and this again is covered with a carpet, so that persons by sitting round in a circle, and placing their feet under the carpet, can keep themselves warm in cold weather. Air is admitted to the fire, and smoke is conducted from it, by pipes laid beneath the floor. The floors of the rooms are either paved, or covered with a hard cement, on which a coarse cloth is laid, and over that a carpet. The walls of some of the rooms are lined with fine tiles a part of the way up, and are painted above.

Such are the general characters of the houses in that wide expanse of country included under the general name of Persia. But it must be here understood, that these remarks apply chiefly to the large towns; for in the wide and uncultivated wastes which cover so large a portion of the Persian empire, the same kind of rude and temporary tents are observable as are employed by the roving Arabs. In a country like England, we happily do not know what it is to have our large towns separated from each other by sandy wastes, where neither man nor beast can find food and water without great difficulty:—the arrangements of a manufacturing town and those of an agricultural village are certainly sufficiently distinct; but still, a roving population, who, when they have gathered all the herbage and fruits at one part of the country, strike their tents, and proceed in a body to another locality, is unknown to us, however much it prevails in Persia.

These remarks apply also to Arabia. We have, however, nothing to say here of the roving tribes, but shall briefly speak of the populous towns. The city of Mecca consists of streets arranged with tolerable regularity, and there is something more pleasing in the fronts of the houses than is usually observed in Oriental towns. The houses have generally two rows of windows, with balconies covered with blinds. There are even several large windows, quite open, as in Europe, but the greater number are covered with a curtain, like a Venetian blind, made of palm-leaves: these blinds are extremely light, and screen the apartments from the sun, without interrupting the passage of the air: they fold up at pleasure at the upper part. The houses are solidly built with stone, and are three, four, and even more stories in height. The fronts are ornamented with bases, mouldings, and paintings, which give them a very graceful appearance. It is very rare to find a door that has not a base, with steps and small seats on both sides. The blinds of the balconies are not very close, and holes are cut in different parts of them. The roofs of the houses form terraces, surrounded with a wall about seven feet high, open at certain spaces which are occupied by a railing of red and white bricks, placed symmetrically, leaving holes for the circula-

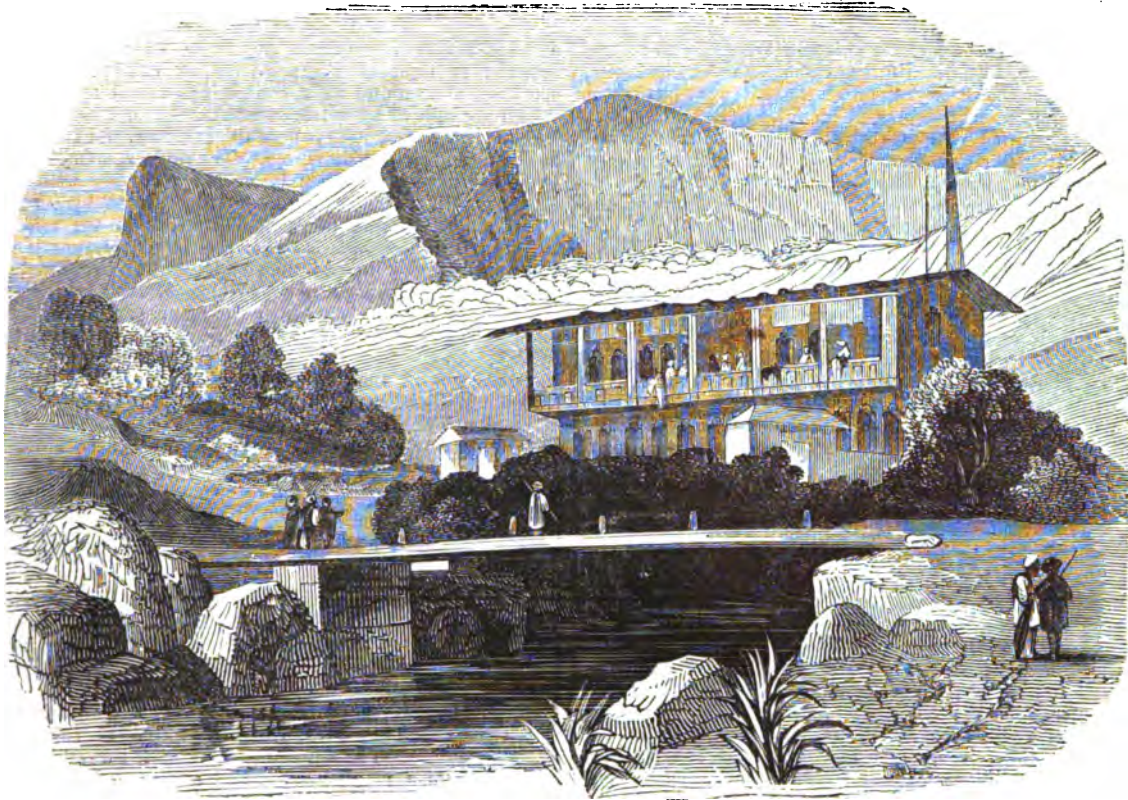
tion of the air. All the staircases are narrow, dark, and steep. The rooms are well-proportioned, large, and lofty, and have, besides the large windows and balconies, a second row of smaller windows. The beauty of the houses may be considered as the remains of the ancient splendour of Mecca. Every inhabitant has an interest in adorning his dwelling, in order to induce the hadgi, or pilgrims, to lodge with him during their sojourn at Mecca, for this is one of the principal sources of wealth to the inhabitants, on account of the high terms demanded and paid.

Another town in Arabia of which we may briefly speak is Mocha, a name rendered familiar to us by the excellent coffee brought from its neighbourhood. In this town the principal buildings, such as the residences of the government officers and principal inhabitants, have no pretensions, externally, to architectural elegance, but still are not devoid of beauty, from their turretted tops and fantastic ornaments in white stucco. The windows are in general small, stuck into the wall in an irregular manner, closed with lattices, and sometimes opening into a wooden, carved-work balcony. In the upper apartments there is generally a range of circular windows, above the others, filled instead of glass, with a thin layer of a peculiar transparent stone, which is found in veins in a mountain near Sanaa. None of these can be opened, and only a few of the lower ones—a consequence of which is that a thorough current of fresh air is rare in these houses, yet the people who inhabit them do not appear to be oppressed by the heat, though it is insupportable to European visitors. The walls as well as the roofs of the larger houses are made of mud, which is sustained by beams with pieces of wood, laid across and close to each other. The carpenter's level is seldom used in their buildings; the floors are generally very uneven; but where couches and cushions are used instead of chairs and tables, this is not felt to be much inconvenience. The internal construction of the houses is generally bad: the passages are long and narrow, and the staircases so steep that it is frequently difficult to mount them. Very little time is used in the construction of any of these buildings: constant care is therefore necessary to prevent the introduction of moisture. With caution, the houses last many years, but if neglected, they soon become a heap of rubbish, for the sun-dried bricks then resume their original form of mud.

The streets and bazaars of Mocha present a lively appearance; from the commingling of many different classes and ranks of people. Lord Valentia says:—"Under the coarse awnings of its narrow bazaars you meet the well-dressed merchants in robes of woollen cloth, and from above the folds of the snow-white turbari you see a red woollen cap, with a tassel of purple silk. At every step you meet the black, the half-naked Abyssinian, straight as the young areca, with a nose sufficiently prominent to give expression to his features, and having his curled woolly hair dyed with a reddish yellow,—the foppery of his country. Then there is the stout Arab porter, in his coarse brown garment, bowing under a heavy load of dates, the matting all oozing, and clammy with the luscious burden. Lastly, you have the Bedouin, with the hue of the desert on his cheek, the sinewy limb, the eye dark and fiery. He hath a small turban, a close-bodied vest, a coarse sash, all of dull colours; the arm, the leg, are bare; the brown bosom; open to the sun and wind; sandals on his feet; a broad, straight, two-edged sword in his hand; a long and ready poniard in his girdle. For the cold night wind he has a cloak of goat's hair, or black or white, or made in long broad stripes of both colours. He walks erect, and moves directly to his front, giving place to none. . . . Then there are the cook-shops, with their hot cakes of bread, and their large coppers, with portions of meat and fowls, swimming in ghee, and ready for the traveller. And a step farther the caravanserais and coffee-houses, with groups of townsmen and traders, reclining on couches of the date-leaf, smoking their small hookahs, sipping their kishu, and perpetually stroking their long beards." There are other towns in Arabia, such as Medina, and Aden, once a very important port at the southern entrance into the Red Sea. But neither of these need call for particular notice here: Medina presents many features similar to Mecca, and Aden to Mocha.

4. HOUSES OF INDIA AND CHINA.

We will travel eastward, and notice the recent seat of war, Afghanistan.—The houses of the higher classes in Afghanistan are described with some minuteness by the Hon. Mountstuart Elphinstone, in his *Account of the Kingdom of*



INDIAN MOUNTAIN DWELLING.

Cambul. The class of inhabitants whose dwellings he thus portrays, includes all the Douranee chiefs and heads of tribes, with the Persians and Tanjika, who hold offices about the king. "These residences," says our author, "are all enclosed by high walls, and contain (besides stables, lodging for servants, &c.) three or four different courts, generally laid out in gardens, with ponds and fountains. One side of each court is occupied by a building, comprising various small apartments in two or three stories, and some large halls, which occupy the middle of the building for its whole height. The halls are supported by tall wooden pillars and Moorish arches, carved, ornamented, and painted like the rest of the hall. The upper rooms open on the halls by galleries which run along halfway up the wall, and are set off with pillars and arches. The halls, being only separated by pillars and sashes of open wood-work, can always be thrown into one by removing the sashes. The back of the innermost one is a solid wall, in which is the fire-place. The upper part of this wall is ornamented with false arches, which look like a continuation of the galleries, and which, as well as the real arches, are filled up on great occasions with paintings in oil, looking-glasses, and other ornaments. There are smaller rooms along the other sides of the court-yards; and among them are comfortable apartments for the retirement of the master of the house, one of which, at least, is fitted up with glass windows for cold weather. There are fire-places in many of these different apartments. The walls and pillars are ornamented with flowers in various patterns, painted in distemper, or in oil, on a white ground, composed of a sort of whitewash, mixed with shining particles, which is called *seem gil*, or silver earth. The doors are of carved wood, and, in winter, are covered with curtains of velvet, embroidered cloth, and brocade. In all the rooms, at a height which is easily within reach, are arched recesses in the walls, which are painted very richly, and, by a strange depravity of taste, are thought to be embellished by glass bottles of various coloured pickles and preserves. The poor also have these recesses, which they ornament with China cups, and in which they store their fruits for winter consumption: the curtains in their houses are of quilted chintz, or of canvas, painted with birds, beasts, flowers, &c., in oil. The pictures in the houses of the rich are mostly, if not entirely, done in Persia: the figures are old Persian kings and warriors, young men and women drinking together, or scenes from some of the Persian poems. The principal

ornaments of the rooms of the great, are carpets and felts, which serve them in place of all other furniture. Persian carpets are too well known in England to require any description, but there is a kind made in Herat which excels all others I ever saw; they are made of wool, but so fine and glossy, and dyed with such brilliant colours, that they appear to be of silk; carpets of highly wrought shawl are also used; but this piece of magnificence must be very rarely used from the enormous expense*.

"There are felts for sitting on, spread close to the wall all round the room, except where the entrance is, which, in the halls, is always at one end. They are brownish-grey, with patterns of flowers in dim colours; that at the top of the room is broader than the others, which are about three feet and a half or four feet broad. On the upper felt are smaller carpets of embroidered silk or velvet, with cushions of velvet for distinguished visitors."

The peninsula of India, like most countries which have had many conquerors, presents a great diversity of dwellings, not only in splendour and costliness, but also in style. As, however, the Hindoos are the people who are most peculiarly connected with that country, we will give a brief sketch of the dwellings of Hindoos of rank. Benares presents the most marked appearance of Hindoo origin: in this city the amiable Bishop Heber visited a house which he has described. It belonged to two minors, the sons of an opulent citizen. It was a building of striking appearance, and had a large vacant area before the door. The house was very irregular, and built round a small court, two sides of which were taken up by the dwelling-house, and the others by the offices. It was four lofty stories in height, with a tower over the gate, of one story more. The front had small windows of various forms, some of them projecting on brackets, and beautifully carved, and a great part of the wall itself was covered with carved patterns of sprigs, leaves, and flowers, like an old-fashioned paper. The whole was of stone, but painted a deep red. The general effect of the house was very much like that of some of the palaces at Venice, as represented in Canaletti's views. There was an entrance-gateway, with a groined arch of rich carving, and on each side was a deep, richly-carved recess, like a shrine, in which were idols, with lamps before them,—the household gods of the family. The inner court was covered with plantains

* The price demanded for a shawl-carpet of very large size was 10 000*l*, and this was said to be far below its value.

and rose-trees, with a raised and ornamented well in its centre: on the left hand a narrow and steep flight of stone steps led to the first floor. On this floor were several rooms, not very large, but beautifully carved, the principal one, which occupied the first floor of the gateway, having an arcade round it. The centre, about fifteen feet square, was raised and covered with a carpet. The arcade round was flagged with stones, and was so contrived that on a very short notice four streams of water, one in the centre of each side, descended from the roof like a permanent shower-bath, and fell into stone basins, sunk beneath the floor, and covered with a sort of open fretwork, also of stone. "These rooms," says Bishop Heber, "were hung with a good many English prints, of the common paltry description which was fashionable twenty years ago, such as *Sterne* and *poor Maria*, (the boys supposed this to be a doctor feeling a lady's pulse,) the *Sorrows of Werter*, &c., together with a daub of the present Emperor of Delhi, and several portraits in oil of a much better kind, of the father of these boys, some of his powerful native friends and employers, and of a very beautiful woman, of European complexion, but in an Eastern dress, of whom the boys knew nothing, or would say nothing more, than that the picture was painted for their father by Hall-jeo of Patna. I did not indeed repeat the question, because I knew the reluctance with which all Eastern nations speak of their women, but it certainly had the appearance of a portrait, and, as well as the old Baboo's picture, would have been called a creditable painting in most gentlemen's houses in England."

The houses of the Mohammedan inhabitants of India do not differ in any marked degree from those of Persia or Turkey: the morals, the religion, and the general social arrangements, being nearly the same. In the southern provinces of India, such as Mysore, &c., the houses are of very large dimensions, inclosing numerous courts, surrounded by buildings. There is also a very remarkable class of erections to be seen in the hilly districts towards the western shore of the peninsula: these are called *hill-forts*. On the very summit of a hill are often built, not only the fortification necessary for the defence of a place, but numerous residences both for the governors and the governed. There are but few fortified places in the world more formidable, in a military point of view, than these forts; because not only are the walls and general defensive arrangements of a very complete kind, but the hill on which they are situated is often so precipitous, that it is with the utmost difficulty the ascent to them is accomplished.

The countries to the south-east of India, such as the Birman Empire, Siam, Malaya, &c., do not display such specimens of elegant buildings as are to be found in India, and therefore need not occupy much of our attention. The nature of the houses, in and near the Birman Empire, may be judged of from the following remarks of Syms, in his *Embassy to Ava*:—"The streets of Pegu are spacious, as are those of all the Birman towns that I have seen. The new town is well paved with brick, which the ruins of the old plentifully supply; and on each side of the way there is a drain to carry off the water. The houses of the meanest peasants of Pegu, and throughout the Birman empire, possess manifest advantages over Indian dwellings, by being raised from the ground either on wooden posts or bamboos, according to the size of the building. The habitations of the higher ranks are usually elevated six or eight feet, and those of the humbler classes, three or four. There are no brick buildings either in Pegu or Rangoon, except such as belong to the king, or are dedicated to the divinity Gaudma; his majesty having prohibited the use of brick or stone in private buildings. The houses, therefore, are all made of matting, or of sheathing-boards, supported on hamboos or posts; but from their being composed of such combustible materials the inhabitants are under continual dread of fire, against which they take every precaution. The roofs are lightly covered, and at each door stands a long bamboo, with an iron hook at the end, to pull down the thatch. There is also another pole, with a grating of iron at the extremity, about three feet square, to suppress flame by pressure. Almost every house has earthen pots, filled with water, on the roof; and a particular class of people, whose business it is to extinguish fires, perambulate the streets during the night."

The eastern part of Asia is occupied by that remarkable people, the Chinese, a people who seem to pride themselves in being different in manners, in dress, in language, in manufactures, from every other; who think that their country is the centre of civilization, and that the Europeans

are a sort of barbarous race inhabiting some remote corner of the earth. The houses of the wealthy in China bear a considerable resemblance to those which have been brought to light at Pompeii. They consist, generally speaking, of a ground floor, containing several apartments, which are lighted by windows looking into a central court. The principal apartment is near the entrance, and is devoted to the reception of visitors, &c. The inner apartments are separated from each other by doorways covered with silk hangings. The houses are frequently entered by a triple gateway, consisting of a large folding door in the middle, and a smaller one on each side: the large entrance is for distinguished visitors, and the smaller for those of humbler rank. It is not unusual to see cylindrical lanterns hung at the sides of the gate, on which the name and title of the inhabitant are written, so as to be read, by night, as well as by day. In the best houses, there are seldom any stairs, except a few at the entrance. The foundations of the houses are of extremely solid stone-work, not unfrequently of granite. The walls are of blue brick, and frequently have an artificial surface laid on them. Stucco-work of considerable delicacy, representing animals, flowers, fruit, &c., is frequently seen, and is executed at a low price. Inner partition walls are often divided into compartments which are filled with a kind of fret-work of porcelain. The roof is covered with tiles, whose transverse section approaches to a semicircle: they are ranged along with their concave side uppermost, to serve as channels for the rain: other tiles are then laid with their concave side downwards, so as to hide the joinings of the tiles.—It is supposed that this plan was derived from the use of split bamboos, as is customary among the Malaya.

Sir G. Staunton describes the house of a mandarin eye which may be taken as a representative of the more costly dwellings. The whole inclosure of the dwelling was in the form of a parallelogram, and surrounded by a high brick wall, the outside of which exhibited a plain blank surface, except near one of its angles, where the gateway opened into a narrow street, little promising the handsome structure within. The wall in its whole length supported the upper ridge of roof, whose lower edges resting upon an interior wall parallel to the other, formed a long range of buildings divided into apartments for servants and offices. The rest of the inclosure was subdivided into several quadrangular courts of different sizes. In each quadrangle were buildings upon platforms of granite, and surrounded by a colonnade. The columns were of wood, nearly sixteen feet in height, and as many inches in diameter at the lower end, decreasing to the upper extremity about one-sixth. They had neither capital nor base, according to the strict meaning of these terms in Grecian architecture, nor any divisions of that part called the entablature, it being plain up to the cornice; at the lower end they were let into hollows cut into stones for their reception, and which formed a circular ring round each somewhat in the Tuscan manner. Between the columns, for about one-fourth the length of the shaft from the cornice downwards, was carved and ornamented wood-work, which might be termed the entablature, and was of a different colour from the columns, which were universally red. This colonnade served to support that part of the roof which projected beyond the wall-plate in a curve turning up at the angles. By means of these roofed colonnades, every part of these extensive buildings might be visited under cover. The number of pillars throughout the whole was not fewer than six hundred.

Annexed to the principal apartment was an elevated building, intended for the purposes of a private theatre and concert room, with retiring apartments behind, and a gallery for spectators round it. None of the buildings were more than one story high, except that which occupied the inner apartment during the residence of the owner: it was situated in the inmost quadrangle. The front consisted of one long and lofty hall, with windows of Chinese paper, through which no objects could be distinguished on the other side. At the back of this hall was a gallery, at a height of about ten feet, which led to several small rooms, lighted only from the hall. These inner windows were of silk gauze, stretched on frames of wood, and worked by the needles with representations of flowers, fruit, birds, and insects; others were painted in water-colours. This apartment was fitted up in a neater style, though upon a smaller scale, than most of the others. The whole of this part of the building was calculated for private apartments. In one of the outer quadrangles was a basin or pond of water, in the midst of which was built a stone room, exactly in the shape of one of the

covered barges of the country. In others of the quadrangles were planted trees, and in the largest, a heap of rocks was rudely piled; and at one end was a spot laid out for a garden in miniature, but not yet finished.

A. HOMES OF AMERICA.

Under the general name of America are included as great a diversity of countries as were, perhaps, ever classed together. There is Canada, with its British institutions mingled with those of the French inhabitants of the Lower Provinces; the United States, with its northern states almost English, and its southern almost Spanish; Mexico, with its Spanish character engrafted upon the ancient Aztecs; and the numerous states of South America, all of which once belonged to Spain and Portugal, but all of which are now republics, or something approaching thereto.—Lastly, there are the native Indian tribes, from the fur-hunters of the frozen regions in the north, to Patagonia in the south. It may well be supposed that the dwellings, as well as the character of the inhabitants vary exceedingly in different parts of this wide tract. Still, we may class all under three heads,—Indian extraction, English extraction, and Spanish or Portuguese extraction. The dwellings of the Indians we need not consider here, for they universally come under the denomination of "rude" habitations. Those of Canada, and the northern portions of the United States, we may omit for a different reason, viz., the better classes of habitations very closely resemble those of England. We shall therefore merely offer a few remarks on those parts which have once been either Spanish or Portuguese colonies.

Humboldt considers the modern city of Mexico to be one of the finest cities ever built by Europeans. There are but few cities that can be compared to it, for the uniform level of the ground on which it is built, the regularity and breadth of the streets, and the extent of the public places or squares. The architecture is generally of a very pure style; and there are edifices of a very beautiful construction. The exterior of the houses is not loaded with ornament. Two sorts of hewn stone (the porous amygdaloid called *tezontli*, and especially a porphyry of vitreous feldspar without quartz,) give to the Mexican buildings an air of solidity, and sometimes of magnificence. There are none of those wooden balconies and galleries to be seen which disfigure so much all the European cities in both the Indies. The balustrades and gates are all of Biscay iron, ornamented with beauney; and the houses, instead of roofs, have terraces like those in Italy, and other southern countries. Many of the streets are nearly two miles in length, perfectly level and straight, and with the ends terminating in a view of the mountains that surround the valley in which the city is situated. The houses are, in general, of a uniform height, most of them having three stories, each from fifteen to twenty feet high. The fronts of most of the houses are painted in distemper, white, crimson, brown, or light green; and owing to the dryness of the atmosphere, they retain their beauty unimpaired for many years. Some inscriptions are painted upon them taken from Scripture, or stanzas addressed to the Virgin. Many of the houses are entirely covered with glazed porcelain in a variety of elegant designs, by which a rich mosaic-like appearance is produced. The walls of the great staircases are frequently covered in the same manner, and mixed with a profusion of gilding, which in contrast with the blue and white porcelain has a splendid effect.

There are no other cities or towns of Mexico at all meriting notice in respect of their dwellings, as the farther we roode from the capital the more does a commingling of European and Indian manners become perceptible.

At the southward of Mexico, and occupying the northern portion of South America, are numerous states which were once Spanish but are now republican; but anarchy so reigns there, that we knew but little of the actual condition of the towns and houses.

The residences of the inhabitants of Chili may be judged of from those of its capital, *Santiago*. This city is divided into rectangular and equal squares, separated by streets forty feet broad. Each compartment or square measures about four hundred feet each way; and each square is called a *quadrado*. The streets are ill-paved with small round stones brought from the bed of the river, and have a gutter through the middle; but the best streets are paved on one side with slabs of porphyry, quarried from a neighbouring hill. The great central square, or *plaza*, contains the house of the director, the palace of justice, the prison, and other public offices, together with the cathedral, the bishop's

palace, and private residences. All these buildings are built of brick, plastered, and whitewashed, and present no specimens of architectural elegance. The general nature of the private dwellings in the city, even those inhabited by the wealthy classes, may be estimated from the fact, that the usual materials are ill-shaped sun-dried bricks, and mud instead of mortar. The cathedral is the only stone building in the city.

Valparaiso, the principal port of Chili, consists of little more than one street: the houses are huddled together without order:—the church is built chiefly of mud. There is a suburb called *Almendral*, the houses of which are small and incommensurable, of one ground-floor only, built of sun-dried bricks, plastered with mud and whitewashed. Some have rude corridors projecting over the foot-way; others have raised brick paths in front of their houses; but generally the foot-path is merely a raised heap of earth. Some of the houses are roofed with tiles, while others are thatched with rushes, grass or palm-leaves; some have passages leading from the street; but in most cases, the door opens directly from the street to the apartments; and as many of them have no light but what they receive from the door, this door is generally left open. Some of the rooms have small windows with panelled shutters, having clumsy wooden bars in front, rudely carved: some few are painted red; but generally they are not painted at all.

It will thus be seen that Chili does not present much to call forth admiration in the construction or appearance of its houses. Indeed along the whole western coast of South America, but little attention seems to be paid to the construction of private dwellings; for earthquakes are so frequent that anything lofty would almost inevitably be made a heap of ruins. Ulloa's description of the houses of Lima, the capital of Peru, though requiring alterations in some parts to suit it to the state of things at the present day, may be taken as a tolerably near approach to the truth. He says:—"The houses, though for the most part low, are commodious, and make a good appearance. They are all of baxareque and quinchu. They appear indeed to be composed of more solid materials, both with regard to the thickness of the principal walls, and the imitation of cornices on them." The principal parts are of wood, morticed into the rafters of the roof. The walls are lined within and without with wild canes and osiers, so that the timber-work is wholly inclosed. The osiers are plastered over with clay, and whitewashed. Cornices and porticos of rough workmanship are then added, and whitewashed to imitate stone. The roofs are flat, and covered only so far as is necessary to keep out wind and sun. Such is the general character of the houses in Lima. Those which are inhabited by Europeans are in many cases built somewhat in the style prevalent in their own country; but always with attention to the necessary character of being low, seldom exceeding two stories in height, and very often not exceeding one. Mr. Miers, a recent traveller in South America, describes the houses at Mendoza, an important town in the La Plata provinces, as being nearly such as we have here described:—all of one story: built of adobes, (sun-dried bricks,) plastered with mud, and whitewashed. Even the governor's house was of this character.

On crossing to the eastern shore of South America, the city of Buenos Ayres does not seem to present many more attractions than those we have described,—considered with reference to the houses. Mr. Miers says, "The houses fronting the beach I mistook for gaols, as they had no glass sashes, and the open windows were defended by iron gratings; but on entering the town, I found all the houses constructed in the same manner, mostly of one ground floor: their deserted appearance, and shabby exterior, bore more the semblance of gaols than the habitations of an industrious, civilized, and free people." Mr. Miers and his companions were lodged and entertained at the house of one of the most respectable inhabitants; and the mode of taking meals, &c., may serve to convey some idea of the manners of the inhabitants. Mr. M. was placed at the top of the family table,—the usual seat of guests, according to the custom of the country. Three black female slaves waited at table. About twenty dishes, of different sorts, were brought, each one after the other was removed,—containing bread and vermicelli soup, different kinds of stews, boiled beef, roast veal, lettuce salad, and various sorts of vegetables. The wish was, that the guests should eat some of every dish,—no easy matter among such a number. After dinner, one of the slaves said a long unintelligible grace, upon the conclusion of which all the family crossed themselves

upon their foreheads, mouths, and breasts: the cloth was not removed, but was kept for the dessert, which consisted of a profusion of ripe figs, peaches, nectarines, apples, pears, and oranges. Nothing but water was drunk at or after dinner. A basin and towel were brought, in which all the company washed their hands in the same water.

Rio Janeiro, the capital of Brazil, is not provided with houses of a kind proportionate to the extent and importance of the city. The streets, which are straight and narrow, are paved with granite, but are scarcely provided with any light at night. The houses, which are generally of two stories, and low and narrow in proportion to their depth, are, for the most part, built of blocks of granite: the upper story however, is often of wood. The thresholds, door-posts, lintels, and window-frames, are of massy quartz or feldspar, brought from Bahia in a state ready for use. The roofs are universally covered with semi-cylindrical tiles. The lower story is commonly occupied by a shop or warehouse; the second (and third, if there be one) by the family apartments, to which there are long and narrow passages taken from the ground floor, and communicating with the street. The houses used formerly to have an appendage called a *jealousy*, or *jalousie*, which were gloomy projections from the upper windows. These jalousies were raised on a platform of stone, two and half feet broad, and extended to the top of the window. They were formed of lattice-work of a fanciful pattern, divided into panels or compartments, some of which were fitted up with hinges at the top, so as to form a sort of flap, which, when opened a little way, allowed persons in the balcony to look down into the street without being seen themselves. They gave to the fronts of the houses a dull, heavy, and suspicious appearance, and have been superseded by light open balconies.

Until the recent changes in the political circumstances of Brazil, the houses of Rio Janeiro, as well as the general manufactures produced, felt the ill-effects of a lazy spirit that used to distinguish the white inhabitants: they were not clever artisans,—they were too lazy to attain skill,—and they were too proud to carry even their own working tools through the streets. Mr. Luccock has given an amusing account of the combined effect of these three blots:—"It was necessary to open a lock, of which I had lost the key; and the skill necessary to pick it was so rare, that the master and waiter of the hotel where I then lodged, were greatly perplexed with my inquiries, at what place it was to be found. At length they advised me to apply to an English carpenter who had been settled in Rio about two years, and employed several men, one of whom he requested to go with

me, for then masters did not venture to command; assuring me that the man would execute what I wanted. He detained me a long time, but, to compensate for the delay, made his appearance, at last, in full dress, with a cocked hat, shoe and knee-buckles, and other corresponding paraphernalia. At the door of the house he still loitered, wishing to hire some black man to carry his hammer, chisel, and another small instrument. I suggested that they were light, and proposed to carry a part or the whole of them myself; but this would have been as great a practical solecism as using his own hands. The gentleman waited patiently until a negro appeared; then made his bargain, and proceeded in due state, followed by his temporary servant. The task was soon finished, by breaking the lock, instead of picking it, when the man of importance, making me a profound bow, stalked off with his follower." Since the period of Mr. Luccock's visit, however, many changes and improvements have occurred.

There is a little spot at the southern extremity of Africa, we mean the Cape of Good Hope, to which we will make a brief allusion, before we bring to a conclusion our allotted task. "The streets of Cape Town," says Mr. Burchell, "though not paved, are kept always in excellent order, and derive an agreeable freshness from trees of oak and pinaster, planted here and there on either side." The houses are built of brick, and faced with a stucco of lime. They are decorated in front with cornices and many architectural ornaments, and frequently with figures both in high and low relief. In front of each house is a paved platform (called the *stoep*, or step) usually eight or ten feet wide, and commonly from two to four feet above the level of the street. It is ascended by steps, and has, generally, a seat at each end; and here the inhabitants frequently walk or sit to enjoy the air, or to converse with passing friends. The roofs are flat having no greater inclination than is just sufficient to throw off the rain water; and they form a very commodious terrace. On account of the mildness of the Cape winters, fire-places are nowhere seen excepting in the kitchens. Within, the houses, to an eye accustomed to the elegant decorations and furniture of an English apartment, have the appearance of a want of comfort, and, not having a plastered ceiling, the bare joists and floor above give them the look of an unfinished building. But the loftiness and size of the rooms render them respectable, and contribute greatly to their coolness in summer. This description, however, was more applicable some years ago than it is at present, for the English residents are sure to introduce English habits and customs more or less into the country.



AN INDIAN HAREM.

TO OUR READERS.

THE close of this, the Nineteenth Volume of the *Saturday Magazine*, affords a favourable opportunity for considering the state of the popular literature of this country at the period when our arduous task commenced,—of taking a retrospect of our labours in fulfilment of the duties then undertaken by us,—of stating the mode in which we propose to continue our services—and of making a general acknowledgment of the valuable advice and assistance with which we have been favoured by a numerous body of friendly correspondents.

It must be in the recollection of our readers, that at the time when we commenced our undertaking the humbler classes of the community were largely supplied with cheap pamphlets, of the most dangerous and deplorable tendency;—writings in which the most holy things were lightly treated of,—the most endearing of human ties derided;—and our revered institutions held up to open scorn and contempt. Works of this character could be superseded only by creating a taste for something better, and we have reason to believe that the *Saturday Magazine* has, under the Divine blessing, had a large share in creating and supplying that wholesome taste which is now so general.

We cannot but feel gratitude and satisfaction at the success which has attended our efforts, at the same time that we experience the pleasing consciousness of having remitted no endeavours on our part to deserve and fully to justify the public approbation. We may, at least, claim the negative merit of having most carefully excluded from our pages every expression and sentiment which can be considered as indicative of party feelings and objectionable principles, or which might be likely to offend good taste and delicacy of feeling.

Bearing in mind the responsibility attaching to the management of a work which finds its way into the hands of so many thousands, and the power which it gives of inculcating the most salutary as well as the most fatal opinions, we have uniformly endeavoured to infuse a Christian character and tendency into every branch of popular knowledge. We have not arrogated to ourselves the office of instructors on sacred topics, by interfering with the labours of those whose especial department it is to set forth and to defend the principles of our established faith, nor have we permitted our pages to become the vehicle for controversy and discussion;—but we have nevertheless been anxious to give such a general bearing to our various articles as to subserve the purposes of religion, and to show, wherever the subject has naturally led us to do so, the blessings and advantages we derive from the position, in which, as members of a Christian community and of a Scriptural church, we are privileged to stand.

It is sufficiently evident that the object of a popular periodical, such as the *Saturday Magazine*, is to administer to the instruction and amusement, not of one class of readers in particular, but of all: so that into whatever hands the work may fall, there may be found among its various subjects something to suit the tastes and inclinations of every reader. The man of literature, in glancing over the contents of such a work, will meet with some notice of eminent men or of their writings, and be able to refresh his memory or even to add to his knowledge from this humble source. The scientific man

“The dangers to which the Faith is exposed are not confined to the open assaults of the infidel and the blasphemer. It cannot be doubted, that great and extensive mischief may arise to religion, and to the eternal welfare of mankind, should our general literature, and the various institutions of society, acquire a character and tendency decidedly contrary to the principles and practice of Christianity. That such has been, for some time past, the general and growing tendency of much of our popular literature, will hardly be denied; but the extent of the evil is known only to those who have made it the subject of particular investigation. It has pervaded more or less every branch of it, and in some departments has evidently been the result of deliberate and systematic operations. This has been the case more especially with cheap periodical literature, and with works of education. Books intended for the instruction of the rising generation have, in some cases, been made instruments for teaching the doctrines of Materialism under the disguise of scientific principles. In others, where religious instruction was indispensable, it has been of the most imperfect and unprofitable kind. But the prevailing and most successful method has been to separate knowledge from religion, and to keep religion altogether out of sight. This has been the principle upon which too many works of instruction have lately been conducted. And thus they have become mischievous in a greater degree in proportion to the quantity of the good they have destroyed.”

The first volume has been passed with regard to cheap periodicals, which have lately become so considerable a branch of literature. The disagreeable part of them have been made vehicles for the diffusion of infidel opinions, which have been conveyed in every shape that was likely to render them agreeable to the class of persons to whom they were addressed. Everything has been done in order to enlist the passions on their side; they have been mingled with entertaining literature of every kind, that the poison might be rendered more palatable to general readers. And, until lately, except in a few instances, the whole force of this new power was directed against the principles and institutions of religion. Nor has the magnitude and extent of this power been as yet completely developed, or its effects fully known. It has, however, been ascertained that the circulation of such papers in and from London alone amounted, in May last, to the number of 300,000 weekly; and of these not one was professedly engaged in the defence or support of religion and its institutions.—The greater part of them were openly and avowedly hostile to everything which is sacred and dear to our religious feelings, and the remainder wholly dedicated to other objects.”—*Report of the Society for Promoting Christian Knowledge, for the year 1832.*

may also expect to find an abstract, however brief, of the inventions and discoveries, which render the present age remarkable above all that have preceded it. The lover of Nature will not be disappointed of information respecting his favourite study, but will find the animals, the plants, the minerals in which he is interested, brought under his notice from time to time, either in the lighter sketches of natural scenery, or the more scientific arrangements of accurate description. The agriculturist, the manufacturer, the mechanic, and even the intelligent operative, will also find easy details respecting the various branches of industry in which they are engaged, and the productions with which the civilized world is enriched by means of their various pursuits.

With this general view of the objects of a cheap periodical work, we have supplied to the readers of the *Saturday Magazine* information on a large variety of topics, suitable to the capacities of a corresponding variety of readers. Eager curiosity and desire for knowledge, though in themselves good, inasmuch as they mark a vigorous intellect, and may be productive of highly-beneficial results, are yet so often found to operate without subordination to any higher principle, that we cannot be too cautious in selecting food wherewith to appease them. We may injudiciously stimulate the appetite till it can only be satisfied with false and unnatural excitements, or we may with equal ill effect endeavour to allay its cravings with harsh and ungrateful aliment, from which it will turn with disgust. There are subjects which seem at first sight to have little bearing on happiness or virtue, and which will therefore be necessarily excluded from publications of a professedly religious character, yet inasmuch as these subjects are capable of meeting the desire for knowledge in a way that, to say the least, cannot be prejudicial to the moral interest of the reader, and as they may at the same time have a certain effect in refining the taste, enlarging the field of knowledge, or suggesting innocent employment of time, it appears highly injudicious to reject them in a work whose object it is to combine amusement with instruction.

We may here allude to the mode of illustrating the *Saturday Magazine*. Wherever a piece of mechanism, a manufacturing process, a description of a building or country, seemed to require the aid of the pencil to elucidate and illustrate the letter-press description, such illustrations have been given, of sufficient distinctness for the purpose in view, but without any pretension to high artistic excellence. Every one accustomed to the usages of commercial life must be aware that to ensure continuance to a periodical publication, and to fulfil the intentions for which it was established, a remunerating profit must be obtained; without this, the honour may be great, but must be short lived. The cost incidental to the production of highly-finished illustrations is in general incompatible with the permanent success of a work sold at so low a price as ours. The engravings in our Magazine are therefore intended for illustration rather than for decoration. We are contented to take our stand on the general merits of the work, the literature of which has gradually elevated it to a higher place than it was originally intended to occupy among the periodical publications of the day, and gained it an introduction to every class of society.

In looking back on our past course, we are conscious of having presented to our numerous readers a safe and useful miscellany, calculated to lead them onward from simpler to more abstruse knowledge, and to give a wholesome direction to their tastes and feelings. The testimony of correspondents has given us frequent and pleasing confirmation of this belief; and we may here remark, that the information we have received from this source has always been most acceptable; the suggestions conveyed have met with serious attention, and have not been adopted or declined on insufficient grounds. From our limited space, as well as from a desire to avoid controversy and personal feeling or party views, we are not able specially to notice the different communications we are favoured with, yet they are ever regarded as welcome indications of the wishes and opinions of our readers, and, as such, we are glad to have the present opportunity of acknowledging their value.

During the coming year we hope to enter on several new and interesting subjects of inquiry, and where we may hitherto have appeared to slight the communications of any of our readers, it will be seen that they have only been deferred with a view to entering the more fully into them on a future occasion. The treasures of knowledge are inexhaustible; and the chief difficulty consists in making a judicious selection for the benefit of a variety of readers. In this task we shall continue to avail ourselves of the assistance of competent and experienced writers whose time and attention are devoted almost exclusively to the work.

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