



1875



1299

SCENES AND OCCUPATIONS

OF

COUNTRY LIFE;

WITH RECOLLECTIONS OF NATURAL HISTORY.

By EDWARD JESSE, Esq.

Author of "Gleanings in Natural History."

NEW AND REVISED EDITION.

BOOK NO.

1299

LONDON:

JOHN MURRAY, ALBEMARLE STREET.

1853.

590
JES

TRANSFERRED FROM
Imperial Library, 12 MAY 1903

Uniform with the Present Work.

GLEANINGS IN NATURAL HISTORY, WITH ANECDOTES
THE SAGACITY AND INSTINCT OF ANIMALS. By EDW.
JESSE, Esq. Seventh Edition. Fcap. 8vo. 6s. 6d.

Also by the Same Author,

VISITS TO SPOTS OF INTEREST IN THE VICINITY
ETON AND WINDSOR. Wood-Cuts. Post 8vo. 12s.

Accno. 926.
dt. 09. 01. 07.



If this principle was more acted on,—if we treated all around us as our brethren,—if the injunctions so solemnly and yet so sweetly imposed upon us by our benevolent Saviour “to love one another,” were followed by us all, we might then see a happy world, because we should all be endeavouring to make others so. The study of Nature is well calculated to produce these kindly feelings. It reveals the goodness of God, not only to us, but to all the works of His hands. It elevates as well as purifies our thoughts, and thus renders us more inclined to acts of kindness and charity. We learn to view with gratitude the many delightful objects which surround us, some intended for our use, and others for our gratification, and while we contemplate the many blessings thus bestowed on us, we are best disposed to practice those precepts of benevolence, which have been laid down for our guidance.

THE END.

PREFACE.

The very favourable reception which a former work of mine — “Scenes and Tales of Country Life” — has met with from the Public — another edition of that work having been called for, has induced me, in putting forth the present edition, to add very considerably to that portion of it which comprized facts and circumstances in Natural History, omitting the Tales of Country Life. This I have done, with a sincere and earnest wish that it may be found both instructive and amusing to the young, by drawing their attention to those scenes and occupations of the country which are generally found so attractive. In fact, when our attention is properly directed to the contemplation of the infinite wisdom and goodness displayed in the Works of the Great Creator, we imbibe lessons of the utmost utility, while at the same time the mind is agreeably enter-

tained, and we perceive that a superintending Providence forms, directs, and perfects everything with an order and harmony which should call forth our admiration, gratitude and love.

My wish to multiply observations on this subject, and to describe more of what I have learnt in the beautiful neighbourhood in which I reside, must be my excuse for offering this new edition of my work to the notice of the public. I have also another motive—that of an earnest desire to be of use to others. Freed as I now am from official duties, I cannot better devote the remainder of my days than in an humble endeavour to prove to others that the study and contemplation of the works of nature will always afford an inexhaustible source of instruction and improvement. Whether in the stillness of night, or in the calm repose of an autumnal evening, or in the bright sunshine of a returning spring, the mind may always be elevated to the Great Creator of all things, and some interesting object be presented to the enquiring observer of nature. There is, in fact, nothing, from the most minute to the most vast of the works of Creation, which will not, if properly

examined and studied, tend to raise* our thoughts
“from Nature up to Nature’s God.”

I must now offer my acknowledgment to my kind
friend and neighbour Professor Owen for the account
of that interesting animal the Hippopotamus now in
the Zoological Gardens.

I am also under great obligations to a gentleman
whose pleasing observations, deep enquiries, and
happy facility of expressing them, have enriched this
Volume. I only regret that I am prohibited from
mentioning his name.

Some of the notices of trees were written by the
Rev. Thomas White, the brother of the well known
Author of the Natural History of Selborne, and
were placed in my hands by one of the members
of his family.

E. J.

EAST SHEEN,
May, 1853.

648
562

CONTENTS.

	PAGE
Spring and Summer—Scenery and Fishing on the Wye — Summer Snipe, and Water Ouzel—Welsh Roads and Welsh Farmers—Primitive Habits of the Peasantry— Streamlets and their banks—English Meadow Scenery	1
Forest Scenery—Destruction of the Forests in England — The old English Sportsman—Bramshill—Sherwood Forest—Fairlop Oak—Forest of Dean—Windsor Forest—Richmond Park—Oaks of Sussex—Selwood Forest—New Forest	9
Windsor Park—The Beech Trees—Squirrels—The Beech — Aaron Hill's Scheme—Chantilly and Burnham . .	18
Rides in Windsor Forest—The Heronry—Habits of Heron—The Heron-shaw—Affection for their Young — Mode of flight—Heron-hawking—The Raven— Superstitions regarding it—The Bustard—The Kite .	26
The Oak—William the Conqueror's Oak—Its acorns — Care in planting—Different kinds—The Quercus Mas—The common English Oak—Remarkable Oaks— The Swilcar Oak—Herne's Oak—Interest taken in it by Foreigners—Discussion as to its Identity . .	34
The Ash—The Estimation it was held in by the Saxons— Superstition regarding it—Manna—Ashen leaves used in tea—Uses of the Ash—Its beauty and elegance— The Pine—Its foliage—The Stone Pine cultivated by	

the Ancients—Remarkable Pine on the Sablettes— Large Pines in England	49
--	----

The Elm and its Uses—The Elm in Italy—Elms in England spoilt by being stripped of their branches— Season for felling Elms—Remarkable Elms—at Hamp- ton Court, Crawley and Richmond—Elms near Mount Lebanon—Durability of the Wood	54
---	----

Cedar Trees—Their Age—Sound of the wind among their foliage—Avenue of Cedars—The Enfield Cedar .	61
---	----

Notes on Animals—The Shrew Mouse—Its pugnacity —The Hedge-hog—unfounded prejudice against it— Combat between a Hedge hog and a Snake—The Mole —Its usefulness to the Farmer—Collection of Worms by Moles—The Owl—wrongly considered destructive .	65
---	----

Affection of Animals for their Young—Swallows—Does —Blackbirds—Anecdote of a Stock Dove	73
--	----

Reasoning faculties in Animals—Cats—Storks—The Robin and Snake—Dislikes exhibited by Animals— Affection in a Cat—The Jackdaw's Nest—Ingenious Architects—A knowing Dog—Reasoning powers of Fish—Anecdotes of Dogs—Migrations of a Fox— A Spaniel Foster Mother—Habits of Insects—Dislike taken by a Dog—The Cat and the Jay—The Sporting Magpie of Melton Mowbray	7
--	---

Eccentricities in Animals—Habits of the Seal—Want of Affection in Hares and Rabbits—Cunning of Rats— Habits of Fish—Instinct in a Blenny—Tenacity of Life in Fish	94
--	----

The Hippopotamus in England—History of his Capture —Mode of feeding it when Young—Its Voyage to	
--	--

England—Attachment to its Keeper—Its rapid growth —The Behemoth of Scripture	100
---	-----

The Song of Birds—Anecdote of a Mocking Bird— Emulation in Birds—Sedge Warblers—The Black-cap —Mocking Birds—Starlings—Dialect in the Songs of Birds—Town and Country Thrushes—The London Thrush—Its Song	107
---	-----

The River Side—Appreciation of the beauties of Nature —Izaak Walton—His Instructions to Anglers—Vin- dication of Walton from the charge of Cruelty—Beau- ties of his Writings	114
--	-----

Swallows—Their attachment to the dwellings of Man— Their food—Their great utility—Hint to Hop growers —Folly of destroying them—Ancient Greek Carol on the Swallow—Anecdote of Young Swallows—Curious position of a Swallow's nest—Their Emigration— Their care for their Young—The Sand Martin—Courage of Swallows—Anecdotes	121
---	-----

Effects of preserving Game too strictly—Rooks and other Birds of great use to farmers—Ant Bears—The study of Natural History recommended	133
--	-----

Wild Dogs—Origin of Domestic Dogs—Sheep Dogs— Their great sagacity—Anecdote of a Wood Pigeon— Attachment in a Lamb—Affection of a Horse for its attendant—Anecdotes of Dogs—Sheep Dogs—Sense of Dogs—Affection in Cats—Memory of Dogs . . .	137
---	-----

Flight of Sea Birds—Adaptations of Nature—Birds of the Galapagos Islands—Australian Birds—The Sacred King Fisher—The Talegalla—The Ocellated Leboa— Their extraordinary Egg Mounds—The Mound-raising	
---	--

Megapode—Nests of the Jungle Fowl—Description of their Egg Mounds—Habits of the Jungle Fowl—The Bower Birds of Australia—The Satin Bower Bird—The Spotted Bower Bird—Description of their Bowers	153
Language of Animals—Notes of Birds—Peculiar sounds made by various Animals—Animals tracked by scent—Foxes—Bats—Sounds made by Insects	174
Fauna—Magpies—Congregation of Birds—A Redwing's Nest—Curious Birds—Redwings—Their food—Missel Thrushes—Plumage of Birds—The Robin—His habits and pugnacity	183
Instinct of alarm in Animals—Curious species of Spider—Anecdote of a Pigeon—Gazelles—Otters—Stoats—Mouse in a Honey-comb	192
The Mistletoe—Its use and object—Trees on which it grows—Missel Thrushes—Their beauty and habits—Pear Trees—Their vitality and healthiness—the Perry Counties—Magpies—Two distinct varieties—Their nests—Their cunning—Magpie Hawking—Their habits—The Nuthatch—Concealment in Animals	199
Royal Trees—An English Cottage—Love of Gardens in England—English love of Flowers—Gardens a source of Profit—Value of Bees—Modes of taking honey—Profit from a hive—Hints to Cottagers	214
Insects—Effects of tobacco—Wasps and Hornets—The grubs of Hornets—The hum of Queen Bees—Hybernation of Wasps—Flight of Wasps and Bees—Their nests—The Humble Bee—Honey glands in plants—The Laurel—Honey Dew—The leaf-cutting Bee	225

The Wisdom displayed in Creation — The Australian Fly-catcher — The Sloth — Migratory Birds — Woodcocks — Quails — The Food of the Israelites in the Wilderness — Instinct of Migratory Birds — Extermination of Birds	236
The Italian Poplar — Its rapid growth — Poplars in England — The Yew Tree — Its poisonous Effects on Cattle — Its early use in Europe — Reasons for its being placed in Churchyards — Remarkable Yews in England — Their great age	242
The Holly — Southey's Lines on it — Value formerly attached to it — Its pleasing Effect in Hedges — Shelter afforded by it to Birds — Holly Hedges at Tying-hame — The Box — A Native of Japan — Value of Boxwood — Memorial Trees — Boxhill — Ivy — Its indestructibility and perseverance — Seeds of the Ivy . . .	251
The Common Fern — Its use as food — Some Animals the Colour of Fern — Beautiful Adaptation of Nature — Fern seeds — Girdling Trees not always fatal	263
Multiplicity of created beings — Insects in tropical Climates — Cocoon of a Caterpillar — The Mason Bee — Immense numbers of Insects — Vast flocks of Butterflies at sea — The Gossamer Spider — The Garden Spider	268
Eel-holes — Mode of catching Eels — A tame Perch — Habits of the Perch — Season for Catching Perch — Use of the Back Fin in fish — Experiments — The Eyes in fish — Minnows	275
Knowledge of Character — Observation of the habits of Animals — Stoats and Weasels — Snakes and Frogs — The Sea Serpent — The motion of Eels — The croaking	

of Frogs — Instinct of locality in Frogs — The Toad — Its habits — a Toad buried alive — Singular appearance of the Toad — Beetles — The Kitchen or Black Beetles — Their habits — Modes of catching them 283

• Miscellaneous Observations on Natural History — Small Birds — The Cardinal Spider — The Bottle Tit — The Sunday thief — Shrew mice — Black Ants — Colour of Wild Birds — Chaffers in Sheep — Cape Geese — Rooks mistaking the Season — Hornets — Quadrupeds that prey on fish — Affection of Animals — The Guinea-fowl — Affection in Horses — Large Alder — Snakes in the Sea — Hares — Gold Fish — Sea Gulls — Swifts in cold weather — Frozen fish — Eels — Hedge Sparrows — Robins — Song Thrushes — Instinct in a Spaniel — Fish in a Snow Storm — Flight of Birds — Starlings — Anecdote of a Gold Fish — Weasels — Efts 302

• Lactation in the Crop of Pigeons — Similar process in Crocodiles — Pigeon's Milk — The Wisdom and Goodness of the Creator — The adaptation of Nature — The Compass Plant of Texas 317

• Silence of female Animals — Instinct of fear in Animals — Sagacity in Pigs — The Sparrow Hawk — Kindness displayed by Animals — Anecdote of a Newfoundland Dog — The Study of Nature — Its good effects on the human mind 322

LIST OF ILLUSTRATIONS.

Jackdaw's Nest, in the Bell Tower at Eton.	<i>Frontispiece.</i>
Bramshill House in the Olden Time	12
The Swilcar Oak	41
Herne's Oak	43
The Satin Bower-Bird	169
Spotted Bower-Birds	173



XIII T 49

OCCUPATIONS

OF

COUNTRY LIFE.

THE return of Spring is always delightful, especially when the sun bursts forth after a warm and refreshing shower, reinvigorating the earth, and causing it to *smile*, if the expression may be used, with opening buds and flowers. We then "behold God's blessings spring forth," as the good and judicious Hooker remarked, when he expressed his desire to retire to the country to "study and pray." Religion, when thus conveyed to us through the beauteous and glorious channels of nature, teaches us to love the Great Creator; for we there perceive his love, his care, his bounty and his goodness in all that surrounds us,—in all the works of his hands.

Nor is the Summer without its charms. It was my lot to pass a considerable portion of the last in rather a remote part of South Wales, on the banks of the river Wye. Those only, who have seen the upper portions of this beautiful river, can form an idea of its

interesting views, or the variety of them. In a dry season, such as last summer was, the beds of rocks were seen to great advantage, taking every variety of shape, sometimes in huge boulders, and at others in wide-spreading slabs. Here and there, also, were regular steps of stone, over which the water flowed and sparkled into the pool beneath, the haunt of salmon and trout. But it is in the more confined channels formed between rocks, that the river winds, and brawls and foams, as if impatient of its course being checked. Turbulent, indeed, it is for a short time, till it expands over a wide pebbly bottom, and calmly pursues its way till it meets with other obstructions. Here the angler may wade with great success; and, as he casts his fly on either side or down the stream, he is sure of good sport either with trout or grayling.

It was in the enjoyment of such scenery, that I found myself seated, day after day, on one of the rocks, with an agreeable book in my hand, occasionally watching the proceedings of an angler. Noble elm trees overshadowed me, and the banks were covered with a great variety of flowers, enlivening the picturesque scenery; and amongst the crevices of the rocks was the pretty wild scarlet-leaved geranium, and the ripe fruit of the strawberry, hanging in clusters around it. In the deep calm pools, salmon might be seen leaping, and trout curling the water as they rose at a fly. Now and then a King-fisher would flit past, and the voci-

ferous cries of the large green Woodpecker might be heard as its retreat was invaded by some bird of prey. But what shrill and at the same time plaintive note is that I hear? I am sitting near the nest of the Summer Snipe, for it is a late breeder, and it is expressing its anxiety and fears as it rapidly flits from rock to rock around me. Poor bird! your affections are strong, and your love for your young makes you venture for a moment close to me, and then dart away and return again, fearful that your offspring are in danger. Yes, there they are close to me, almost ready to fly. I will go further away that your clamour may cease, and your young receive the food which you have ready for them. In truth these birds add much to the pleasure of the wanderer on the banks of the Wye. They are constantly flying about, and appear to pursue me in my walks, ever restless, and always uttering their wild and peculiar notes.

But I must mention one other bird which is found in abundance on this charming river, and that is the Water-ouzel. Its habits are peculiar to itself, and its feet are admirably adapted for enabling it to walk on slippery stones. It frequents, generally, clear rocky streams, and may be seen beneath the surface of the water, during which time its wings are in constant motion. Its flight, which is rapid, somewhat resembles that of the King-fisher, and it would appear to take partial migrations, as they are seldom found late in the summer in places where they were sufficiently nu-

merous earlier in the year. It is not, perhaps, generally known that the Water-ouzel is a pretty songster. I have noticed this bird the more particularly, because it is rare in the neighbourhood of London, and added so much to my interesting walks on the banks of the Wye.

After a day's heavy rain, this river fills with a rapidity scarcely conceivable. High bold rocks are covered with water in a short time, and the whole appearance of the river is altered, swelling as it does from side to side, and presenting a large expanse of water. This is the opportunity afforded for the ascent of salmon, and the descent to the sea of the two years old fish, or rather of those in their third year. As the waters subside, the hopes of the angler are raised, and good sport with the fly may generally be anticipated. I watched the proceedings of two old farmers, celebrated as the best salmon fishers on the Wye, or at least of the neighbourhood in which I was residing. They plied their heavy strong rods with great success, appearing to be well acquainted with the best localities, and fearlessly wading nearly up to their middle in water.

Such were some of the scenes which the Wye presented during my sojourn near its banks, but which were occasionally varied by visits to the hill country of Brecon and Radnorshire. Nothing can be wilder or more picturesque than some of this scenery, which can only be visited either on foot or on the back of a stout Welsh galloway. Here and there are pretty water-

falls in remote and little frequented situations, between abrupt hills, and supplied by the mountain streams, over which the Kite soars and huge oaks spread their branches. In the distance the country is dotted with the small whitewashed cottages of the hill-farmers, and the downs covered with their hardy sheep and rough black cattle. In some sequestered valley, a mountain tarn or small lake presents itself, in which are abundance of pike and perch. Nothing can exceed the roughness of what are called roads, or the rudeness of the pack-horse bridges, which are narrow and precipitous, with low parapets, many of them broken down. Over these however, the Welsh farmer trots his safe-footed pony as he goes or returns from market, accompanied by his wife or daughter seated between two small panniers on a sack, containing groceries or necessaries for the ensuing week. They have always a good-humoured nod for all they meet, and the mountain nymphs, generally, have a considerable share of beauty, their features being good, their eyes black, and their teeth remarkably white and even, with a good-humoured expression of countenance. They live a hardy life, milking the cows, tending the sheep, and working hard on the farm as well as attending to the duties of the house. They ride well, and may frequently be seen on a horse or pony, without a saddle, galloping along the rugged mountain paths, with nothing but a halter to guide the animal.

I like these upland wilds, as well as the peasantry

which inhabit them. They are so unlike what I have been accustomed to during a long residence in the neighbourhood of our great Metropolis. The air also which one breathes on the hills, the scenery, the rivers and sparkling mountain rills, with the appearance of the inhabitants, their home-made dresses, and their language, all remind one of real unsophisticated nature. Here are no railroads, no manufactories, no highly cultivated lands; but still there is peace, plenty, and evident industry. They have many odd customs and plenty of superstition, especially as regards the diseases of their animals; and I must add, that from hard work and smoky cabins, all the old women, many of whom live to a great age, have very much the appearance of witches.

Such are a few of the observations I made during my last summer's excursion into South Wales. My residence was situated between the Hay and Builth, but nearer the latter place; and the tourist, whether for health or enjoyment, may be safely recommended to visit the same neighbourhood.

I have occasionally found myself strolling on the banks of one of those little narrow streams in England which *wriggle*, if the expression may be used, through green verdant meadows. Here and there bull-rushes, water-docks, and other aquatic plants nearly meet as they bend towards each other from either side. In some places there are deep holes, generally under the

roots of some stunted alder or willow-pollard; and here and there, in places where cattle have made a passage, the water trickles over a gravelly bottom, sparkling as the sun-beams fall upon it. The banks are generally undermined by the winter floods, and are full of rat holes, one of which is occasionally the resort of the King-fisher, which darts by now and then with a silent rapidity. Water-hens are abundant in these localities, and may be seen of an evening peering over the meadows in search of food, and jerking their white tails as they wander about. Nothing can be more agreeable than a stroll on a fine day by the side of one of these modest little streamlets. They have but few attractions for the angler, but many for the naturalist. Here he may gather nature's nosegay of sweetest flowers, while he reclines on a bank,

whereon the wild thyme blows,

Where ox-lips and the nodding violet grows;

Quite over canopied with lush woodbine;

or listens to

The Lark, who, amid the clear blue sky,

Carols, but is not seen.

The very remembrance of these scenes is delightful, for they leave a freshness in the mind which time cannot obliterate.

Our beautiful meadow scenery, may, perhaps, be called exclusively English. The verdure of the grass, the variety of flowers, the song of the Lark on high, and of the Nightingale in the tangled hedge, the Thrush

heard in the distance on the top of some spreading oak, and the Swallow taking its persevering and elegant flight, now aloft and then skimming over the surface of the meadow, are to be seen and heard in this country only, at least collectively. Many of the trees, also, which are met with on the banks of some of our streams are full of beauty. It has been remarked that the Weeping Willow,

which dips

Its pendent boughs, stooping as if to drink,

was the only one of its species that can be called beautiful; surely, however, those who have seen our common willow, unpollarded and unlopped, as nature intended it to be, must confess that it is not only a beautiful and graceful tree, but also a picturesque one. Even when pollarded, it adds to the charm of meadow scenery. In the poet Young's garden at Welwyn, there are some beautiful specimens of the Willow, which have been suffered to grow uninjured and unpruned.

Some of the old trees I have met with on the banks of a rivulet throw out their bold roots in a direction away from it, then again grasp the ground, as if mindful that the undermining of the bank by the action of the water would cause their destruction. Sheep delight to bask amongst these roots; sometimes, also, I see them under the dry bank of the stream, where they appear to have made a resting place for themselves during the heat of the day.

As the evening approaches, they scatter themselves

abroad in search of food, and then the " tinkling bell" may be heard, another of those rural sounds which add a charm to the country.

At such a time we may well rejoice in the prospect around us, and offer up our tribute of gratitude and love to Him, who has spread before us so many objects for our gratification and delight.

Gilpin, in his *Forest Scenery*, gives a brief account of no less than one hundred and twenty forests in England and Scotland; but even the vestiges of most of them are now obliterated, and the traces of them only to be found in old maps.

Every lover of Sylvan Scenery must regret the destruction of these Forests, or at least of many of them. How much picturesque beauty has been lost to us! How delightfully might we have been reminded of some of the forestal scenes so charmingly described by Shakspeare — the "greenwood tree," the swift brook that "brawled along the wood" — the "antique rest" of the oak — "the careless herd of deer with forked heads," and the "poor sequester'd stag." There might we have found "tongues in trees — books in the running brooks, sermons in stones, and good in everything."

But besides the picturesque scenery of the Forests, the extinguishment of them has lost us a race of old English forestal sportsmen, now no longer to be met with. It may amuse my readers to have a de-

scription given of one of them, extracted from Hutchins' History of Dorsetshire.

"The name of this memorable sportsman was Henry Hastings, second son to the Earl of Huntingdon. He inherited a good estate in Dorsetshire from his mother. He was one of the keepers of New Forest, and resided in his lodge there during a part of every hunting season. But his principal residence was at Woodlands in Dorsetshire, where he had a capital mansion. He was of low stature, but strong and active, of a ruddy complexion, with flaxen hair. His cloaths were always of green cloth. His house was of the old fashion, in the midst of a large park well stocked with deer, rabbits and fish ponds. He had a long narrow bowling-green in it, and used to play with round sand-bowls. Here too he had a banquetting-room built, like a stand, in a large tree. He kept all sorts of hounds that ran buck, fox, hare, otter, and badger; and had hawks of all kinds, both long and short-winged. His great hall was commonly strewed with marrow-bones; and full of hawk-perches, hounds, spaniels and terriers. The upper end of it was hung with fox-skins of this and the last years killing. Here and there a pole-cat was intermixed, and hunters' poles in great abundance. The parlour was a large room, completely furnished in the same style. On a broad hearth, paved with brick, lay some of the choicest terriers, hounds and spaniels. One or two of the great chairs had litters of cats in them, which were

not to be disturbed. Of these, three or four always attended him at dinner, and a little white wand lay by his trencher, to defend it if they were too troublesome. In the windows, which were very large, lay his arrows, cross-bows, and other accoutrements. The corners of the room were filled with his hunting and hawking-poles. His oyster-table stood at the lower end of the room, which was in constant use twice a day, for he never failed to eat oysters both at dinner and supper, with which the neighbouring town of Pool supplied him. At the upper end of the room stood a small table with a double desk, one side of which held a Church Bible; the other the Book of Martyrs. On different tables in the room lay hawk's-hoods, bells, old hats, with their crowns thrust in, full of pheasant's eggs; tables, dice, cards, and store of tobacco-pipes. At one end of this room was a door, which opened into a closet, where stood bottles of strong beer and wine, which never came out but in single glasses, which was the rule of the house, for he never exceeded himself, nor permitted others to exceed. Answering to this closet, was a door into an old Chapel, which had been long disused for devotion; but in the pulpit, as the safest place, was always to be found a cold chine of beef, a venison-pasty, a gammon of bacon, or a great apple-pie, with thick crust, well baked. His table cost him not much, though it was good to eat at. His sports supplied all, but beef and mutton, except on Fridays when he had the best of fish. He never

wanted a London pudding, and he always sang it in with, "My part lies therein-a." He drank a glass or two of wine at his meals; put syrup of gillyflowers into his sack, and had always a tun-glass of small-beer standing by him, which he often stirred about with rosemary. He lived to be an hundred, and never lost his eye-sight, or used spectacles. He got on horse-back without help, and rode to the death of the stag, 'till he was past fourscore."

Perhaps the late Sir John Cope was the last old English sportsman of this breed. When I last saw him at Bramshill, he was then in a green old age, following his hounds and dispensing his hospitalities to his neighbours. I was delighted to see some of his superannuated hunstmen and whippers-in basking in the sun outside the kitchen door, having a good larder to go to, and a jug of strong ale to cheer them. Some old favourite hounds reposed at their feet, and the worn-out hunters passed the remainder of their lives in adjoining paddocks.

But to return to the Forests. Perhaps one of the most interesting of our old forests is that of Sherwood in Nottinghamshire. Above the village of Clipston, on the borders of the forest, are some remains of an old palace of the Anglo-Saxon Kings. Mansfield, a town in the forest, was the residence of the Kings of England down to the reign of Henry V. and it was here that he made acquaintance with the Miller of famous memory.



BRAMSHILL HOUSE IN THE OLDEN TIME.

"Henry, our royall king, would ride a hunting
To the greene forest so pleasant and faire,
To see the harts skipping, and dainty does tripping;
Unto merry Sherwood his nobles repaire."

This forest was also the retreat of another personage equally celebrated in the chronicles of ballads, even the popular hero of Sherwood, Robin Hood, who with Little John, and the rest of his associates, made the woody scenes of the forest his asylum.

The Parliament Oak in Sherwood Forest must have been of a great age. Tradition says that King John held a Parliament under it. There are other large and interesting trees in it. The greendale oak in Welbeck Park is of a vast size and age. So great was the antiquity of some of the old oak pollards in Sherwood Forest, that in cutting some of them for various purposes, the crown with an I. R. was found deeply imbedded in the trees. If, therefore, they were marked as timber trees in the reign of King John, as is generally supposed, they must have been of a great age. Though I have not seen these marks myself, my authority for their existence is derived from the present excellent Duke of Portland, and also from one of the late Commissioners of the Royal Woods and Forests.

Needwood Forest in Staffordshire, is a tract of elevated country, commanding most extensive views, bounded on one side by the romantic scenes of Dove-dale; and on a promontory, overlooking an extensive plain, stands Tutbury Castle, once the mansion of the

Dukes of Lancaster. The internal parts of the Forest present the grandest effect of wooded scenery, where there is much variety of ground and spots of great beauty from the number and different forms of the lawns, and the varied outline of the woods which surround them. The underwood is chiefly composed of hazels and thorns; and these produce beautiful thicket scenery, oaks being mixed with them. The hollies are numerous, and commonly of the size of trees; and add beauty to the scenery at all times, and in winter must give it a peculiar cheerfulness.

Hainault, and Epping, or Waltham Forest, as it was originally called, are supposed formerly to have covered a great part of the county of Essex. Nothing can be more agreeable than wandering amongst the pollarded hornbeams, and over the green lawns of these Forests; but hollies and fern are wanting in many places, to add to the charms of the scenery. The large herds of deer, also, which formerly graced this Forest, have now nearly disappeared, not from any lack of keepers to look after them, but from actual starvation in the winter months.

In a glade in Hainault Forest, about a mile from Barkingside, stood an oak which had been known through many centuries as the Fairlop oak. The tradition of the country traces it half way up the Christian era. It was formerly a noble tree, and beneath its shade, which overspread an area of three hundred feet in circuit, an annual fair used to be held

on the 2nd of July. The injuries it received on these occasions hastened its decay, and we believe that no relic of it is now left.

The Forest of Dean in Gloucestershire is one of the most celebrated Forests in England. It was formerly reckoned to be not less than twenty miles in length, and half as many in breadth; but since Lord Gage's estate has been added to it, it has become considerably larger. The Severn and the Wye run through a portion of it. Large plantations have been made in this Forest under the skilful management of the resident Surveyor of the Crown, and promise in future years to afford a large supply of Navy timber, which has always been in great request from this Forest.

Perhaps the most antient, the most picturesque, as well as the most interesting trees belonging to the Crown, are to be met with in what was once Windsor Forest. It has been divided and subdivided, alas, and what was once the finest *apanage* to a Royal Palace, is now in the hands of private individuals, with the exception of that portion adjoining the great Park allotted to the Crown. The hundred miles of green drives have to a certain extent disappeared. Many of the old pollards have been cut down and disposed of as firewood, and the whole face of the country has been changed. Some of the old pollards, however, still remain, and there are also some fine specimens of them near Cranbourne Lodge, as well as some noble beech trees near the Royal Lodge.

Windsor Forest was formerly the property of Queen Emma, and afterwards distinguished by William the Conqueror, who built lodges in it, and established forest law. He used commonly, after the chase, to sleep at an Abbey in the neighbourhood. The scenery, in many parts of the park, is beautiful, but chiefly from the disposition of the trees, which form its greatest ornament, with the exception of the views of the Castle from some of the higher grounds. The *Culloden* Duke of Cumberland, made, as Mr. Gilpin says, magnificent improvements in the Park. He introduced great herds of red and fallow deer, and encouraged a breed of wild Turkeys, and it is to be regretted that the latter are extinct. The Park could hardly have had a more beautiful decoration. Birds are among the most picturesque objects, for both their forms and plumage make them so; yet they are generally so diminutive, that, beautiful as they are, they produce little effect. But the Turkey is both a large bird, and, being gregarious, forms groups, which become objects of consequence. Its shape also is picturesque, as well as its actions. Its colour, too, especially if it be of the bright copper, varying in the sun-beam, is more beautiful than the plumage of any other bird, not excepting the Peacock. As the Turkey was reclaimed from the unbounded woods of America, where it is still indigenous, its habits continue wilder than those of any domestic fowl. It strays widely for its food—it flies well

considering its apparent inactivity, and it perches and roosts on trees.

In the reigns of George I, and II, Richmond Park could boast of a flock of two thousand wild Turkeys; but being situated near London, there were constant fights between the keepers and poachers, which occasioned the destruction of the birds. It must have been a most interesting sight to have seen them in their wild flights.

Sussex has always been remarkable as one of the finest timber counties in England, and it formerly abounded with Forests, there being not fewer than seven, St. Leonard's, Word, Ashdown, Waterdown, Dallington, Arundel and Charlton, which last Forest was settled on the Dukes of Richmond. The Sussex Oak is particularly hard and lasting and fine in the grain, and I have been assured that if land remains fallow or uncultivated for two years, it will be covered with young oaks.

Selwood Forest, near Frome in Somersetshire, will always be famous in British history, while the remembrance of Alfred the Great continues. Here he retired before his enemies, the Danes, only to attack them with more advantage. Seeing the time ripe for action, he emerged from his retreat, sent his emissaries around, and called his friends together in the forest of Selwood, which sheltered and concealed his numbers. Here arranging his followers, he burst from the Forest, like a torrent, upon the Danes. They gave way at

once, and suffered so terrible a defeat, that they never again molested his country.

I might enumerate various other Forests, many of which were disforested and changed into private property by an act of Charles I, which was wrested from him in consequence of his having revived the vexations of forest-law at the beginning of his difficulties. Woolmer, Waltham, Dean, Whittlewood, Salcey, Whichwood, the New Forest, Bore, the Holt, and Delamere Forests are, I believe, the only ones which are reputed to have preserved any of their rights. The New Forest, however, has perhaps preserved its ancient consequence more than any of the others. Next to Dean Forest, it is of larger extent than any other, and has had many plantations made in it. Owing to the facilities afforded to poachers and timber stealers, the population in and around the forest is in a very demoralized state, and it is to be regretted that some steps are not taken to remove the deer from it; for, as long as they exist, deer-stealing will be carried on. Mr. Gilpin was assured by a notorious deer-stealer that in five years he had killed on an average not fewer than a hundred bucks a year. He had a ready market for his venison, for it is an old forest adage — "*non est inquirendum unde venit venison.*"

The immediate neighbourhood of Windsor Great Park is rich in varied woodland Scenery. There are not only fine thriving Oaks, throwing out their gigantic

arms, but sturdy pollards without end, which seem to have set time, and seasons, and decay at defiance. They are gnarled and knotted, twisted and distorted, yet at the same time vigorous and sound at heart; putting one in mind of a weather beaten old sailor whose limbs are firm and his body healthy, although his hair is grey and his face scamed with wrinkles. The Beeches, too, may be seen of all ages and sizes, picturesque and beautiful in their decay, but while in full vigour and dotted with their sparkling leaves, they are the richest ornament of the wood. The Holly loves to nestle under the shelter of their graceful pendulous branches, affording a contrast to the smooth white trunk, on which here and there some pretty lichen may be seen, as if placed there on purpose by the hand of Nature to decorate her favourite tree.

I love a Beech at all seasons of the year. In the early spring it seems the peculiar resort of the Thristle, "that attic songster;" and from the topmost branches we hear

that sprightly wildness in its notes,

Which clear and vigorous warbles from the Beech ;

the soft green leaves burst forth, covered with a silvery down, and nothing then can be more delicate than their hue, or more refreshing to the eye.

In the summer its foliage assumes another character, but still a beautiful one. Its leaves are indeed green, but not of that delicate green we see in the spring. A slight tinge of brown may be perceived

along the margin of the leaf, which is otherwise smooth and sparkling. The large red fungus may be seen under its shade, while the rough husks of the mast of former years are thickly scattered about. Here and there are small patches of fern, and round the trunk the ground is covered with the softest moss. Here the Squirrel's "airy bounds" may be seen, and the screaming Jay may be heard. Here, also,

Midst gloomy shades, in warbles clear,
Wild nature's sweetest notes we hear.

A Black-bird, with its orange bill, approaches the spot, and then retreats uttering its note of alarm. The green Woodpecker may be heard tapping the loose bark of some decaying tree, and then taking its jerking flight to another, filling the wood with its peculiar wild-cry; which, Mr. White says, seems as if it was laughing at all the world. Nor must the Cuckoo be forgotten in this description of woodland scenery. Its hollow note is responded to by that of another, sometimes in rapid succession, till the sounds approach near and more near, and then sudden silence ensues. It is pleasing to hear these unvarying notes. They are listened to with delight by every lover of nature, and there are few birds which would be more missed in rural retreats.

The merry Cuckoo, messenger of spring, is hailed on his first arrival as the harbinger of fine weather by every peasant in the country. Shakspeare calls it "the plainsong Cuckoo," but its notes vary according to the season of the year.

Acc no. 726
dt. 09/01/02

While seated on the spot I have described, it is pleasant to watch the actions of the Squirrel. One may sometimes be seen bounding from branch to branch, and then descending to the ground, where it will sit on its hind legs, look around, and then wash its face with its fore-paws. All its actions are graceful. On being disturbed, it hurries up a neighbouring tree, gets on the side opposite to the beholder, and may soon be seen on the topmost branches, except when it hides itself in some secure retreat, or takes refuge in its *drey*, from which it peeps with a mixture of curiosity and alarm. Mr. Bowles prettily describes it.

With ears erect,
The Squirrel seems to hark! and then to dance,
With conscious tail aloft, and twinkling feet,
Nimbler, from bough to bough.

Squirrels have a peculiar call or cry which may be perfectly imitated by squealing, or rather by beginning to squeal, like a rat, and then repeatedly snapping the lips. When such a noise is made under trees where there are Squirrels, without scaring them, they are thrown by it into a state of excitement and rush about upon the branches, answering the call in the same way.

But it is time to attempt a description of the appearance and foliage of the Beech in autumn. I have observed that its rich and golden hues at this period of the year depend very much on the soil in which it grows. In chalky soils in which the Beech delights, nothing can be more beautiful than its autumnal foliage.

This is best seen when the tree flourishes on some precipitous bank, its roots watered by a meandering rill, while some of them fix themselves in the fissures of the chalky rock; when they appear above the ground, with all their various contortions, they are covered with moss, affording a delightful seat for the traveller. Here mixed with the duller foliage of the Oak, the Beech may be seen in all its beauty, especially when a setting sun flings its bright departing rays on its topmost branches. Nothing can then exceed the lustre of its golden canopy. It is a sight which Gilbert White delighted in, and which he could best describe. The song of birds is now hushed, and if anything disturbs the silence, it is the occasional fall of the beech-nut, as the thoughtful Squirrel attempts to secure it for his winter-hoard.

There is a custom in several Counties of using the leaves of the Beech instead of feathers in a bed, and Evelyn much approved of it from his own experience. They have this advantage over feathers, that they may be often changed at little or no expence.

It may be remarked that in some years, when there is an unusually large crop of acorns, scarcely any beech-mast is to be found in many districts. This is a favourable circumstance for deer and pigs, for when this tree bears plentifully one year, it is generally barren the next.

In warm countries the beech-mast would probably produce oil in large quantities, but its use is super-

seded by the Almond and the Olive. Providence seems to have distributed vegetable oil to the southern climates, and animal food to the more northern. Our summers are too uncertain to be depended on for furnishing a regular succession of beech-mast. Linnaeus says that it scarcely produces any oil in Sweden. Most trees will grow further north, although they will not produce fruit.

In the year 1814, Aaron Hill, the poet and a great schemer, not being aware of the uncertainty of either the quantity or quality of beech-mast in this country, proposed a method of making oil from it, by which immense riches were to be acquired. This scheme, though it proved abortive, should not be confounded with the bubbles of that period, for Hill appears to have been a man of probity, but was misled by his sanguine temper. He said that a bushel of mast would produce two gallons of oil. Among the intended applications of the profits of this visionary scheme, one was to pay off the national debt, which the projector said, was "so prodigious an incumbrance." It was then about sixteen millions! What would he say now!

Although Hill's project did not succeed, which was probably owing to the expensive manner in which it was set on foot, the idea should not be abandoned, that this oil may yet be made to advantage in favourable years. It is at the present time the practice of the peasants in Britany to supply themselves with this kind of oil.

I believe that the Beech is generally allowed to be indigenous in this country ; and some old writers have mentioned it as one of the four original timber trees in England. It is a curious fact that the Rhododendron will flourish under almost any tree except the Beech.

I love the Beech, notwithstanding all the objections which Mr. Gilpin has brought against it. Not only do I admire "its noble and majestic size, its umbrageous and thickly dotted head, its cool and welcome shade," but I love the first tender green of its leaves, and afterwards their brown autumnal tinges, its silvery bark, and the graceful form of its boughs. And then its bold and projecting roots, grasping the ground in various shapes, covered with lichens and fungi, whilst a glossy Holly or a graceful Juniper grows between them, as if to seek for shelter and protection under the shade of the beauteous tree.

The truffle (*tuber cibarium*) is frequently found in old beech woods, and Mr. White mentions the annual arrival of an old truffle hunter amongst the beechen hangers of the lonely and picturesque neighbourhood of Selborne.

There are some noble specimens of the Beech in various parts of England. Some of those in Windsor Great Park, near the Royal Lodge, are of an enormous size ; and one near Sawyer's Lodge measures thirty-eight feet in girth. Some may be met with from ninety to one hundred feet in height, and there are a few fine specimens on the sloping ground beneath Lord John Rus-

sell's Lodge in Richmond Park. I have also seen some noble ones at Knowle near Sevenoaks in Kent.

Perhaps one of the most remarkable Beech-trees is, or rather was, standing at Chantilly in France. It is mentioned by Arthur Young in his Travels. Its trunk was perfectly straight, and from eighty to ninety feet high, forty feet to the first branch, and twelve feet in diameter, or thirty-six feet in circumference at five feet from the ground. I have not been able to ascertain whether this tree still exists.

There is perhaps no part of England in which Beeches are seen in such numbers as to size and picturesque appearance as at Burnham in Buckinghamshire. Many of them have most distorted shapes from having been pollarded centuries ago. Their roots are bold, and rise out of the ground like the arms of a Cyclops, covered with pretty mosses and fungi. The whole scenery in the Burnham wood is charming, for the venerable Beeches are surrounded with hollies, junipers and heath, with an occasional mixture of furze and broom. Gray, the poet, delighted in the shade of these trees, and has immortalized them in his verse.

Forest Scenery is, perhaps, better adapted than any other for the contemplation of the works of Nature. There we may with least disturbance study those objects, which are generally far removed from the haunts of men. We learn to cherish those gentle thoughts, which endear many a woodland walk, and afford delightful associations as we stroll through a

sequestered nook, a "bushy dell," or by a "bosky bourn." We may then exclaim in the beautiful language of Milton —

I know each land, and every alley green,
Dingle, or bushy dell, of this wild wood,
And every bosky bourn from side to side.

In the spring and summer months, every field is a scene of beauty, full of enjoyment. Every copse or hedge-row is redolent of sweets. A lesson full of meaning is then conveyed to us with touching simplicity, proclaiming gently, but irresistibly, and in cheerfulness and peace, the superintendence of a kind and benevolent Providence. The loveliest images are presented to our imagination, whether it be a flock of sheep watched over by their shepherd—a brood of chickens fostered under the wing of their mother,—or flowers clothed in beauty by their Great Creator. When we reflect, also, how bountifully the means of occupation and happiness are spread before us, and how cheaply some of our truest pleasures may be purchased, we may learn to be thankful for such a lavish dispensation of blessings. We may then feel that even the most lowly things are not insignificant, and that Nature is everywhere pregnant with the best kind of instruction.

I shall always reflect with pleasure on the interesting rides I had some time since with an intelligent friend and naturalist, in the more retired parts of

Windsor Great Park and Forest. The gentle rains had invigorated the earth — every thing had just burst into freshness and beauty — the birds sang their joyous notes — the Cuckoo was heard in every direction — the green Woodpecker uttered its wild cry, and the Herons were making their silent gyrations over our heads, as we rode under the trees on which they were forming their nests. An enormous Beech-tree spread its widely extended branches, which were clothed with their early and glittering leaves, while the sight of some sturdy old oak pollards, covered with ivy, from which

The stock-dove only through the forest cooes,
Mournfully hoarse —

verdant hollies, and here and there a wild cherry tree, with its silvery blossoms, added to the charm of the scenery. Sometimes a rabbit, a hare, or a pheasant would run for shelter amongst the fern — a herd of deer might be seen reposing in some sequestered dell, or a group of cattle indolently standing in the shallow water of a pond.

In one of these rides we were engaged in contemplating, with that delight which a lover of nature alone can experience, such a spot near the Sandpit gate, when our attention was called to the hoarse croaking of a pair of Ravens, who were apparently endeavouring to take possession of one of the nests of the Herons that built on the tops of the trees, which, in this part of the Park, far exceed in height any I have met with elsewhere. The

Heron defended its nest with great courage, uttering shrill and distressed cries; and, after the battle had lasted some length of time, the Ravens were beaten off.

This Herony is a noble appendage to the Park, and any Monarch might well be proud of it, as well as of the trees on which the nests are built. As there are not more than eleven or twelve Heronries left in this country, it is to be hoped that every care will be taken of the one referred to. Severe penalties were formerly imposed on any person killing a Heron, and I believe that the laws enacting them have not been repealed; yet we now find Herons amongst the trophies nailed by keepers upon some stunted oak tree, in the midst of magpies, jays, owls and pole-cats, although the damage they do to fish-ponds is comparatively trifling, feeding, as they chiefly do, upon frogs, snails, water-rats and small eels. In the breeding season, when they have to provide for their ravenous young, they may attack the larger sort of fish, but the interest which must always be attached to this royal bird, connected as it is with the chivalry and ancient sports of this country, ought to be sufficient to protect it from wanton destruction, independently of its own wild and picturesque character.

In order to ascertain, as far as we were able, the extent of destruction committed by these persecuted birds in the breeding season, my companion, whose thirst for information on subjects connected with Natural History is of no ordinary degree, procured a

young Heron about two-thirds grown, which had fallen from the nest and been killed. On dissecting it, the stomach was found very large and much distended. It contained fish bones, one fish—probably, from its appearance, a roach—half digested, and eight inches and a quarter in a length. There were also pellets of hair an inch and a quarter long—apparently the hair of the field mouse—the scales of the common snake, (*natrix torquata*) and the bones of the frog. On the ground, under a Heron's nest, we found a pellet of hair about as big as a hen's egg, and having exactly the microscopical character and general appearance of the hair of the water-rat (*arvicola amphibia*). After searching repeatedly under the different nests, we were never able to discover any rejected particles of fish or even of fish bones. The pellets of hair were frequent.

It is evident from the above facts that the food of the Heron is not confined to fish; and, therefore, that the depredations it is supposed to commit in fish-ponds, are not so extensive as has been asserted. It may be remarked that from the comparatively small size of a Heron's nest, the young, when about half grown, are constantly falling out of it, and thus many perish. A visit to the Heronshaw,* for so it was anciently called, in Windsor Great Park will amply repay the trouble of going thither, if rambling in this

* The Heron-shaw originally signified the wood or coppice where the Herons built; thence it was transferred to the bird

most beautiful domain can ever be considered a trouble.

Heron breed early in the spring, probably beginning to lay their eggs about the middle of March, as on the 8th of April I found discarded egg-shells under their nests. The cry of the young birds is very peculiar, resembling the sound of distant hammering. I have only heard it when the old bird was driven from the nest, and it arises probably from cold or hunger. The affection of the parent birds for their young is very great, and I have elsewhere recorded the fact of a young Heron having been removed, at night, to a place at some miles' distance, and put into a walled garden, where it was discovered by the old birds early the next morning, and was regularly fed by them till it was able to fly away. As there were probably other young ones in the nest to be fed, this fact shews not only the affection, but the observation of the parent birds. It is not improbable that the young are fed from the partly digested contents of the stomachs of the old birds; as, although I have repeatedly watched to see their arrival from distances, where they had evidently gone in search of food during the breeding season, I have never yet observed anything in their bills. Indeed the stomach of the

itself, which was called Heronshaw; and thus the proverb, "he does not know a hawk from a handsaw," the meaning of which was, that, in a very distant flight, it was only an experienced eye that could distinguish the hawk from the heron.

Heron is so capacious, that they probably swallow everything as they catch it, which they do occasionally while on the wing.

I delight in watching the silent manner in which a Heron quits its nest, or the branch of a tree on which it has settled. When it is considered that the length of this bird is upwards of three feet, and that it is at least five feet from the tip of one wing to the other, this is not a little surprizing. Not a sound, however, is heard on these occasions.

I happened to make a visit to the Heronry on a windy day. Some of the birds quitted their nests and soared in circles over the tops of the trees. In doing this I observed that they sometimes stretched out one leg and then the other, and frequently both together. It was evident that they served as rudders to enable them the better to perform their gyrations. In a straight-forward flight the legs are extended, and the head placed between the shoulders.

The patience of this bird must be very great, as it may be observed for hours together, watching for its prey by the side of some ditch or shallow water. It can probably also live a long time without food, as in severe winters it must be difficult for it to obtain the usual supply. In very severe seasons, when the inland-springs and waters are locked up by frost, these birds frequent the sedgy pools and salt marshes near the sea.

That favourite diversion of our ancestors, Heron hawking, is now, it is to be regretted, nearly obsolete.

It must have been an exciting and beautiful sight with well trained Hawks. Gay evidently thought so.

The tow'ring Hawk let future poets sing,
Who terror bears upon his soaring wing;
Let them on high the frightened Hern survey,
And lofty numbers paint their airy fray.

The foregoing remarks on the wanton destruction of Herons may be applied to that persecuted and almost extinct bird, the Raven. The only pair I have ever seen, with the exception of those in Windsor Great Park, was in the neighbourhood of Selborne, where they served to remind me of Mr. White's very interesting account of the pair, which had built their nests and reared their young for so many years on the "Raven's Oak tree" at that place. There are many curious associations connected with this bird—it is frequently mentioned in our Bible history, as employed by the Almighty to convey food to man; and its young are mentioned as being under the immediate care of the Great Creator—it has been immortalized by Shakespeare, and referred to by Addison, Dryden and Young, and indeed by many others of our poets. The Raven not only has been, but still is connected with the superstitions of this country; and it was but lately that I was assured by "a sober hind" at work in this neighbourhood, that his companion had been warned of his approaching death, in consequence of a Raven having always croaked when it flew over his head. Like the Bustard, its existence in this country is

nearly at an end, but in places, where they are still to be found, it is to be hoped that some pains may be taken to preserve them from destruction. Ravens, indeed, must have been much more numerous a few years ago, than they are at present. Mr. White mentions his having seen forty of them in 1778 playing over the hanger at Selborne at one time.

The last Bustard that was killed near Thetford in Norfolk (the Bustard-country) was shot in the year 1831. I was intimately acquainted with a Norfolk gentleman (Mr. Whittington) a great sportsman, who assured me that he once had a pack of Bustards rise before his gun; he suddenly came upon them in a gravel pit. Mr. Southey and Sir Richard Hoare have both mentioned the curious fact, that the Bustard has been known to attack men on horseback at night.

Mr. Yarrell informs me that the last Bustard known to be killed in England, was shot in the spring of 1843, in Cornwall. It was a female, and had been seen in a turnip field for several days. This is the only instance of the Bustard being found in Cornwall.

The Kite, also, has become nearly extinct in this country, from a foolish apprehension, entertained both by gentlemen and keepers, that they destroy the game. On examining a nest of one of these birds, it will be found that frogs, mice and snakes are the chief food of their young. It is now but very seldom that we are indulged with a sight of the beautiful gyrations of this bird, or of seeing it support itself in the air with a

motion almost imperceptible. Its sweeping circles are peculiarly elegant, and often have I watched them with the greatest pleasure. Bacon tells us that when seen flying aloft it portended fair and fine weather. How much it is to be regretted that this noble bird should have been doomed to destruction by those, who have taken but little trouble to enquire into its asserted predatory habits.

The Oak may be called the Lord of the Forest. It is characterized by beauty, strength and gracefulness. Even in its decay it is venerable, as well as majestic; and I never look at what has been handed down as William the Conqueror's Oak in Windsor Forest, without feelings of wonder and admiration. In this country, Oaks now form one of the great sources of our national wealth and naval supremacy; but in the early ages of our history they were chiefly prized for their acorns, which enabled the owners of large herds of swine to fatten them at a very small cost; for which reason swine's flesh formed a considerable part of the food of our Saxon ancestors. The right of feeding hogs in woods was called *pannage*, and formed, many centuries ago, one of the most valuable kinds of property. Burnett tells us that Monasteries were endowed with this right, and it often constituted the dowry of the daughters of the Saxon Kings.

It is probably to these circumstances that we owe the preservation of some of our most ancient and in-

teresting old Oaks. When their value as ship timber first became known, some of these relics, probably from incipient decay, escaped the axe, and have survived till this time! Who can tell their age?

The Oak braves the storm and spreads out its arms as if in defiance of it, and that with such an appearance of force and grandeur, as to cause it to be considered an emblem of strength.

“ Behold yon oak

How stern he frowns, and, with his broad brown arms,
Chills the pale plain beneath him.”

Much has been written and said about planting and preserving Oaks, and perhaps too little attention has been paid to the nature of the trees which have been planted in the Royal Forests in this country. Acorns were collected indiscriminately from various sorts of trees, without reference to the hard or soft nature of the wood which produced them, and the consequence is likely to be that, when they are required for naval purposes, many of the trees will be found of a very inferior quality. When we consider the large tracts of land which have been planted in this indiscriminate manner in Dean, the New and other Royal Forests, it is much to be regretted that the acorns for the purpose were not collected from the hedge-row Oaks of Sussex. The Oak-trees in that county grow, beyond a doubt, the toughest wood, and have a beautiful grain. It is very durable not only for shipping, but for fencing; and, when exposed to the weather, lasts

much longer than any other, of which I have had ample experience. It ought to weigh sixty pounds per cubic foot.

It is surprising that so little notice has been taken, even by botanists, of the two different kinds of Oaks that grow in England. Both Gerrard and Parkinson mention but one sort. Evelyn, who was rather a lover of trees than a botanist, has not distinguished them. Even Ray has not described them with his usual accuracy. Miller confounds the two sorts in his Dictionary; and his errors are continued in the last Edition of Evelyn's Sylva. Writers, who have noticed the two different kinds of these trees, have called one *Quercus mas*, and the other *Quercus femina*, titles that Linnæus' explanation of the sexual system renders improper. The Oak being *monœcious*,—that is having male and female bloom in different parts of the same tree,—is different from plants that are properly male and female, which have male bloom on one tree, and female on another, and are therefore called *diœcious*. The male Oak, as it is called, has longish stalks to the leaves, and no stalks to the acorns; while the female tree has little or no stalks to the leaves, and very long stalks to the acorns. The two sorts carry, also, a very different appearance in their foliage, the leaves of the *Quercus mas* being much larger, more regularly indented, and of a deeper green than the other, so that this tree in a vigorous state much resembles the edible Chestnut. The *Quercus mas*, contrary to Miller's

Mr. Selby, to whom I am indebted for the following account of some of our largest Oaks, refers to the Boddington Oak in Gloucestershire, the remains of which were burnt down in 1790. It was fifty-four feet in circumference at the base. Damory's Oak, also, in Dorsetshire, which was sold and cut up for firewood in 1755, was sixty-eight feet in circumference at the ground. Both of these were hollow trees.

The Winfarthing Oak is amongst those still existing and remarkable for age and size. It is said to have been an old tree at the time of the Conquest. Cowper's Oak in Northamptonshire is supposed to have been planted in the time of William the Conqueror. The Salcey Forest Oak in the same county boasts a much greater age, as it is thought to have seen one thousand five hundred seasons. Its trunk is forty-six feet in circumference. The Flitton Oak in Devonshire, of the *sessiliflora* variety, supposed to be one thousand years old, is thirty-three feet in circumference at one foot from the ground. The Cowthorpe Oak in Yorkshire is, at the ground, seventy-eight feet; the Hempstead Oak in Essex, fifty-three feet, and the Merton Oak in Norfolk, sixty-three feet in circumference.

In Scotland, there are some magnificent remains of old Oaks. Amongst others, may be mentioned the Wallace Oak at Ellerslie in Renfrewshire, in which William Wallace and three hundred of his followers are said to have hid themselves from the English. In Roxburghshire, near Jedburgh, stands the King of

the Woods, a beautiful Oak of vigorous growth, with a trunk forty-three feet in height.

Perhaps the finest Oaks in England, which are still flourishing and encreasing in size, are to be seen at Blithfield in Staffordshire, the seat of Lord Bagot. One of these has a circumference of forty-three feet at the base, and is sixty-one feet high. Its solid contents a few years ago were found to exceed one thousand and twelve feet. The Beggar's Oak in the same Park, is also a fresh and vigorous tree, with a trunk upwards of twenty-seven feet in circumference, at five feet from the ground. It contains eight hundred and seventy-seven cubic feet of timber; and Sir T. D. Lauder informs us would have produced, according to the price offered for it in 1812, £202 .. 14s. .. 9d. At Hazelgrove, in Somersetshire, is a noble Oak, eighty feet in height, and measuring thirty feet in circumference, at four feet from the ground. This tree contains eight hundred and sixty-three feet of timber. At Nettlecombe Court, in the same county, is another Oak, eighty-five feet high, and seventeen in circumference near the ground, which contains six hundred cubic feet of timber. The Wootton Oak, in Buckinghamshire, possesses all the characteristics of a magnificent and picturesque tree, and by some is considered one of the finest in England, even surpassing, in characteristic beauty, the Chandos Oak which grows in the same county, in the grounds of Michenden House. This tree is now in the highest health and



THE SWILCAR OAK.

vigour, and its wide spreading umbrageous head covers a circle, whose diameter is more than one hundred and eighteen feet. Perhaps, however, the finest and largest oak on record in this country was the Golynos Oak in Monmouthshire. It was felled in the year 1810, and, according to a return made to the Navy Office by Mr. Harrison, the Surveyor of Plymouth Dock Yard and Dean Forest, was found to contain two thousand four hundred and twenty-six cubic feet of timber. The different portions of this tree, the bark included, were sold for nearly six hundred pounds.

I may mention, by the way, that I have met with two Oak-trees, one in Windsor Great Park, and the other in Richmond Park, the acorns of which, when perfectly ripe, are quite as sweet and good as filberts; and I am persuaded that few people would know the difference. The acorns are small and rather long, and the foliage of the tree very unlike that of any other Oak I have met with. I am not aware that this variety has been noticed by any writers on trees. Can these be the sort of acorns Pliny extols as being so excellent—*"dulcissima omnium (glans) Fagi?"*

But to return to my list of extraordinary Oaks. The accompanying sketch will shew what the appearance of the Swilcar Oak in Needwood Forest was about thirty-five years ago. It then measured, at five feet from the ground, twenty-one feet round the trunk, the lower stem was ten feet from the ground, and the whole height of the tree sixty-five feet, and its arms extended forty-

five feet. It contained one thousand feet of solid timber. Its glory is, alas, now departed.

Dr. Hunter, in his *Notes upon Evelyn's Sylva*, observes that none of the Oaks mentioned by Evelyn bear any proportion to one now growing at Cowthorpe near Wetherby, upon an estate belonging to Lady Sturton. Within three feet of the ground it measured in 1776 sixteen yards or forty-eight feet in circumference. Its height was then about eighty-five feet, and its principal limb extended sixteen yards from the bole of the tree.

It is an interesting fact that the morning after the King of Prussia arrived at Windsor Castle, in order to be present at the christening of the Prince of Wales, the whole of his Majesty's suite, including the celebrated Baron Humboldt, enquired their way to Herne's Oak. This was the first object of their attention and curiosity, and probably of their veneration. The splendours of the castle, its pictures, the noble scenery surrounding it, and the many historical facts connected with it, were objects of inferior interest, compared to a single time-destroyed, withered tree, yet rich with recollections of the genius of our immortal Shakspeare. On arriving at the sacred tree, they gazed at it in silence; but each of the party gathered a leaf from the ivy, which is now clinging to the decaying trunk, as a relic which they intended to carry back to their own country, to be



HERNE'S OAK.

shewn there as one of no common interest. The nobleman who accompanied the party to the tree related this little anecdote to me, and I must confess that it afforded me no small degree of gratification.

Pleasing as it is to see foreigners hasten to look at a tree which our great bard has immortalized, it is still more so to have the perfect conviction, that, if any tree in the park has a right to be considered as the real Herne's Oak, it is the tree in question. In a former work I ventured to give this opinion, and facts which have since come to my knowledge have only served to confirm it. In that work, a very imperfect representation of the tree was given. By the kindness of Mr. Stark, whose paintings of Forest Scenery are so well known and so highly appreciated, I am now enabled to give a more perfect, or rather, an exact one.

The discussion, which has taken place with respect to the identity of the tree, has occasioned some degree of interest on the subject; nor do I think that that interest has yet subsided. At all events I feel sure that the admirers of our immortal bard will thank me for my endeavours to prove the claim, which this tree has to be called "Herne's Oak."

The discussion I have referred to was commenced in an article in the Quarterly Review on Mr. London's Arboretum, in which an attack, not a very courteous one, was made upon me for the opinion I had given respecting this tree. To this I replied

in the Times newspaper, stating some facts corroborating my former statement. The question was afterwards taken up in the Gentleman's Magazine, in which some one, under the high-sounding title of "Plantagenet," first of all advocated my cause, and then published another letter in which he endeavoured to refute my arguments in favour of the present tree. This he did in consequence of having seen Collyer's Map of the Home Park, Windsor, in which a hand may be seen pointing to an Oak in an avenue, and under it is written, "Sir John Falstaffe's Oak." As this avenue was marked as formed of a treble row of trees, the writer in the Gentleman's Magazine argued that the present tree must have stood in the centre row of trees, whereas that marked on Collyer's plan was in the exterior or outward row.

To say nothing of the accuracy of this plan, which is a very old one, it requires some degree of ingenuity to shew that the tree now standing in the avenue was not in the external row. By a reference to the plan, I am convinced that most people would think that there was no third row of trees at this place, and consequently that the present tree must be the one pointed out in the plan. By referring also to the accompanying engraving of the tree, it will be seen that it has an inclination outwards. Those who are best acquainted with the growth of trees are aware that this inclination would not have taken place, had it been in the centre of an avenue, with another

tree growing immediately before it in that direction.

Having made this explanation, I will now shortly state my reasons for the opinion I have formed that the tree now standing is the real Herne's Oak.

First : — The fact that the avenue in which the tree is now to be seen was planted by King William III, who delighted in straight lines, and the numerous avenues he made were all of them formed so, with the exception of the one in question. This is distorted, if I may call it so, evidently with the intention of introducing Herne's Oak into it, which is equidistant with the other trees of the avenue.

Secondly : — The evidence of Collyer's plan, which I cannot but think in favour of my supposition.

Thirdly : — The evidence of some old inhabitants of Windsor, especially of one, in the ninety-fourth year of her age, who have assured me, that not only they, but their fathers and mothers also, have always had the present tree pointed out to them as Herne's Oak. This is going back to the time of William III.

Fourthly : — The fact that King George III frequently asserted that he had cut down an Oak tree, at the edge of the pit, close to the present tree, because many persons confounded it with the tree growing in the avenue, and called it Herne's Oak, which he said it was not. I have this anecdote from Mr. Davis, the very popular and intelligent huntsman of Her Majesty's Stag hounds, and who, it is well

known, was in the habit, when a very young man, of being constantly in attendance upon His Majesty George III. That the tree thus cut down was, by many persons, considered to be Herne's Oak, there can be no doubt, and under this impression it was drawn by Mr. Delamotte in 1800, and by Mr. Nicholson in the same year. It is evident, however, that the King did not so consider it, and that he was anxious to preserve the identity of the present tree. This fact is quite sufficient to disprove a statement in Mr. Knight's beautiful pictorial edition of Shakspeare, that Lady Ely was asked by Mr. Nicholson to ascertain from George III, whether or not he had cut down Herne's Oak; and that the King replied, that, "when he was a young man, there were a number of old Oaks in the Park, which had become unsightly objects, and that he gave directions that they should be removed. He was afterwards sorry that he had given such an order inadvertently, because he found that, among the rest, the remains of Herne's Oak had been destroyed."

Either Mr. Crofton Croker, on whose authority this statement is made, must have misunderstood what Mr. Nicholson told him, or else Lady Ely had misrepresented to him, what the King had told her, supposing she ever asked him the question, which may now be fairly doubted. It may be added that Mr. Davis assures me that he not only *frequently* heard the King assert that he had cut down the *supposititious* Herne's Oak, but that he repeated the assertion during a

succession of years, when his mind and body were in a perfectly healthy state.

Fifthly : — The fact that the King placed the present tree under the especial charge of Mr. Engall, the manager of the Home Park, fifty years ago, telling him at the time that it was Herne's Oak. It may be added, on the same authority, that some chairs were made from the supposititious Herne's Oak, and presented to the King, as interesting relics of that tree, but he refused to accept them, stating that Herne's Oak was still standing. Many things, also, were made from the tree and sold to various persons in the neighbourhood, which left the impression that Herne's Oak had been felled.

Sixthly : — A statement which I know was made by His Majesty, George IV, that Herne's Oak had not been cut down by his father, and which has been confirmed to me by one of the surviving members of his family.

I might multiply my reasons for considering the present tree as the real Herne's Oak, by quoting the opinions of the late amiable Sir Herbert Taylor, Sir David Dundas, and others on the subject, but perhaps enough has been said. I may however add, that Mr. Gilpin, in his work on Forest Scenery, tells us that Herne's Oak is still supposed to exist. He adds, that "in the little Park of Windsor there is a walk, known by the name of Queen Elizabeth's Walk. It consists of elms, among which is a single Oak, taken

into the row, as if particularly meant to be distinguished at the time when the walk or avenue was made. It is a large tree, measuring twenty-four feet in circumference." In consequence of this statement, I caused the tree to be measured, by a respectable carpenter accustomed to measure timber. He tells me that it girths at the end of the trunk twenty-one feet; and that, allowing for the bark which was on it, in the year 1792 or 3, when Mr. Gilpin wrote his account, it would have had a girth of twenty-three feet at least, so nearly does it agree with Mr. Gilpin's statement, which, by the way, was written some years before either Mr. Delamotte or Mr. Nicholson drew the supposititious oak, already referred to. The present tree must, therefore, once have been a very large and noble one. Compared with the girth of two or three near it, it is seen now to disadvantage, but it should be recollected that these other trees are pollards, and the very circumstance of trees having been deprived of their leading branches, through a succession of years, which has not been the case with Herne's Oak, always increases the size of their trunks.

I can again only express my hope, that the arguments I have made use of will not be unacceptable to the admirers of Shakspeare. I may appear obstinate, or too persevering in my wish to rescue it from oblivion and neglect, but as long as I feel that I have the best of the argument, I will maintain my ground.

In order that the tree may now be readily recognized by strangers, I have had the following quotation affixed to it : —

There is an old tale goes, that Herne the hunter,
Sometime a keeper here in Windsor forest,
Doth all the winter time, at still midnight,
Walk round about *this* Oak.

I am assured that since this inscription has been put on the tree, some females, who were in the habit of passing between Windsor and Datchet, through the Park at night, have been alarmed with the fear of meeting "Herne the hunter."

The timber of the Ash is next in value to that of the Oak, and in some places equal to it; and ought, when it is sold, to be measured to a much smaller girth than either that tree or the Elm. I have mentioned the high estimation in which our Saxon ancestors held trees that bore mast; and it appears from the laws of Howel Dha, which were written about the middle of the tenth century, that the Britons held such trees in equal estimation; for the price of an Oak or Beech was one hundred and twenty pence, while the Ash, though always so useful, or any other tree which furnished no food for swine, was only valued at fourpence. The Ash supplied our ancestors with their weapons of war, whence a Saxon warrior was called *Æse-béneno*.

With us it is much more beneficially employed in instruments of agriculture and domestic use; but its

property of exploding in the fire makes it dangerous for fuel. The first shoots from a stool are tough and flexible, and some coppices in Hertfordshire are particularly noted for wood of this quality. Some years ago a person in Essex turned his hop-ground into a plantation of Ash trees to the great amusement of his neighbours who cultivated hops around him. After a few years, however, when they came to purchase his poles, they perceived that the produce of his ground was full as profitable as theirs, without the expence or uncertainty to which they were liable.

The Celts received their laws and religion from the Druids, while the Goths followed the institutions of Woden. The favourite tree of the Druids is well known to have been the Oak, whereas the Edda of Woden holds the Ash in the highest veneration; and many words, signifying strength, valour, or pre-eminence, are compounds of the Saxon word *Eye*.

The country people have a superstitious custom of boring a hole in an Ash, and fastening a shrew mouse (*sorex araneus*) in it. A few strokes with a branch of this tree is then accounted a sovereign remedy against cramps and lameness in cattle, which are ignorantly supposed to proceed from this really harmless animal. The Rev. Gilbert White, in his History of Selborne, gives a very amusing and more lengthened account of this superstition.

Some writers assert that manna is an exudation from our Ash (*fraxinus excelsior*); but others with

greater accuracy inform us that the manna-bearing tree is the *fraxinus ornus* of Linnæus, a native of the southern part of Europe, but unknown to this country in its wild state.

Ashen leaves have been used to mix with tea, and poor people in some places made a good deal of money by collecting them. It is to be regretted that this practice should be prohibited as interfering with the revenue, since the poor can very ill afford to have any of their small pittances retrenched. At the same time many people are of opinion that the leaves of the Ash are quite as wholesome as those of the Tea-tree.

It is to be regretted that the Ash is not more generally planted in this country. In five or six years it begins to repay the cultivator, for it is then fit to be made into hoops for small barrels, or into walking sticks. In twelve years it will supply hop-poles, hurdles and hoops. At a greater age, it is much used by coach-makers and wheelwrights, as well as for agricultural instruments.

Mr. Gilpin says that he has heard the Oak called the Hercules of the Forest, and the Ash, the Venus. He adds, that the comparison is not amiss, since the Oak joins the idea of strength to beauty, while the Ash rather joins the ideas of beauty and elegance.

"You may as well forbid the Mountain Pines
To wag their high tops, and to make a noise,
When they are fretted with the gusts of Heaven."

SHAKESPEARE.

These lines prove how accurately Shakspeare had attended to the noise made by the wind in passing through a forest of Pines or Firs. Those who have heard it, as I have often done, cannot but have been struck with the peculiar, soft and continuous moan, if I can call it so, which is produced by the wind.

The linear leaf of the whole genus of Pines is admirably adapted to evade the force of wind on the mountains where they grow naturally. This singular construction of their foliage communicates a peculiar tone to the passing breezes, with which sound the ancient poets were delighted, as conveying ideas of refreshing coolness.

The Stone Pine is found among the trees cultivated by the Greeks and Romans for their esculent produce; and we find directions given by Palladius for sowing the seeds at the same time with walnuts, almonds, and pistachio nuts. According to the Rabbins, the kernels of the fruit of this tree were held in high estimation in very early antiquity; for they define the Hebrew word which is translated nuts in the following passage, to be the seeds of the pine.

“Take of the best fruits in the land in your vessels, and carry down the man a present; a little balm, and a little honey, spices and myrrh, *nuts* and almonds.”—*Gen: XLIII. 11.* To this interpretation, the Christian Commentators assent.

The Stone Pine thrives very well in some localities in England. Those, however, which were seen flourishing at Dropmore a few years ago, have most of them shewed symptoms of decay lately, and some have died; probably owing to the roots getting into gravel, or soil that did not suit them. Mr. Loudon, in his *Arboretum*, informs us that the most remarkable Stone Pine on record is one in the South of France, on the *Sablettes*, a tongue of land which joins the peninsula of *Giens* to *Provence*. This Pine is conspicuous for its great beauty and majestic shape. It has a trunk twelve feet in circumference, which is clear of branches to the height of thirty feet, at which point the branches commence which form the head, and extend in height thirty feet more, and horizontally so as to cover a circle of one hundred feet in diameter. This tree stands in a most conspicuous and striking situation, it being the only tree existing in the tongue of land on which it grows, and being close to the *Mediterranean*. It should be mentioned that about the year 1770, during the American war, an English and an American ship being engaged in battle in the *Mediterranean*, an English ball struck the trunk of this Pine, and lodged in it, where it has remained ever since, without,

apparently, doing the tree any harm, the wound having closed over, and even the scar having disappeared.

Perhaps —

“ the most stately progeny of Pines,*

With all their floating foliage richly robed,”

are to be seen at Whitton, near Twickenham, the seat of Mrs. Gostling, and at Ashly Park near Walton on Thames, the seat of Sir Henry Fletcher. Some of the trees in the latter place have a girth of upwards of twelve feet, and a height of thirty feet to the branches from the ground. What, however greatly adds to the interest I took in looking at these trees was the sight of a Heronry on their topmost boughs. It is a fine appendage to a gentleman's seat, and I watched the birds circling round these noble Pines with no small degree of pleasure.

The remark of Linnæus that botanists have not been able to distinguish between the species and the varieties of Fungi, would appear to hold good also among several sorts of trees, more especially the Elm. At all events great ignorance has been shewn in many instances which have come under my observation, by persons planting any sort of Elm that may have been furnished them by the nurseryman. When I was last in the north of England, I saw the plantations in a fine park full of a bastard kind of Elm of thirty-five years growth, the wood of which was almost worthless,

* *Pinus sylvestris*.

and the roots, many of which appeared on the surface of the soil, throwing out numerous suckers, had impoverished and poisoned the ground all around. This miserable sort of Elm was also planted in the Regent's and Hyde Parks instead of the true old English Elm, some fine specimens of which are still to be seen near the Serpentine river. With these examples before them, it is a matter of surprize that any other description of Elm should have been introduced. The true small leaved English Elm is not indigenous in this country, and is never known to produce seed (I mention this on the authority of Sir Joseph Banks). The consequence is that it is only propagated by layers from old stools, and therefore is not a cheap plant. Sooner than go to the expense of purchasing them, persons have been induced to plant a cheaper sort of Elm, which nurserymen find their account in recommending to their customers. It is a tree neither profitable nor ornamental.

The Wych-hazel or Elm is an undoubted native, being dispersed in woods throughout the whole Island. Its leaves are much larger than those of any other sort of Elm.

The English or common small leaved Elm (*campestris*) is chiefly found near towns and villages, connected as it were with cultivation. It has a Roman name in this country, as well as in the rest of Europe; and, as Evelyn says, in his time was scarce found north of Stamford. It is most probable, therefore,

that it came originally from Italy. Villages and hamlets taking their names from the Elm, prove nothing to the contrary, since places of abode are full as likely to have been distinguished by introduced as by native trees.

This kind of Elm is cultivated to great advantage, as a tree which has not been planted more than sixty years will sell for from five to ten pounds. But the slender straight trees of this sort used formerly to bring the greatest price, being converted into pumps, and into pipes for conveying water. It is also one of the best deciduous trees that we have to plant for ornament, or a shelter for buildings, as it is successfully transplanted, grows quick, is very early in leaf, and, bearing no seeds, is always furnished with a plentiful foliage, which it retains till late in the Autumn. It is therefore much preferable to the Lime, as that tree in a dry soil frequently fades in July, is far more liable to be disfigured by insects, and the wood is of much less value. Milton, in his *Arcades*, hints at the thick foliage of the elm —

“ Under the shady roof
Of branching Elm, star-proof.”

The Elm, in rural economy, is not of that consequence to us as it was to the Romans, to whom it furnished fodder for the cattle, and supports for their Vines, which were *wedded* to the living tree in the southern parts of Italy, where the heat was sufficient

to ripen the grapes though shaded by its branches. In more northern latitudes it supplied them with poles for the same purpose. When the Romans became luxurious, the Elm was discarded from their ornamental plantations, as carrying with it an air of homely cultivation; and the favourite, but useless Plane superseded it.

In the hot climate of Italy the grass is burnt up early in the summer in low situations, and, where there were no cool mountains to retreat to for fresh pasture, it was necessary to support the cattle with the branches of trees (*frondes*), of which the Elm was the principal; and it was the business of the *frondator* in early times to provide this kind of fodder.

The wedded Elm of Italy, though trimmed up, did not make an ungraceful figure when encircled by the Vine, and ornamented with its festoons.

But our naked and unmarried Elms, so unmeaningly and unnaturally stripped of their branches, as we too often see them in this country, are greatly disfigured. It is not easy to conjecture whence this absurd custom took its rise amongst us, or why it is still continued. The timber is spoiled by having decayed knots, the growth is much stunted, and the produce often not worth the trouble of collecting. No timber tree but the Elm will bear such abuse. The sturdy Oak absolutely refuses it, for which reason there is scarcely a stately tree of that kind to be seen within several miles of London.

Elm should be always felled in or before December. In mild seasons the sap flows, and the buds are enlarged in January, as was the case last year (1852). Whatever wood of this kind is cut then or later will be worm-eaten and will soon decay. It is this improper practice that has brought Elm timber into disrepute. When this wood is used abroad, and exposed to the open air, it is a good plan to give it a coat of boiling tar, but this must not be done till it is perfectly seasoned and dry.

Hesiod directs his countrymen to bring home whatever crooked timber they could find, and particularly the evergreen Oak, for the plough. But Virgil says that the Elm was in his time forcibly bent into the form of a plough-beam as it grew in the woods, (Georg. Lib. I. v. 169). We have heard an eminent timber merchant, who was most certainly unacquainted either with Hesiod or Virgil, remark that if weights were tied to young Oaks, to bend them as they grew, the timber would be much more valuable for ship-building. This may be a useful hint to the Commissioners of Woods and Forests.

I cannot conclude these notes on the Elm better than by referring to a few of the finest specimens of it in this country. In the Stud House grounds of Hampton Court Park, there is a noble Elm flourishing in full vigour, and without any appearance of decay. I had it carefully measured by an experienced carpenter about fifteen years ago, and it then contained

nine hundred feet of solid timber, or, at forty feet to the load, upwards of twenty-two loads of timber. The soil about Hampton Court seems to suit the Elm, for there are many fine specimens of it in the neighbourhood. It is a sandy loam. The noble Elms in Christ Church meadow at Oxford are well known, as are those in Magdalen College gardens at the same University, and in the gardens of St. John's College, Cambridge. There are some noble Elm trees in the neighbourhood of Hampton Court, which were planted in the reign of William III:

No one, who has travelled the Brighton road in the good old times of stage coaches, can fail to have observed an extraordinary Elm at Crawley. This tree has been figured by Strutt. Mr. Loudon informs us that it is seventy feet high, and the trunk sixty-two feet in circumference at the ground. Its trunk is perforated to the very top, and it measures thirty-five feet round the inside at two feet from the base. There is a regular door to the cavity of the trunk, the key of which is kept by the Lord of the Manor. It is only opened on particular occasions, when the neighbours meet to regale themselves within the cavity, which is capable of containing a party of more than a dozen. Madame de Genlis says that a poor woman gave birth to an infant in the hollow of this tree, where she afterwards resided for a long time.

There was within my own recollection the trunk of an enormous Elm, said to have been planted by Queen

Elizabeth, standing on the corner of Richmond Green near the Old Palace. The remains of it have now entirely disappeared.

A recent traveller in Syria mentions three Elms near Mount Lebanon, which he says were so large that the shadow of one of them covered the tents, thirty horses, and the scattered group of Arabs. The stream at the feet of these trees was bordered by Oleanders and Myrtles. These trees, however, must, I should suppose, yield in size to a Wych-elm in the grounds of Edward Penrhyn, Esq. at East Sheen in Surry. It has a height of one hundred and ten feet, and the spread of its branches is so great that a party of two hundred persons sat down at tables placed under its shade. It is still a growing and most thriving tree, and may, I think, be considered the largest of its kind in England.

It may not be generally known, that one of the Elm-trees standing near the entrance of the passage leading to Spring Gardens, in St. James's Park, was planted by the Duke of Gloucester, brother to Charles I. As that unfortunate Monarch was walking with his guards from St. James's to Whitehall, on the morning of his execution, he turned to one of his attendants, and mentioned the circumstance, at the same time pointing out the tree.

Elm is a most durable wood. I happened to be present when many of the old Elm-piles which were under the old House of Lords were drawn out. They

appeared perfectly sound, although they could not have been in the ground less than one thousand years. Near these piles, a pair of enormous buffaloe's horns were discovered, embedded in a stratum of hazels and other small underwood.

There are few localities in England in which finer Cedar trees are to be found than within the circumference of a few miles of Richmond in Surry. According to the best authenticated information I have been able to obtain, these Cedars were introduced by the celebrated John, Duke of Argyle, (Effie Dean's Duke) who had two residences near Richmond, at one of which, Whitton Park, near Twickenham, he planted a noble grove of these trees; many of them are still to be seen there. He appears to have distributed the seeds and plants with great liberality in his more immediate neighbourhood. Those on the grounds of the late kind and hospitable Miss Byng at Twickenham were planted by him, and also those in a portion of ground at Petersham, lately added to Richmond Park. In further proof of this I will mention the following anecdote.

About thirty years ago, I chanced to pay a visit to Mr. Ord, one of the Masters of Chancery, who resided at Percy's Cross, near Fulham, in a house occupied by the present Lord Ravensworth. Mr. Ord was then ninety-four or ninety-five years of age. Observing a noble Cedar tree on his lawn, I mentioned

my admiration of it. "Sir," said he, "the seed from which that tree sprung up was given to me when I was very young by my father's friend, the great Duke of Argyle. I planted it with my own hands, and I have
-- lived to see it one of the largest Cedars in England."

This may give us some idea of the age of Cedars in this country, with reference to what we find in Hunter's Edition of Evelyn's Sylva. It is very
: certain, from what Evelyn says, that the Cedar of Lebanon was not cultivated in England in 1664, or one hundred and eighty-eight years ago. We think then that we may fairly suppose that this tree was not known generally in this country more than one
hundred and sixty or seventy years ago, and we
believe the girth of the largest, if fairly measured,
: is not more than twenty-three feet; while I have the authority of Dr. Keith, who measured it accurately himself, for saying, that the girth of the largest on Mount Lebanon was forty-four and a half feet round. The largest of those at Lord Pembroke's Seat, Wilton Abbey, measured in 1835 twenty-six feet four inches at *one foot* from the ground, which probably included the inequalities of roots. It is thought to have been one of the earliest planted in this country. Its age can only be guessed at, but it is *supposed* to have been planted about the year 1665.

The trees on Mount Lebanon are generally supposed by the Arabs to be the remains of the Forest that furnished timber for Solomon's Temple, more

than three thousand years ago. Two hundred years since there were twenty-five left; they are now reduced to seven, but these a recent traveller says are of so enormous a size, having an appearance so massive and imperishable, that it is easy to believe they actually existed in Biblical times. Burckhardt says that "the oldest trees are distinguished by having the foliage and small branches at the top only, and even seven trunks springing from one body." One enormous tree to the left is the one that Maundrell informs us he measured, and found it twelve yards and a half in girth, and thirty-seven yards in the spread of its boughs. At about five or six yards from the ground, it was divided into five limbs, each of which was equal to a great tree. This must be the one described to me by Dr. Keith, and, as Maundrell wrote in 1697, the tree had increased in girth about four feet from that year to the time Dr. Keith measured it in 1848.

I have referred to the sound of wind passing through different trees. The writer I have already quoted says that "to the fancy of the traveller, seated on the grey rock near the Cedars of Lebanon, there is something mysterious yet beautiful in the murmur of the wind through their recesses, like the wild tones of a harp, said to be touched by the hand of the distant dead, whose spirit is passing by. The hearer knows that he shall never listen to that sound again, in which there seems to be the voice of Eternity."

One would almost suppose that so stately a tree as

the Cedar would, like the oak, have an almost uniform shape in its growth, but this is not the case, excepting when planted in considerable numbers near each other; and then it has a straight naked trunk. — When planted singly with a sufficient space around it, it will frequently vary in its shape. For instance—there is a very noble Cedar at Bulstrode Park, near Uxbridge, which is remarkable for its peculiar manner of growth, for it has thrown out several limbs rising from the ground like a cluster of pillared branches. Its whole appearance is very striking.

Cedars not only produce a sublime effect when seen in masses, but the avenue of these trees at Dropmore, planted by the late Lord Grenville in his classic grounds, serves to prove how graceful and beautiful they become when seen in formal lines. There are now two hundred flourishing Cedars which form this fine avenue; and few things are more striking, as a sylvan view, than the sight of it on a smiling spring or summer day.

The Enfield Cedar, so well known to many of Dr. May's old scholars, must have been a noble tree. In the year 1835 it was sixty-four feet eight inches high, with a girth of nearly twenty feet. It would, however, be endless to endeavour to enumerate all the fine Cedars which may be met with in this country. The Cedar cannot be too extensively cultivated for it is equally graceful and ornamental.

There are numerous little circumstances connected with the study of Natural History, which are not yet explained; and it certainly affords me some degree of gratification and pleasure, when I have discovered any fresh facts which throw light upon them. Persons, who live much in the country, and are in the habit of making observations during their walks, must have seen, in the spring, numbers of the common Shrew-mouse lying dead in various directions. This circumstance has attracted the attention of many Naturalists, who, on making enquiries as to the cause of it amongst their poorer neighbours and labourers, have had it accounted for in a variety of ways. Some have asserted that Owls will kill, but not eat them, as the loins of the little animal have been found pinched as if by the beak of a bird. If this were the case, the wise and solemn Owl might justly be liable to a charge of wanton cruelty, to say nothing of its waste of time during its nocturnal flights. The fact, however, is that the Owl catches and feeds on the Shrew, as it does on any other mouse which comes in its way. Other persons have maintained that cats will kill this little quadruped, but that they always refuse to eat it, in consequence of a rank offensive smell which it is said to possess. I have, however, found dead Shrews far away from the haunts of cats, who may now be fairly exonerated, like the owl, from this charge. The very circumstance, however, of this mystery in the history of the Shrew, has given it a sort of importance

amongst country-people, even in the present day, and many will not only refuse to touch it, but even look upon it with dislike. They consider it to be venomous, and it was formerly thought that if it ran over a person's foot, he would become lame in consequence. Mr. White, in his History of Selborne, mentions a Shrew-ash tree, which, after having had a large hole bored in it, and a live Shrew-mouse plugged up in it, was thought to afford a remedy for the evils inflicted by this harmless animal. Its very name has been adopted as a term of reproach to a scolding woman, probably from the venom it was supposed to possess. Shakespeare, however, has now and then used it with terms of endearment —

Pretty Jessica, like a little Shrew.

Bless you, fair Shrew.

Wishing, however, to rescue this little quadruped from the odium which has, during so many ages, been attached to it, I am obliged to confess that it is a most pugnacious animal, and this pugnacity is the cause of the death of those we meet with in our walks, during the months of April and May. At this season of the year the males fight together, and I have examined several of those I have found dead. They were all males. I sent some also, to Mr. Gulliver, a friend whose researches into Natural History have been equally curious and indefatigable; and he discovered several livid spots about the neck and shoulders. This decisive fact will be sufficient to controvert the

various opinions, which have been brought forward, as to the frequent appearance of the dead Shrew.

It may be mentioned that this species is now ascertained not to be the *Sorex araneus* of Linnæus, but the *Sorex tetragonurus* of Continental authors.

In Suffolk this mouse is called the *rennie*; the name of *Shrew* is not at all known to the peasantry.

The Hedge-hog is another of those persecuted animals, which the superstitions of the vulgar and ignorant have denounced as injurious to man. These little inoffensive and patient animals are, therefore, killed without remorse, and nailed to trees and barns as trophies of the zeal and activity of their destroyers. They have been accused of sucking cows, of injuring their udders, and of other delinquencies, all of which accusations are equally erroneous. So far from being hurtful, they are beneficial to man, by feeding on slugs, snails, beetles and other insects, thus assisting in keeping down their numbers and preventing their becoming injurious in our fields and gardens. The Hedge-hog will also feed upon fruit, such as apples, crabs, &c., and I have reason to believe on blackberries. I have also been assured that it eats frogs and mice. It has been accused of sucking eggs, but I have never, after numerous enquiries, been able to procure a satisfactory proof that this was the case from any of the keepers in the Royal Parks, in most of which the Hedge-hog is plentiful. It will also feed on some roots, and Mr. White, in his history of Selborne,

mentions its eating those of the plantain in his garden. It remained however for Professor Buckland to introduce this animal in a new character — viz. that of a devourer of snakes. I first met with the account in Mr. Bell's history of British Quadrupeds, and it is thus agreeably related.

“Having occasion to suspect that Hedge-hogs, occasionally at least, preyed on Snakes, the Professor procured a common Snake, and also a Hedge-hog, and put them in a box together. Whether or not the former recognized its enemy was not apparent. It did not dart from the Hedge-hog, but kept creeping gently round the box. The Hedge-hog was rolled up, and did not appear to notice the Snake. The Professor then laid the Hedge-hog on the Snake with that part of the ball where the head and tail meet downwards, and touching it. The Snake proceeded to crawl — the Hedge-hog started, opened slightly, and seeing what was under it gave the Snake a hard bite, and instantly rolled itself up again. It soon opened a second, and again a third time, repeating the bite, and by the third bite the back of the Snake was broken. This done, the Hedge-hog stood by the Snake's side, and passed the whole body of the Snake successively through its jaws, cracking it, and breaking the bones at intervals of half an inch or more, by which operation the Snake was rendered motionless. The Hedge-hog then placed itself at the tip of the Snake's tail, and began to eat upwards, as one would

eat a radish, without interruption, but slowly, till half the Snake was devoured. The following morning the remaining half was also completely eaten up."

It is to be regretted that the size of the Snake was not mentioned, as we might then have judged of the extent of appetite of a Hedge-hog.

The Hedge-hog is readily tamed, and will become familiar and even affectionate, as is the case with most animals, when treated kindly. It is to be hoped that these facts may assist in rescuing it from the persecution to which it has so long been subjected.

The Mole, also, is another of those useful animals which the ignorance and prejudice of man has doomed to destruction, and against which he wages continual warfare. Such is the impression of the injury done by it, that in some parts of Somersetshire the farmers are in the habit of carrying a gun, when they walk in their fields, in case they should see the earth in the act of being turned up by the Moles; when this is the case, the farmer fires at the spot, and thus many Moles are killed in the course of the year.

So far from the Mole being an injurious, it is a most useful, animal to the farmer. The little hillocks it casts up are generally composed of a rich and fine mould, extremely beneficial to the land when spread, and this should be done daily, or as often as the molecasts are observed. A little boy may thus be profitably employed at a trifling expence. Young wheats, for instance, this sort of top-dressing invigorates, and

besides, the runs of the Mole beneath the surface are either so many channels to convey water to the roots, or they serve as drains to prevent too great an accumulation of it in one spot. There can be no doubt that if the mole-casts are suffered to remain too long unspread, the young grain or grasses must suffer from suffocation, but this is the fault of the farmer. There are also other benefits to be derived from the Mole. It devours not only immense quantities of the larvæ of the cockchaffer and of various flies and beetles, but also destroys the wire worm, and that so effectually, that few are to be found in localities frequented by this useful animal. When we consider the length of time the grub of the cockchaffer remains in the earth, before it assumes the shape of a perfect insect, and the destruction committed by it on the roots of plants, and when we hear, as we too often do, of the ravages of the wire-worm, we may wonder that the very instrument appointed by the Almighty to prevent those ravages, should itself be destroyed by man. I am glad however to find that in some places farmers are now beginning to admit the utility of the Mole, in consequence of their having experienced the good effects of its operations.

I noticed in a former work a fact relative to the economy of the Mole, which I have not seen mentioned by any writers upon this animal. I refer to a sort of basin which it makes, and which serves as a place of deposit for worms. MM. St. Hilaire, Le

Court and other French Naturalists, who have paid much attention to the habits of the Mole, have not noticed this circumstance. An intelligent mole-catcher, who has been employed by the Crown for many years in Richmond Park, was the first to inform me of this curious fact, which has since been confirmed to me by another mole-catcher. The clay-basin formed by the Mole will sometimes contain nearly a peck of worms. On examining them, each will be found to have been bitten near the head, and in such a way that it is not quite deprived of life. These basins appear to be formed in the winter, but to have the chief supply of worms deposited in them during the spring months. It has been suggested to me that as the young of the Mole are very tender and require considerable warmth, it is not improbable that the parents make this provision against the breeding season, in order to prevent the necessity of their quitting their young for any length of time in search of food. Should this be the case, it is a curious fact in the history of these animals.

The Owl is another animal, the utility of which is not sufficiently known, and it is, therefore, destroyed most recklessly by game-keepers and country people generally. Occasionally a more enlightened farmer may be met with, who, aware of the benefits he derives from this bird, will afford it admission into his barns; but this is not enough. Farmers generally, and the proprietors of land and manors should use

their influence for the careful protection of this nocturnal wanderer.

Mr. Waterton has ably and most agreeably advocated the cause of these interesting birds. Like himself, I have been a careful observer of them, and have also examined the places of their retreat. There pellets of mice may be seen in abundance, but I never found a feather, nor the slightest indication that birds of any kind, either old or young, had formed part of the prey of the Owl. The charge against this bird of its sucking eggs is equally erroneous. It lives in perfect harmony with pigeons in the dove-cot, who appear neither to fear nor to avoid it.

The Owl is a great favourite with me, and I like to see it flying softly and silently along the side of a hedge-row, or under a spreading oak, when

The Moon, in maiden beauty, walks the blue
And glorious canopy of crystal heaven,
In purity supreme.

There are few scenes in nature more beautiful than a moon-light night, especially, when the glorious luminary may be seen apparently wading amidst the clouds, which sometimes obscure it, and, as they hurry past, again bursting forth in all its beauty. The Owl, the night-jar, the flitting bat, and even the sullen hum of the beetle, add to the charm of this nocturnal scenery. How cold must that heart be, which is not then lifted up with love and gratitude to the Great Creator, who, amongst His other blessings, has placed

the moon as "an ornament in the high places of the Lord." Nor can we forget at such a moment Pope's beautiful description of this luminary in his translation of Homer.

As when the moon, refulgent lamp of night,
O'er heaven's clear azure spreads her sacred light ;
When not a breath disturbs the deep serene,
And not a cloud o'ercasts the solemn scene ;
Around her throne the vivid planets roll,
And stars unnumber'd gild the glowing pole ;
O'er the dark trees a yellower verdure shed,
And tip with silver ev'ry mountain's head ;
Then shine the vales, the rocks in prospect rise ;
A flood of glory bursts from all the skies ;
The conscious swains, rejoicing in the sight,
Eye the blue vault, and bless the useful light.

I have always much pleasure in watching the unwearying and indefatigable exertions of Swallows, Wag-tails, and other insectivorous birds, in providing food for their young. Were it not for the affection parents feel for their offspring, the present sources of happiness, as regards the human as well as the animal species, would be destroyed. In order to keep alive this feeling, two most powerful motives have been implanted in females. I mean those of love and pity. No sooner is the feeble and plaintive cry of distress of their young heard by the parent, than these two incentives are immediately called into action. Pity prompts the female to afford the necessary relief, and love

renders the task, however arduous, a pleasurable one. I never think of this interesting fact, without admiring that law of Nature, or rather of a beneficent Creator, who has thus provided for the wants of the young in their most helpless state, and thrown the shield of affection over them. What perseverance, anxiety, and courage are shewn by the parent in providing for and defending her young, and at the same time what an absence of all selfishness! When they are in danger, the most timid female becomes the bravest. Affection then appears in its strongest light. We may see a feeble bird, a timid quadruped, a little insect, sacrifice even life itself in defence of its young.

Let us regard a mother watching over a sick and helpless child, which requires all her care and attention. How delightfully has Providence smoothed the path of the parent in this case. Instead of anxiety, fatigue, and constant watching and attention becoming insupportable or irksome, we find that affection overcomes every difficulty, and that parental care is bestowed with cheerfulness and pleasure.

Charming, however, as the female character is thus shown to be, it possesses another quality which has not been referred to. I allude to that extraordinary tenderness and affection, which a mother generally shews to a deformed, diseased, or idiotic child. That this feeling has been implanted in her by a merciful Creator for a benevolent purpose cannot, I think, be doubted; nor can I imagine any being more wretched

than one, in any of the conditions I have mentioned, deserted by its mother, and deprived of her tenderness and care. Even some animals shew the same affection under almost similar circumstances. I have watched a little feeble bird on a lawn, which some accident or disorder has rendered weaker than the other nestlings, receiving the constant attentions of its mother, who hovered near it, and evidently brought food to it oftener than she did to her other young ones. I have noticed the same in the weakly fawn. When I resided on the border of Bushy Park, I had many opportunities of observing this and other instances of the great affection which exists between a Doe and her Fawn. The latter, when very young, hides itself amongst the fern, but on hearing the peculiar bleat of its dam, recognized from amongst many others, it quits its retreat, and is in an instant by her side. A scene of mutual affection then takes place. The Fawn rubs its head against the shoulder of its mother. The mother licks the fawn, then satisfies its hunger, and turns round and looks at it with an affection which cannot be mistaken.

Throughout nearly the whole of the Animal Creation, the care of rearing, feeding and protecting the young devolves on the female. She it is who hatches the young brood, and fosters them under her wings. In some cases, her indefatigable exertions procure the necessary supply of food. In others her milk nourishes them; but the same love and affection are to be

found in all. The Whale, amidst its agonies of pain and death, is said to attend to her young one with the utmost anxiety to the last moment of her life. If the young Whale has been wounded by the harpoon, after the mother has eluded it, the latter then becomes an easy prey to the whalers, as it is well known that nothing will induce her to desert her offspring: so strong is female affection.

I am furnished with another instance of this in my immediate neighbourhood. A number of school-boys, attended by their master, were wandering about the Great Park of Windsor, when one of them discovered a Black-bird's nest, with young ones in it, at some distance beyond the top of the Long Walk. He immediately made prize of it, and was conveying it homewards, when the cries of their young were heard by the old birds. Notwithstanding the presence and noise of so many boys, they did not desert their helpless offspring, but kept near them, for a distance of about three miles, flying from tree to tree, and uttering those distressed and wailing notes which are so peculiar in the Black-bird. This circumstance induced the boy to place the young birds in a cage, and he hung it outside of the house, which was close to the town of Windsor. Here they were fed regularly by their parents. As they grew up, the boy sold first one and then another, as he was able to procure customers for them, until they were all disposed of. The morning after the last bird was sold,

the female Black-bird was found dead beneath the cage in which her beloved offspring had been confined, as if she had been unable to survive their loss. So strong indeed is the attachment of these birds for their young, that a boy was struck violently on the head by one of them, while he had a young Black-bird in his hand, which he was taking from a nest.

The affection of animals is not confined entirely to their kind and offspring. A Clergyman informed me, that when he resided at Cambridge he had a young Stock-dove given to him, which soon became extremely attached to him. It roosted in an open cage in his hall, and always recognized, with great joy, his ring at the house-bell. As he had long journies to make, it was often late at night when he reached home. On these occasions, the instant he rang the bell the bird would descend from its cage, run along the hall with extended quivering wings, hop upon his shoulder, cooing, and fondling him with its wings, and exhibiting the utmost pleasure and delight.

The greater attention I pay to the various faculties, and what may be considered as the reasoning powers of animals, the more convinced I am that there is much yet to be learnt of the extent of those faculties. There is, no doubt, an intelligence to be observed in them of a most extraordinary nature, which is far beyond the result of mere instinct, and which, I cannot but think, ought to place them in a much higher scale than we

have hitherto allowed them to hold. It is, indeed, only by watching the various impulses of animals with constant attention, that we can arrive at the conclusion that many of them are in possession of a combination of wonderful impressions and ideas, far beyond those which we are too apt to suppose they derive only from natural instincts. Can we doubt that they are in possession of thought, memory, recollection, joy and sympathy, jealousy, gratitude, sense of injuries, with an aptitude to revenge them, fondness for praise, calculation of time, and many other impulses which might be enumerated? The science of intellect, however, in animals has been little cultivated and in consequence is little understood. In order to attain a more perfect knowledge of this interesting subject, we must compare their actions with those of man; and we shall then find that the difference, in many respects, is not so great as is generally supposed. A few examples will better illustrate the truth of these remarks; and in introducing them I may mention that although animals are not endowed with mental faculties equal to those of man, yet, in my opinion, some particular animals most certainly evince marks of the same faculties which are to be found in the human mind.

The kitchen door of a gentleman's house opens by a common latch, with an iron handle for the hand, exactly four feet from the ground. A Cat has been in the constant habit of springing from the ground to this handle, by which she hangs by one fore-foot,

while with the other she raises the latch, her body and hind legs dangling in the air. The latch being lifted, the Cat descends and pushes open the door. This feat she has performed so often as to become troublesome to the servants.

A nearly similar instance of sense occurred in the case of a favourite Cat which belonged to Mr. Sergeantson. When she was shut up in the counting-house, and wanted to be let out, she was in the habit of pulling at the bell rope, which always brought some one to her relief.

Now here are two instances of sense and calculation, arising from a prospect of future benefit to themselves, shewing these animals to be in some degree rational beings. Certainly, without some portion of reason, they would not have acted in the manner related.

A gentleman who held a high official appointment in Persia, related the following anecdote to me, proving that animals have some mode of holding communication with each other in a way of which we are at present ignorant.

Storks abound in Persia, and make their nests on old towers and ruins. One season a pair of these birds returned to their old haunt on the top of a building opposite one of the windows of my informant's residence, but they found it tenanted by a pair of Peafowl. The Storks tried in vain to dislodge the intruders, but the latter refused to give up possession. In this dilemma the unhappy Storks flew away, but

returned in two days accompanied by a large number of other Storks, who assisted effectually in ejecting the intruders. Having done this, they remained quietly near the spot to see that their friends were securely reinstated, and, having ascertained this to their satisfaction, they left them and returned to their own quarters.

I was much interested lately in reading an account of a Robin, whose nest, containing young ones, was attacked by a Snake. The loud cries of the bird attracted the attention of a man who was working near the spot, when he went immediately to its assistance and killed the Snake. When its adversary was dead, the robin showed its gratitude to the preserver of its young in every way in its power, at the same time flying now and then in a rage to peck at the dead Snake. Audubon, also, says, that when a Snake attacks the nests of birds a loud cry of alarm is raised, which attracts the attention of other birds, who join in attacking the Snake till he retreats.

Animals frequently take strange dislikes to individuals. One of my little Terriers is perfectly furious when one particular gentleman comes into my house, and to no one else. The excellent Clergyman of our parish assured me that, when he had a curacy in Cambridgeshire, he was attacked by a Swallow whenever he went into his garden for two or three successive days. The bird seemed furious at these times, flying close to his face, so that at last he became alarmed, and caused the Swallow to be killed. It is not easy to account for

this dislike, especially as the bird's nest was in the upper window of his house.

Not only, however, do they evince those faculties which are to be found in man, but many animals bear a strong resemblance in their looks to man himself, especially when we find a man debased by violent, licentious, or sordid habits. How often have I heard people exclaim, when walking round the Zoological Gardens, how like such a man is to that baboon or monkey, that pig, or goat, or owl. Again, savages who live in what may be called a state of nature, independent of cultivation, are possessed of many acute and extraordinary faculties, such indeed as are only to be found in animals which are not domesticated, thus showing another strong link between them. An animal is also apt to appreciate kindness, and often to return it with strong affection. A gentleman one day, while in his library in London, was disturbed by a strange Cat coming down the chimney, and jumping upon his knees as if to claim protection. It was much wounded, and covered with soot. The kind and benevolent man allowed the animal to remain on his lap, soothing it with his voice, and permitting it to clean itself and to lick its wounds. The Cat evidently came to find a friend, and she found one. The attachment was mutual. The Cat, followed her protector wherever he went, accompanied him into Italy and various other places, and lost that fondness for localities

which is so peculiar to these animals. The Cat, unlike many favourites, lived to a good old age.

A friend called upon me on the 11th of May, 1843, and asked me to accompany him to Eton College to see a curious Bird's-nest. We accordingly proceeded thither, and, having passed through the beautiful chapel, ascended the winding steps of the bell-tower or turret. After getting to a considerable height, our further progress was stopped by a sort of pillar built of sticks. The staircase was sufficiently lighted to afford complete observation of the proceedings of the birds, which I will now endeavour accurately to describe.

On the ledge of one of the narrow apertures for the admission of light, a pair of Jackdaws had built their nest. The ledge, however, was so narrow, that the nest had evidently an inclination inwards, and would probably without some support have fallen down upon the steps below. In order to obviate this difficulty, the birds had contrived the following ingenious method of supporting the nest. As the staircase was a spiral one, they began to make a pillar of sticks on that identical step, which alone would give them the best foundation for their intended work. Had they gone to the one above, or to the one below that which they had so sagaciously fixed upon, it was very evident that they would not have acquired that precise slope or angle for their pillar, which was necessary for the effectual support of the nest. It was the eighth step below the opening, and from it the pillar

was raised to a height of exactly ten feet, and was composed of a strong stack-like work of sticks. The nest then rested upon the top of it, and was perfectly secure. The labour, which these ingenious and industrious birds had bestowed in the collection of so large a mass of sticks, must have been enormous. One circumstance struck me as very curious. The entrance of the aperture in the wall was very narrow; the difficulty of conveying some of the larger sticks through it must have been consequently great. On examining the sticks, I found that each of them had been broken, or rather cracked, exactly in the centre, so that they could be doubled up. They were thus also the better adapted for the construction of the stack in a compact form. The accompanying sketch,* for which I am indebted to the kindness of a lady at Eton, will perhaps give a better idea of the position of the nest and the pillar of sticks, than my description of them. I should add that the birds were occupied during seventeen days in the performance of their laborious task. It was much to be regretted that the eager curiosity of so many persons to see the architecture of these indefatigable birds, and the circumstance of the nest having been roughly handled by some incautious visitor, occasioned the architects to abandon their labours, and to seek for some more secure retreat, in which they could hatch their eggs, and bring up their young.

* See Frontispiece.

The above circumstantial account, of what I cannot but consider a curious fact in Natural History, appears to me to prove the possession by these birds of a faculty of the same kind, as that which in its higher degree we call *Reason*. Before this opinion is condemned, the instinctive habits of these birds should be duly considered. Their most usual places for building their nests are holes in trees, in the towers of churches or old buildings, and amongst high cliffs. They have also been known, in districts where trees are scarce, to build under ground in rabbit burrows. Now with these habits, which are their natural and instinctive ones, the deviation from them, as in the present instance, shews a faculty of forethought, reflection, plan and contrivance, which could not have been derived from mere instinct. If this is admitted, the possession of reasoning faculties must be allowed.

A friend of mine had a brother, a rigid Roman Catholic, who resided a few miles from his house. He kept the forty days of Lent with the utmost strictness, so that but little was to be found in his house during that period except fish, eggs, and vegetables. He had a favourite old Fox Hound, a parlour dog, who shewed his dislike to this fare by always coming to my friend's house during the season of Lent; and when it was over, he made his way back to his old master.

A beggar made his way into the court-yard of an

acquaintance of mine. One of the Dogs barked at and attempted to bite him, and the beggar struck at him with his stick several times. On the servant making his appearance, the Dog ceased barking, and, watching his opportunity, got behind the beggar, snatched the stick from his hand, carried it into the road, and left it there.

I will now give an extract from a letter, sent to me by a respectable gentleman in Scotland, which would appear to prove that even fish are possessed of a reasoning faculty.

"I was ordered to take the cutter I commanded to Port Nessock, near Port Patrick. On landing, I was informed of Colonel Mc Dowell's sea-fish pond and went to look at it. On arriving, I fed the large Cod out of my hand from some mussels which I had in a basin. I purposely, however, retained one mussel in the basin, and offered it to the Cod in order to see how, with its broad mouth and short tongue, it would reach it. The Cod blew into the basin (a small slop basin) and the reaction forced the mussel out of it, and the Cod seized it immediately. This fish allowed me to pat it on the back, and rested its head on the stone upon which I was standing, just like a dog. The other fish came to me and fed on the mussels I threw to them, but would not let me handle them, though I patted some of them."

The late amiable and excellent Sir Herbert Taylor informed me of the following fact.

When he resided at Fan Grove, near Chertsey, in Surrey, he had a Cow which was in the constant habit of turning the handle of a turnip-slicer, when the hopper had any turnips in it. The Cow would then feed on the turnips which had dropped out. When these were consumed, she would turn the handle again.

An old coach-dog, belonging to a lady of my acquaintance, was so perfectly aware of the pace he would have to go when she used her four horses, that, when he got old, as he could not keep up with them, he never went out except when a pair only was used.

The late Duke of Hamilton had a favourite Bull Dog, called Dumplin, who was in the habit for some years of accompanying the Duke in his carriage to Hamilton. While he was still very healthy, and far from an old dog, a younger favourite was selected as the companion of the Duke, and Dumplin was left behind. The dog saw his rival get into the carriage and depart, and from that moment he became indifferent to his food, rejected it, and drooped and pined. The servants, in whose care he was left, sent for a dog-doctor, who, however, was not able to ascertain that anything was the matter with the poor animal. At last he enquired whether any unusual event had occurred, likely to occasion the state in which he found the dog. The servants then related the above circumstance of his not having been allowed

to accompany his master as usual. "Oh," exclaimed the doctor, "I can do nothing for him; the creature is broken-hearted, and will die." This proved to be the case. The poor affectionate animal died very shortly afterwards.

A friend of mine, who resided much on the Continent, had a fine Newfoundland Dog at his country-seat in England. On one of his occasional visits to this place, he was accompanied by a courier, who amused himself with the dog, teaching him to jump over a stick, to fetch logs of wood for the fire, and other tricks. During the absence of the master of the house, the dog was kept chained up in the yard, and the person left in charge of the house was ignorant of the dog's accomplishments. At the end of nearly four years, Mr. S. returned to England, and sent his courier to the house to await his arrival at it. The dog, on hearing the courier's voice, immediately recognized it, and shewed his delight in a manner not to be misunderstood. On being let loose, he began to jump as he had formerly been taught to do; and on the courier's seating himself by the kitchen fire, the Dog went into the yard, without any signal whatever having been given, and brought log after log of wood, and deposited them at the feet of his former instructor; thus shewing the retentiveness of his memory after so long a period of time.

A family of my acquaintance, whose strictness in the observance of the Sunday is carried to a more

than usual extent, have three Dogs, which are turned out every morning into the garden, where they frisk and bark about during six days of the week. On the Sunday, however, the case is very different. The dogs are trained to complete silence on that day, of the arrival of which they seem perfectly aware. Not a sound is then heard, or a gambol seen, under an evident consciousness that their usual sports would subject them to reprehension.

A Rat, caught in a trap by the leg, has not only been known to extricate itself by gnawing off the leg, but a well-authenticated fact has been communicated to me, of another rat having been seen endeavouring to extricate his captured companion.

A boy lately got up to a Squirrel's drey, in a tree in Windsor Great Park; and, finding the young in it only just born, he left it, intending to come when they were older and secure them. On going to it a second time, he found the drey empty. The old Squirrels had taken the alarm, and removed their young to a drey, which they had constructed in a tree at some distance.

The late Earl of Thanet was in the habit of removing, every year, with his hunters and hounds, from Hothfield, near Ashford in Kent, to another seat he had in Westmoreland. A short time previous to one of these removals, a Fox had been run to earth near Hothfield; and, upon being dug out, it proved to be of so extraordinary a size, that Lord Thanet directed

it to be conveyed to Westmoreland. In the course of the next season, a fox was run to earth again at Hothfield, and, upon its being dug out, the huntsman, whippers-in, and the earth-stoppers, all declared that it was the same fox which had been taken into Westmoreland, as it had an unusually large white blaze on its forehead. Lord Thanet was exceedingly energetic in his expressions of disbelief of the statement of his people, but they persisted in their assertions; and having ear-marked the fox, it was again taken into Westmoreland, and turned loose in the neighbourhood of Appleby Castle. In hunting the next season at Hothfield, a fox was killed at that place, which proved to be the one in question, and which had thus twice found his way from Westmoreland into Kent. By what instinct or exertions of its faculties the animal was enabled to do this, the distance from one place to the other being upwards of three hundred miles, it is not easy to form an idea. Its well-known cunning would, one would suppose, be of little avail in such an emergency, except in enabling it to procure food.

The following fact, the accuracy of which may readily be ascertained, shews not only reflection approaching to reason, but a kindness of disposition and a degree of humanity, which many persons will not give animals credit for. The Earl of Albemarle has a very fine breed of black and tan Spaniels remarkable for their beauty and intelligence; one of

these died in bringing forth a litter of puppies. The cries of these blind and helpless animals excited the sympathy of a young bitch of the same breed, who never had had any puppies herself. She fostered them as if she had been their mother, and, to the surprize of every one, she had a flow of milk after a short time, which enabled her to support and bring up her charge. This extraordinary fact, which I witnessed myself, cannot be said to have been occasioned by mere instinct. Here was an absence of that *notus odor*, which enables an animal to distinguish its own young from those of others. There was an absence, also, of that supply of milk, the pressure of which makes the suckling their young so delightful to animals, and which, perhaps, is the primary cause of the great affection they have for them. To what, then, shall we attribute the extraordinary care and affection shewn by one poor animal for the offspring of another? Surely the usually defined bounds of instinct were exceeded, and a reasoning faculty was evidently demonstrated.

It is always pleasing to witness the affection shewn by animals for each other, when in a state of distress or destitution. Thus should an Ewe chance to die in bringing forth her young, the plaintive cries of the helpless lamb will often excite the pity of other Ewes, who will allow it to receive nourishment from their own udders. Sparrows have also been known to feed the helpless young of other birds.

When we examine the habits of birds, we shall generally find that instinct guides them to conceal their nests, or to cover them with substances closely assimilating to surrounding objects. When, however, we see these general habits departed from,—when we see the external appearance of a nest completely altered after it has been discovered, or curious devices resorted to in order to conceal it, a certain degree of reason may be perceived to have guided the birds in these operations. Nor is the reasoning faculty of some insects less wonderful. I do not refer to Wasps, who, extraordinary as is the fact, thrust a caterpillar into a cell previously made, and then deposit an egg upon it, which serves not only to bring the egg to maturity by its moisture, but also for the future wasp to feed upon; nor to the curious economy of Bees and Ants, partaking as it does of contrivances, plans, and internal arrangements, which have both surprized and attracted the attention of the observers of Nature in all ages. But when we find Bees building regular fortifications before the entrance of their hives, or witness that power of communication which Ants possess by means of their antennæ, through which their wants and wishes are made known to each other, we must confess that there is something beyond mere instinct that influences their operations.

I might multiply examples to a great extent in order to prove the existence of a reasoning faculty in the animal creation. But enough has been said to

illustrate my theory, and I will conclude these remarks with one or two instances of the affection of animals.

I have said that animals take strange dislikes to particular persons. A gentleman was travelling in Switzerland, and got acquainted with a person of pleasing manners, who called himself a Piedmontese Officer. They agreed to travel together, and arrived at a lonely inn where they were to sleep. My friend had an attached Irish Setter-dog who showed the greatest dislike to the Officer as soon as he was seated in the carriage. Nothing could stop the dog's low growls. At night he slept in his master's room, who was awakened in the middle of the night by a noise, and he then discovered that the dog had seized his fellow traveller, who, in his fright, acknowledged that he had entered the room for the purpose of robbing the Englishman of his purse.

A gentleman, who was confined to his bed by illness, had two Terriers much attached to him. If one of them left his room, the other always remained in it, so that these faithful animals watched their master during his illness, and never left him alone.

A Terrier and a Poodle dog were great friends. When the Terrier was absent, the Poodle would hide bones, and take the Terrier, when he returned, to the places where they were hidden.

A dog always slept at his master's bed-room door when he was from home, as if to guard his mistress, but this he did at no other time.

I might multiply examples of the habits of dogs, but I will now proceed to give one of a cat.

A Jay was lately introduced into the Lancashire Hospital for the purpose of amusing the patients in one of the wards. A Cat happened one day to come into the ward, with a mouse in her mouth. One of the attendants took the mouse from the Cat and gave it to the Jay, who pecked the fur from it and then eat it. The next day, to the surprize of every one, the Cat came into the ward with another mouse, went up to the Jay's cage, and gave it him, and continued to feed the Jay daily in the same manner for many weeks. At last the poor bird died, but for three days afterwards the Cat came to the cage with a mouse in her mouth.

A Cat, much attached to her master, always brought and laid at his feet the mice she had caught before she would eat them, and would only do so when they were given to her again by her master.

When the Melton Mowbray pack of hounds threw off on the Somerly side of Melton, or rather in the Somerly districts, they were followed for five years during their runs after foxes by a Magpie, which flew with the hounds, and was always in at the death, however long the distance. The bird was at last shot, to the great regret of the hunters. Some old Meltonians can still vouch for the accuracy of this curious anecdote.

A gentleman of my acquaintance had a young cock

Thrush brought to him early in the spring. It throve and did well. Later in the spring one of his sons placed a nest of helpless young Black-birds in the cage with the Thrush. The latter, as if aware that they required his care, fed and brought them all up.

A young Starling and a Kitten were brought up together in one of the houses of the Horse-shoe Cloisters, in Windsor Castle. The Starling was taken away by the maid-servant, when she left her place, but the Cat pined for her former companion, refused to eat, and soon died.

Amongst the eccentricities,—for I may well call them so,—of animals, few things are more curious than the fact that they are capable of judging of the effect which will be produced from certain causes. For instance, Mr. Marklone, the Governor of a prison in Gloucestershire, has, or rather had, a large Cat which always ran close to his side whenever he took his gun to shoot birds in his garden. No sooner had he fired, than the Cat hastened to secure what had been shot. She appeared delighted at the sight of a gun, evincing her pleasure by rubbing her sides against her master's legs, and by other modes not to be mistaken.

Animals which live in societies, appear to be possessed of stronger intellectual faculties than those which are not gregarious. Mr. Foster, in his *Southern Atlantic*, says that the Seal places three or four sentinels

in situations from which they can perceive and give warning of the approach of danger while their companions are asleep. The moment a boat makes its appearance, though it be a mile from the shore, these faithful watchmen promptly give the alarm, and all the troop plunge into the water, with the exception of a few females that have young ones to take care of. These will remain to defend and protect their charge until the last moment, when, if hard pressed, they will seize their pups by the back of the neck with their teeth, and dive into the surf, where they hold the heads of the pups above water, aware that they will be suffocated if they do not do so. Many of the males, also, will stand their ground, and fight very hard for the young Seals, often till they perish themselves.

In killing a female Seal, which happens to be with young, even in an advanced state of pregnancy, if the skull be pressed in by the sealing-club in dealing the fatal blow, an exactly similar indentation will often be found in the skull of the fœtus. Mr. Foster adds that there are hundreds of people ready to attest the truth of this fact.

I think that both Hares and Rabbits shew less affection for their young than any other animals. They visit them at night to suckle them when their milk becomes troublesome, but do not go near them at any other time. A Mouse, on the contrary, has been known to make its escape when its own life has been endangered, with one of its young in its mouth.

Hares and rabbits are very timid animals, and yet we see many timid animals defend their offspring with great courage.

The habits of Rats are very peculiar, and their cunning and precaution most extraordinary. A gentleman informs me of the following curious instance of this. He says that during the shooting season he attended himself to the feeding of his pointers and setters. They were fed in their kennels, the food being placed in a long trough. On one occasion when feeding the dogs, he looked into the kennel through a hole in the door, and was somewhat astonished, not at perceiving a number of Rats there, but at finding them in the trough quietly and fearlessly feeding with the dogs, who seemed to pay no attention to them. Determining to destroy the Rats, he placed the trough in such a position that a gun pointed through the hole would rake it from one end to the other. At the usual hour, the food was placed in the trough, but the dogs were kept out: not a Rat, however, would approach it. An old sagacious one was seen peering out at more than one hole, and from under the manger, for the purpose of reconnoitring, but none descended. After waiting for half an hour the dogs were let in, and in a few minutes the Rats were seen feeding with them as usual. It seems evident, therefore, that they considered their safety connected with the presence of the dogs, and that their suspicions were aroused by the absence of the latter.

But amongst the different habits of animals, little is known of those of Fish; and I will therefore here introduce a communication made to me by an observant Naturalist, residing near the sea in the West of England, on the curious habits of a small species of the *Blennius Pholis*. He informs me that on the 2nd of June 1847, a small specimen of this fish was brought to him from Exmouth, which he placed in sea water, where it remained quiet for several hours. At length it became restless, jumping and plunging as if it wished to throw itself out of the vessel. It then occurred to him that on a former occasion he had a *Gattoruginous Blenny*, which frequently got on a stone placed in a glass globe with *Serpulæ* and *Actinæ* (*Sea Anemone*). He therefore placed a piece of ironstone in the glass with the fish, when it immediately threw itself on it quite out of the water. My informant then went to the front of the house which has a view of the river Exe, and, as he expected, found it nearly low water. These fish are left by the receding tides on the rocks, sometimes in small pools, but frequently on seaweed, till the flood again sets them free. They feed on minute *crustaceæ* and marine plants.

Being aware that the flood-tide would make about ten o'clock that evening, my informant watched the fish till that time, when he was delighted to see it plunge into the water, and remain perfectly quiet. This wonderful exhibition of instinct as to the exact time is

most strange, as from the first of the ebb the fish appeared uneasy, until it had the stone to rest upon. In consequence of the high temperature of the room it would be more liable to suffer from dryness of the gills than on the wet weed and rocks; their construction, therefore, must be very different from that of fish in general. On leaving the water a perfect change of colour took place, the whole skin assuming a lighter tinge. Whilst in the water it was dark brown with deeper transverse bands; occasionally a tinge of green on the back. On being exposed to the air, it perceptibly changed to a light brown ground with dark blotches, and a regular series of white spots above and below the lateral line, the pectoral rays also being marked with alternate light and dark rings.

The Blenny fed freely on boiled rice, small bits of dressed meat, — always preferring white meat, such as chicken and rabbit, to beef — with occasionally a small earth-worm. This food was always taken from the hand; and when dinner was brought in, the fish became aware of it, and commenced striking the sides of the glass with its teeth. When satisfied, it turned and struck playfully with its tail, or rubbed against the fingers of the person who fed it. The change of colour was probably produced by the achromatic action of atmospheric air on the pores of the skin. During the winter months, although constant to its time

of tide, yet it did not remain so stationary, but was restless. In its natural state, perhaps, at this season, it seeks deep water for a greater degree of warmth.

A day or two before its death, which occurred on the 18th of April 1848, it appeared very uneasy, and it was thought that the water was not of the proper degree of saltness, as none could just then be procured from the sea. On opening it, however, after death, it was found to be a female and full of roe. It was therefore in probably too confined a space for the proper and regular performance of the great law of nature. For eleven months it had proved a constant source of amusement, as well as a correct indicator of the changing tides, so that my informant missed his little companion very much.

On a subsequent occasion he had two of these fish brought to him, and one of them afforded him a proof of the tenacity with which these creatures cling to life. They were placed in the same vessel, and on entering the room in the morning, one of them had been removed. A servant said that when he came to open the shutters, he had found it dead in the water floating on its back. It was suffered to remain several hours, as it was intended to preserve it. A large fly was flying around it, and at last settled on the head, and thrust its extremity into the gills to deposit its eggs. After driving the fly away, a full hour had elapsed, when on looking at the fish the gills were

seen to move. It was then thrown into the water, when it recovered and swam about as usual.

Of all the animals that the adventurous explorer of unknown and unhealthy regions has brought to the knowledge of the Naturalist and Philosopher at home, few have commanded less sympathy, or inspired more dread and disgust than the unwieldy, ungainly, ponderous, and formidable Hippopotamus. His huge head, set at once, and without the intervention of a neck, upon his broad carcase;—the wide gape exposing jaws beset with long and strong, sharp, curved tusks, of the densest ivory, shod with enamel which strikes fire with steel, like flint;—the fury of his attack when irritated, and the irresistible strength with which, suddenly rising beneath the boat or raft of the river-voyager, he crushes or staves in the bottom of the frail vessel;—the uniform accounts of his aversion and hostility to man;—all combine to prejudice the lover of the animal creation against this most ponderous and seemingly most stupid of Pachyderms. But the physiognomy of the "*River-horse*," does injustice to the innate qualities of both his head and heart, and he has, for the most part, hitherto been seen only under circumstances which engender feelings of dislike, hostility, or alarm.

The experiment, which would best put to the test the capacities of the Hippopotamus to develope any thing like affection and obedience towards man, has

for the first time been tried within the last few years; and the result has been to illustrate the Scriptural text that "all things can be and have been tamed of man."

The animal now being exhibited at the gardens of the London Zoological Society was captured when it was evidently not more than a few days old. It was then about the size of a calf, but lower and stouter in proportion to its length, and could be lifted by one man into a boat. The capture was made in the month of August 1849. The animal in August 1852 weighed upwards of two tons, or 4480 pounds. Its length from the muzzle to the root of the tail is ten feet, and the girth of the middle of the trunk is ten feet six inches.

Some of the circumstances connected with its capture illustrated that affection of the parent for her offspring, which is a redeeming feature in the psychology of the most ferocious, the most stupid, and the most untameable of animals.

The Nubian Soldiers who had been commanded by the Pacha of Egypt to procure and send down to Cairo a young living Hippopotamus, hunted along the most shaded banks, and least frequented parts of the White Nile for a female and her calf, for they were aware that the time for the bringing forth of the young was the month of July. They had killed several old Hippopotami without succeeding in capturing a young one; when towards the evening,

having mortally wounded a large animal, which from the minor development of the tusks they knew to be a female, they were struck by observing that instead of diving, after receiving the mortal wound, she endeavoured to make her way towards a small wooded island, evidently desirous of reaching it, but sank before she could gain the banks. This aroused the suspicions of the Nubians, and a party of them, headed by an intelligent Subaltern, named "Hamet," put off in a small raft boat to the island. The density of the shrubs and herbage at the steep banks made the landing difficult, but, when it was effected, they found in a snug, leafy hollow, where the branches and creepers had been trodden down into a thick elastic bed, an obese, smooth, and shining dark-coloured object, like a hydrocephalic corpulent hog, that had undergone the operation of scalding. The creature stared at them with a pair of protuberant juicy eyes, and uttered a short interrogative grunt. On the first step forwards made by one of the soldiers to seize the prize, the young animal instinctively sprang forwards; and, with a degree of agility for which they had not given it credit, it forced its way through the opposite brush-wood down the steep bank. Hamet, who had witnessed the movement, seized the boat-hook, ran to meet the young animal, and was in time to arrest its progress by striking the hook into its haunch, just as it was making its plunge into the stream. He seized, and bore it grunting

and snorting for its dam, to the boat, the burden being as much as his strength would permit him to carry, and the party then made off triumphantly with their prize. But how to nourish the young suckling?

Teeth, at that period, the broad gaping mouth shewed none; but it was fenced round by thick soft fleshy lips, the very model for effectually exhausting the loaded dugs of a teeming mother. The difficulty was summarily solved by the characteristic relations of the governors and governed in long enthralled Egypt. The boats of the party anchored opposite the first village, the milch-kine were driven down to the boats, their udders drained into a vast calabash, and this was speedily emptied by the hungry founding. The process was repeated at each village as the cortège descended the Nile towards Cairo, and the young Hippopotamus was finally left in excellent condition, and with the Pasha's compliments, at the court-yard gate of our active and excellent *Chargé d'Affaires*, the Honourable Charles Murray.

This gentleman kindly undertook to take charge of the young river-horse during the mild winter at Cairo, and to despatch it to England at the beginning of summer in the following year. It arrived safely at the Zoological Gardens in the Regent's Park in May 1850.

Mr. Murray, in undertaking the temporary charge of this infantile rarity, had very judiciously secured the services of Corporal Hamet, who had had the

more immediate care of it during the voyage down the Nile; and it was through Mr. Murray's recommendation that the Council of the Zoological Society made an offer of remuneration, which induced the intelligent soldier, with the Pasha's permission, to accompany his charge, to which he had become attached, to England. Special preparations were made in one of the Peninsular steam-boats, in order to afford the young Hippopotamus an occasional bath during his voyage, and his martial nurse's hammock was slung above the beast's snug sleeping-birth adjoining the bath. The attachment which the uncouth baby-pachyderm had already formed for its kind nurse now manifested itself in a characteristic manner. Hamet had slept close to his charge in the court-yard of Mr. Murray's house at Cairo, and the Hippopotamus objected to lying alone in his berth on board. It was not enough that the only creature who had been to the beast *in loco parentis*, should be near enough to talk to his charge, to coax, and encourage it with his voice; but the animal, finding that he could touch the hammock of his keeper with his back, when it stood upright, gave Mr. Hamet no cessation from bumps and nudges 'till he was fain to quit the hammock, and make his bed on the straw by the side of his importunate charge. The Hippopotamus, having gained his point, now slept soundly and quietly, and his attendant's hammock was given up during the rest of the voyage.

The public have now had ample means of judging

of the influence which the judicious and humane Nubian has obtained over his stupid-looking charge; and the docility of the Hippopotamus becomes the more striking and remarkable as he rapidly gains bulk, and begins to shew the formidable tusks with which, if he survives, his enormous mouth will be armed. Hamet can make the animal enter or quit his bath at command, and the signs of attachment of this specimen of a "*deforme genus*," as Capurnius called the Hippopotamus, are as touching as they are unmistakeable.

It was long before the young animal could be brought to bear the absence of his kind nurse and keeper during the night. For some months his food consisted wholly of new milk; and he drained daily three fine Alderney cows for his supply. In June 1851, when the animal was about two years old, the daily supply of milk had been reduced to six quarts, and he then consumed also four quarts of oatmeal, three stable-pailfuls of clover-chaff, bran and oats, with occasional carrots or vegetable marrow, and "many horse-dung," the latter having always been, according to Hamet, a favourite dainty with the young Hippopotamus.

In June 1852, the animal, whilst acquiring the dimensions and weight above described, had shed the deciduous incisive and canine teeth, and some of the deciduous grinders. The permanent tusks already begin to form characteristic features of the mighty

mouth; and the permanent incisive teeth, and two of the permanent grinders on each side of both jaws, have appeared. The health of the animal has been uniformly excellent. The judicious arrangements effected at the Zoological Gardens, under the directions and superintendence of the energetic Secretary, Mr. Mitchell, have hitherto tended to supply the animal with ample means of gratifying his proneness to enjoy the elements, land and water, and there seems every probability that the scientific Naturalist may be able to trace all the phenomena attending the acquisition of the mature characters of this rarest of living quadrupeds, and the public enjoy the spectacle of a male Hippopotamus of full size, and with all the features that render it the most uncouth and formidable looking of beasts.

It affords me much pleasure in acknowledging my obligations to my kind friend and neighbour, Professor Owen, for this interesting account of the Hippopotamus, of which we know so little from the days of Pliny to the present time. That the Behemoth of Job, is the Hippopotamus or River-horse of the present day, admits of but little doubt. Bochart, in his "*Hierozoicon*," or Account of the animals mentioned in Scripture, has taken great pains to prove this; and his arguments appear conclusive. The scenes described in the Book of Job are generally supposed to be laid in countries bordering on Egypt; and as the Elephant does not appear to have been

known in that country, the description as we find it in the Book of Job would not apply to that animal with the same probability that it does to the Hippopotamus, especially as the well known haunts of the latter are by the sides of the rivers. We may also state on the authority of Mr. Gordon Cumming, who had many opportunities of witnessing the fact, that this animal "eats grass as an ox," which is not the case with the Elephant.

Much has been written respecting the Song of Birds, some attributing it to one cause, and some to another. The following interesting and authentic anecdote may, perhaps, throw some light on the subject.

A gentleman of my acquaintance had an American Mocking-bird, in such health and vigour, that it was either constantly singing, or else imitating the various sounds it heard. In order to try the powers of this bird, its owner purchased a fine Sky-lark. When placed in the same room with the Mocking-bird, its song was heard to echo through the house, as if it were chaunting 'on fluttering wing' its well known welcome to the rising sun. The Mocking-bird was silent for some time, but at last burst forth in the strains of the 'aerial songster,' but louder and clearer, as if mounting and stretching its wings towards heaven. The Lark was silent from that moment, nor was a joyous note ever heard from it afterwards.

Wishing to test the powers of the Mocking-bird

still further, my friend purchased a Black-bird celebrated for its vocal powers. It was placed in the same room with the Mocking-bird; early on the second morning, its charming notes were warbled forth with all the sweetness and modulations, which may be heard in its native 'thorny brakes.' The Mocking-bird listened, and was silent for some time; then all at once he began to give forth the Blackbird's notes, but even sweeter and louder than those of the woodland songster. The poor Blackbird heard them, felt that it was conquered, remained silent, drooped, pined and died.

From the above facts, emulation would seem to be one of the exciting causes of the Song of Birds. When their powers are excelled, they appear to feel the disgrace of being conquered, and to lose all inclination to renew their former efforts. When the Nightingale first arrives, which is generally about the first week in April, it immediately begins to sing its song of love, in order to attract the notice of the female, whose appearance takes place sometimes three weeks after that of the male. At such time, two Nightingales may be heard pouring forth their delightful notes, both day and night, near each other. When a female arrives, a contest takes place for her; and when her choice has been made, the rejected bird quits the locality, and resumes its song in some other quarter. In this instance there is evident emulation, as if the loudest and most continuous songster had the best

chance of bearing off the prize. During the period of incubation, the song is neither so frequent nor so loud as before, and is certainly not an emulating one. We may fancy it the song of satisfaction and happiness, or as intended to cheer the female during the performance of her task, as well as to assure her of the presence of her faithful partner.

Caged birds may frequently be observed to sing from emulation, and this, I think, is the case with our charming Sedge-warbler. Whoever has passed along the river Thames on some silvery moon-lit night in summer, will have observed that the least noise has roused these warblers to pour forth their song on some of the little aits, each endeavouring to exceed the other in the loudness and continuity of it. A stone thrown amongst the willows, or the sudden splash of the oar near the ait, instantly causes them to sing with renewed energy. In the autumn, I have frequently observed two Robins singing like jealous rivals near each other, and then suddenly begin a fight, which often ends in the death of one of them.

Amongst our charming song-birds, I must not omit the Black-cap, which is, I think, quite on an equality with the Nightingale. Its song does not appear to be emulous, but, as Mr. White observes, it pours forth very sweet, but inward melody, and expresses a great variety of gentle modulations, superior, perhaps, to any of our warblers, the Nightingale excepted. Mr. Symes thought that its mellow notes are equal, if not

superior in richness of tone, to any in the Nightingale's song, and in this opinion I perfectly agree with him. Mr. Sweet says, that the Black-cap is a real Mocking-bird, imitating the note of any bird it chances to hear sing. Few people, indeed, are aware that many of our British birds may be so called. There is at this time a wild Starling to be seen and heard amongst the trees near the Cumberland Lodge gardens, which imitates the notes of the Blackbird, Thrush, and other birds, and also the hooting of an Owl. This he does so exactly, that persons thought an Owl was hooting in the day time, till the Starling was detected in the very act.

Starlings appear to congregate earlier in the Autumn than any other birds preparatory to migrating. They are extremely sociable in their disposition; and, when they quit the nest, keep together in families for a short time, and then join with others until they form the vast flocks we see in meadows. No birds appear to have so much *conversation*, if the term may be used, as Starlings, especially when they visit their roosting-places in the evening; they seem then to be congratulating each other with no small degree of satisfaction.

Blackbirds certainly may be called Mocking birds, and I have also heard a Jackdaw imitate noises he has heard. A friend of mine observed a young Jay in one of the aviaries in the Zoological Gardens, Regent's Park, warbling in a soft under-tone the song of the

Robin. This the bird continued to do for several minutes. It is probable that if more attention was paid to the notes of birds, which are suffered to remain unmolested about farm-yards and frequented places, many of them would be found to be imitative. It is clear, I think, from what has been stated, that love is not the only incentive of the Song in Birds.

I believe there is a dialect in the Songs of Birds. We know that local circumstances, or, to speak with more science, that a peculiar state or phase of mind where it is confined for some time to a particular district, or to a people who have little intercourse with others, creates peculiarities in verbal expression and pronunciation which constitute a dialect of the language out of which they arise; such as the nasal twang and sing-song of the Americans, and the similar tendencies of the people of Sydney.

The dialects prevailing in the different Counties of Great Britain, are some of them primarily to be traced to original differences of blood, and must not be taken to have been so coined; though the coinage may be modified from the same cause; but the Anglo-American tendencies of speech and manners have no apparent prototype anywhere.

Now the fact of the existence of such human provincialisms is so common, that it will not be questioned by anybody; it is likely, however, not only to be questioned, but denied, and the thing declared to be ridiculous, if it should be asserted that there are

dialects in the Songs of Birds. Nevertheless I assert in the most positive terms, that there are such dialects in the singing of Song Thrushes; that the song, for example, of a Thrush near London, or in any of the home Counties, has little resemblance, except in tone and specific character, to that of the same bird in Devonshire, or near Exeter.

The same notes, I suppose, will all of them be detected, but they are arranged for the most part into a different tune, and are not sung in the same way. They are given with different values, and the singing is pitched in a different key. One great distinction between the two cases is the number of guttural notes, of which the song of a Devonshire Thrush is often made up, but which near London are heard only at the end of a bar, or even much less frequently; while those chief notes, which mainly constitute the song of the other bird and make it so impressive, are rarely pronounced by the Devonshire Thrush.

It would, however, be ungracious to say whether the one bird sings better than the other; for a Song Thrush is everywhere a most beautiful creature, in voice as well as carriage and form.

A Thrush — I mean always a home-county Thrush, when I praise his singing — has the noblest and most manly voice of all our English birds. He has no exultation, as a Sky-lark has; nor any of the "ripe peach" tones of a friendly Robin, nor the passionate

emotion and rapture of a Nightingale; for he is not a passionate or a rapturous bird, and it is not his business to make love at that rate. But his notes are most rich, and deep, and touching, though they have not that peculiar richness which belongs exclusively to those of a Nightingale. The elevation of the singing of a Thrush, however, is far greater than that of a Nightingale; it is greater than we can imagine, if we do not think of it while we are listening to the earnestness and supplications of his full voice. Nor does he sing for his own sake, like a Nightingale; nor, though he is a most tender lover, does he spend himself like a Nightingale upon a short and fleeting fondness, and then remain silent for the rest of the year. He spreads his sympathies over a greater space, like one who is not always satisfied with a little — as the world with a little good — for his name is Great Heart; on which account it is, perhaps, that he is much alone. He is alone in the morning, for he sings before the Sun rises; and in the evening, for he also sings when other birds are gone to sleep. He is alone too in the middle of the day, under the trees or in the coppices, where it is dark and quiet; and out of which, when he is disturbed, he seems to fly as if we had disturbed him out of his quietness. His song is an oration upon which he is intent; he rehearses his matter and sets it forth; he is intellectual and powerful, and appeals to the understanding, and argues, and expostulates with his hearers — he pleads a cause! He is a Priest

who, at sunrise and sunset, goes up to the minarets of the temples of Nature and calls the people to come to prayers. He stands forth upon a high place where he can see and be seen, and cries with a loud voice, 'Hear! all ye people!' He will sing for five or six hours every day! and the last notes of his evening hymn will be as loud, and fresh, and clear, and pure, and in as perfect tune and time and melody, as when he began before it was light! That the voices of Birds should be affected by place and climate is as reasonable, if we reflect, as that their size and plumage should be modified, as we know that it is, by food and climate. Song Thrushes are migratory in some parts of Europe but remain with us throughout the year; and as to their singing, we know that young birds generally learn their songs from their parents, or from others of their own kind, to whom they listen while they are in the nest; but whether or not the dryness of the air is a necessary help to fine singing or a fine voice, it is not the less certain that the Thrushes about Exeter sing very differently from those near London.

There is a freshness, a repose, an indescribable enjoyment of solitude, on the banks of a clear and placid river, which a lover of nature can alone sufficiently appreciate. The air is so pure on a fine morning in the spring, so sweet as it passes through the snowy hawthorn bushes, the sloping hills are so varied with trees and flowers, and the meadows so fresh and gay, that

cold must that heart be, that does not enjoy such a spot. Those who have wandered on the banks of my favourite Avon, as it flows through the borders of the New Forest, and seen its clear and sparkling waters passing over the long and yielding rushes, which sometimes shew themselves above the surface, and then gently hide themselves as some dragonfly settles upon them—those that have watched the graceful bendings of the stream, sometimes opening into shallow *broads* covered with ephemeræ, and then narrowing into deeper and more rapid channels, will have experienced the quiet enjoyment of the scenery of one of our most beautiful Rivers.

"The English, perhaps, more than any other nation, are capable of appreciating the charms of nature, and those thousand beauties which are to be found in our little sequestered dells, and in the smiling valleys through which many of our pretty streamlets find their way. The satisfaction and complacency, which arise from a contemplation of the beauties of the works of Creation,—our walks in verdant fields and shady woods,—the song of birds, and the calmness and stillness of nature in her more retired spots, all these have been dwelt upon and described both by Naturalists and Poets. It is indeed impossible to witness the fertility of the earth, and to view the order and economy which pervade all nature, without feelings of delight and gratification.

Amongst those who found 'Books in the running

brooks,' was Izaak Walton. He, perhaps, more than any other writer, appreciated the delight of strolling on the banks of a river. His charming Pastoral is a proof of this, and we are convinced that he merely made Angling a secondary consideration in describing those scenes in which he so much delighted. While he amuses, he at the same time instructs his readers; and his fervent and unaffected piety, the simplicity of his taste, the benevolence of his mind, and the contentedness of his spirit, are apparent in all he thought, and in all he wrote. No lover of the rod can find himself on the banks of a river, without thinking of Walton. His name is so connected with Anglers and Angling, that they have become inseparable. The charge of a want of humanity has been brought against him, and from this we would willingly rescue him. We must, however, endeavour to do it at the expense of his piscatory skill, which some of his honest disciples will, perhaps, think an act of treason.

In expressing an opinion that Walton did not deserve the name of an Angler, in the modern acceptance of the word, we know that we shall excite the astonishment of many of his admirers. We must, however, honestly avow our conviction, that our "good father" was almost as ignorant of the mystery of fishing, as the contented-looking Cockneys that may occasionally be seen every summer dozing in a punt near Richmond Bridge. The old Cromwellian trooper, Richard Franck, was probably right when he hinted

that Walton had derived his knowledge of fishing from "antiquated authors and mouldy records." We chance to have a few of these "mouldy records" in our possession, on which we set no little store; and on looking into some of them, we are bound to admit that many of the hints given by Piscator to his "honest disciple," have been taken from these rare "treatyses of fysshynge." It is evident, that his own skill in the art consisted in watching his float, as it glided gently down one of the pretty streams he has so delightfully described; while his hints and instructions to Anglers were derived from those who had preceded him in piscatory lore. Indeed Walton appears to have copied from others with but little discrimination, and an evident ignorance of the art he professes to teach. This is apparent in several of the instructions given to his disciple, Venator; and it is evident, also, that his contemporary, Richard Franck, thought that they were compiled from authorities, which were anything but authentic. The very serious charge of cruelty brought against Walton is founded on the instructions he gives his scholar, for baiting a hook with a live frog, in which he tells him to "use him as though he loved him, that he may live the longer." In looking through some of our ancient Books on the Art of Angling, similar instructions may be found. In one of them a recommendation is given to attach the frog by a string to the leg of "a goose's foot," in order to "see good halynge whether the goose or the pyke shall have the

better." Another authority, speaking of the best bait for a Pike, says "but the yellow frog, of all frogs, brings him to hand, for that's his dainty and select diet, wherein nature has placed such magical charms, that all his powers can never resist them, if fastened on the hook with that exactness, *that his life may shine*, and the bait seem undeprived of natural motion."

That Walton copied implicitly from others, without practising what he recommends, is evident, as, if he were a fisherman at all, he was what is called in modern times a ground-bait Angler. Sir Henry Wotton, while he was himself employed in fly-fishing, apostrophized his companion thus:—

There stood my friend with patient skill,
Attending to his trembling quill.

Independently of this, however, we may refer to the whole tenor of Walton's life and writings as sufficient to contradict the charge of cruelty, which has been brought against him. The age in which he lived was not one of very great refinement, and the custom of fishing for pike with a live frog was probably a very prevalent one at the time he wrote his "Complete Angler." The simplicity and innocence of our "good father's" character are, however, the best proofs, which can be brought forward of the kindness of his heart, and the tenderness of his disposition.

But, as has been remarked, it would appear, that the "gentle art of Angling" was only a secondary consideration with Walton, or rather a vehicle to introduce

his beautiful descriptions of the country, and to prove that pure religion proceeds from a meek, cheerful, and thankful spirit. Indeed, the charm of his book consists in his taste for the innocent pleasures of rural life, and in his fervent and unaffected piety. The contemplation of the works of Creation not only afforded to Walton, as it must to every good man, the certainty of a benevolent and superintending Providence, but it furnished him with an endless theme for praise and admiration.

It is a curious fact, that Walton had attained his sixtieth year before he published his "Complete Angler," although it is written with all the freshness and vivacity of youth. Sir Harris Nicolas has well remarked that, "whether considered as a treatise upon the Art of Angling, or a beautiful Pastoral, abounding in exquisite scenery, in sentiments of the purest morality, and in an unaffected love of the Creator and His works, it has long ranked amongst the most popular compositions in our language." It is, indeed, a delightful work, breathing the perfume of country air, and of the flowers in the windows of the cottages. The reader is charmed with the varied pictures of rural scenery, and the description of placid trout streams. Even the snatches of old songs have a peculiar interest, while the simplicity and kindness of heart of the author, and the manner in which the minute incidents he meets with are related, make us love as well as admire him. Even his dinners with his companions, at a village ale-house, are so well described, that we can

almost fancy that we see the party seated round their dish of fish, with a foaming tankard of ale by their side, and that we are listening to their harmless and amusing conversation. Walton, from the enjoyment of country air, and the prospect of country scenery, seemed to awake to a new life, which added a charm to his descriptions, from the very pleasure which they afforded him. The following is a beautiful passage on the Song of Birds.

“The Lark, when she means to rejoice, and cheer herself and those that hear her, quits the earth, and sings as she ascends higher into the air; and, having ended her heavenly employment, grows then mute and sad, to think she must descend to the dull earth, which she would not touch, but for necessity. How do the Blackbird and Throssel with their melodious voices bid welcome to the cheerful spring, and in their fixed months warble forth such ditties as no art or instrument can reach to! Nay, the smaller birds also do the like in their particular seasons, as, namely, the Laverock, the Tit-lark, the little Linnet, and the honest Robin, that loves mankind both alive and dead. But the Nightingale, another of my airy creatures, breathes such sweet loud music out of her little instrumental throat, that it might make mankind to think miracles are not ceased. He that at midnight, when the very labourer sleeps securely, should hear, as I have very often, the clear airs, the sweet discants, the natural rising and falling, the doubling and re-

doubling of her voice, might well be lifted above earth, and say, 'Lord, what music hast thou provided for the Saints in Heaven, when thou affordest sinful man such music on earth!' "

I have always considered this as one of the most exquisite descriptions in Walton's Angler. No one but a true lover of nature could have written it, and the impressive beauty of the concluding passage could only have been conceived by a good man.

Of the family of Swallows (*Hirundines*) there are four kinds found in our island. Three of them attach themselves to our dwellings, as if peculiarly solicitous for our welfare. This connexion seems so necessary to them, that in places not inhabited by man few Swallows are found, but they will attach themselves to houses as soon as they are erected. As a proof of this, I may mention that when the Hudson's Bay Company built houses in a remote part of North America, Swallows immediately came and even made their nests under a low verandah which went round the house, so familiar did they at once become with its inhabitants, who as they passed along nearly touched the nests.

The food of Swallows consists wholly of insects, and it is an interesting fact that the most diligent enquirer has never been able to discover that these birds injure in the slightest degree the productions of either the field or garden; and this can be said but of few

of the birds we are in the habit of seeing around us. It has, indeed, been asserted that they kill Bees. I have always had a large number of hives of these interesting insects in my garden, (at the present time I have thirty) and yet after incessant observation I have never had reason to suppose that any one of my Bees has been destroyed by a Swallow. I would willingly, therefore, endeavour to rescue these my favourite birds from such a charge. At the same time I am aware that Virgil, copying the Grecian writers, has brought such an accusation against them; but as far as this country is concerned this charge is groundless, and so I apprehend it is in every other. I wish I could say the same of Tit-mice. These birds, indeed, seize my Bees by their feet, peck them to death, and then feed on them, while the mouths of the Swallow tribe are by no means adapted to catch stinging insects with impunity. It is a curious fact, that so strong is the instinct implanted in some birds, that nothing will induce them to touch what may be injurious to them. For instance, I have given Flies to young Ducks soon after they were hatched, and they have greedily devoured them; but when I have placed Bees before them, they have looked at them with their little heads on one side, but have never touched them. Indeed the Bee-eater, and other birds that prey on Bees, have a long extended bill constructed for the purpose, very different from that of the Swallow.

In reflecting on the utility of the Swallow, we should

bear in mind that by destroying myriads of insects, as every single brood does in the course of a Summer, they defend us from much personal as well as domestic annoyance of Flies and Gnats, and, what is of infinitely more consequence, they keep down numbers of our minute enemies, who either in the grub or winged state would otherwise render the labour of the husbandman almost fruitless. Since, then, Swallows may be considered as the guardians of our fields, they should every where be protected by the same popular veneration which defends the Ibis in Egypt, the Stork in Holland, the Nightingale in Germany and Prussia, and, to some degree, the Robin in our own country. We certainly hear of more unproductive harvests on the Continent than in England, and it is well known that Swallows are caught and sold as food in the markets of France, Spain and Italy. When this practice has been very general, there can be little doubt that it has at times contributed to the scarcity of corn. In England, happily, we are not driven to such resources to supply our tables. But what excuse can be made for those who wantonly destroy Swallows under the idle pretence of improving their skill in shooting game? Setting aside the cruelty of starving whole nests of young by killing the parents, they who follow this barbarous diversion are doing a positive injury to the community at large. Indeed I am so impressed with the great utility of Swallows, that I will here repeat a suggestion I have formerly made. It is this. If

persons having hop-grounds would erect rough buildings in them with projecting eaves, affording facilities for Swallows to build under them, much of the blight from insects, of which great complaints are made, would not take place. Martins may be tempted to build round houses by fixing escallop shells convenient for their "pendent beds and procreant cradles," and it may always be a source of pleasure to observe with what caution the little architect will raise a buttress under each shell, before he ventures to form his nest on it. The utility of such a building as I have referred to would soon be sufficiently obvious, to say nothing of the pleasure the hop-grower would experience in seeing numerous Swallows flying over and along his hop-bines from morning to night, feeding on those insects which deprive him of the profits he might otherwise expect to derive from that fragrant and useful plant. I will give only one fact in order to illustrate what I have said on this subject.

A Clergyman informed me that, in an adjoining parish to his own, some young farmers formed themselves into a club for the purpose of practising shooting flying, and they exercised their skill on the Swallows which frequented their hop-grounds. The consequence was that the hops were covered with insects and altogether blighted. In my informant's parish Swallows were greatly encouraged, and the hop-grounds in it the same year were free from blight, and produced an abundant crop.

Let me hope that this attempt to rescue these charming and most intelligent birds from wanton destruction will not be altogether in vain, and that the practice in my own neighbourhood of persons going out in parties to shoot them on the Thames will be abandoned for more rational and less cruel amusements.

I recollect only one solitary complaint made against the Swallow, and that was by Anacreon, (Ode 12.) who indeed bitterly reproached that bird for disturbing him by its twittering while he was dozing away the intoxication of the preceding night. Yet had the poet been temperate, like Milton, he would with pleasure have arisen from his bed at the "charm of earliest birds."

With what joy did the Grecians welcome the return of the Swallow! This appears by the very ancient Carol preserved by Athenæus; and as that writer's works are not in the hands of many of my readers, I will give a translation of it by the Rev. Thomas White, a brother of the celebrated Gilbert White, to whom I am indebted for some of the preceding remarks respecting the Swallow.

It should be premised, that troops of Rhodian children, carrying about a Swallow, sang the Carol from door to door, and collected provisions in return.

"The Swallow! the Swallow! she does with her bring
Soft seasons, and all the delights of the Spring.
The Swallow — the Swallow — we're sure we are right,
For her back is all black, and her belly all white,

From your stores, ye good housewives, produce if you please,
Lumps of figs, jugs of wine, and some wheat and some cheese,
With some hen eggs the Swallow will well be content —
Must we go then, or shall we have any thing sent ?
We will not allow you to do as you choose,
To give or give not — to comply or refuse —
But will certainly take from its hinges the door,
Or bear off the good dame as she sits on the floor —
She is little and light, we can manage her sure.
Open — Open the door to the Swallow — for we
Are playful young children — not them — you may see."

When I was last at Paris, I saw women going about with numbers of Swallows in cages. I must confess I was sorry to see these joyous birds in a state of confinement. There is so much hilarity in all their movements, their song is so sweet, and they nestle with so much confidence about our houses, that I have always regarded them with peculiar affection and pleasure. These have not been lessened by the following account, for which I am indebted to the kindness of a Clergyman. I cannot do better than copy his own words.

"Some years ago, three young Swallows fell down one of the chimnies of my house. Their naked and helpless condition having excited the pity of my family, it was determined to endeavour to rear them. I, therefore, became their foster-parent. On rainy days they were fed with egg, and in sunny weather with various species of flies. I found it, however, a very difficult task to supply them with a suffi-

cient number. I could only do so by sweeping the heads of umbelliferous plants with my fly-net. All the Swallow tribe continue in their nests a very long time before they take their first flight; but I was anxious that my protégés should exercise their wings as soon as possible, and thus prepare themselves for emigration. I, therefore, threw them into the air as soon as I could do so prudently. At first they appeared much alarmed, and clung to the nearest object they could fasten upon; but in a few days they not only flew about, but caught their food expertly. Some time, however, elapsed before they could satisfy the cravings of appetite through their own exertions. This occasioned them frequently to appeal to me for assistance in a manner too intelligible to be mistaken. They would utter a plaintive cry in flying round me, and sometimes settle upon me. On these occasions I usually led to those places, where the *inula dysenterica* (asters) abounded, from the flowers of which I easily captured various species of flies in the hollow of my hand. It was truly amusing to observe the eagerness with which the movement of my hand was watched, and with what voracity the produce of my efforts was devoured. As soon as my birds could fly, an open basket, having a perch across it, was set apart for their use: here they rested by day and roosted at night. It was placed in the open air in the morning, and removed at night into the house.

"It often happened that my little charge had enjoyed two or three hours disporting before I was prepared to walk. I was, however, recognized and greeted as soon as I appeared; and whether I pursued the course of the roads, or rambled into the fields, they generally encircled me in their flight, sometimes resting upon me, or accepting a fly from my fingers. These amusing proceedings continued four or five weeks; but after that period, according to my wish, our intercourse diminished daily. They associated more and more with their congeners, who were collecting together as is usual at this period of the year, and were absent more frequently and for longer intervals; but, whenever or wherever they again appeared, they seldom failed to come to me when I summoned them by my call. Having disappeared for two or three days, I considered that our connexion was altogether dissolved; but as I was walking to an adjoining village, one of the birds gave me his wonted salutation in passing, and, on my invitation, perched on one of my fingers. In this position I conveyed it to the village green, and there, in the presence of several persons, cast it into the air, with some exclamation expressive of my wish for its welfare.

"I was often solicited to continue my interesting charge throughout the winter, but I had accomplished my object. I had promoted the enjoyment of existence. That was sufficient. By attempting more, and thwarting the demands of instinct, I should pro-

bably have terminated that happiness which had been the object of my care and interest."

Should the foregoing account chance to be read by any one, who has thoughtlessly been in the habit of destroying these useful and interesting birds, it will, I trust, induce him to forego a practice, which I have never witnessed without regret.

There appears to be scarcely any portion of the known world in which Swallows are not found, in certain seasons of the year. Everywhere their indefatigable exertions serve to keep down too great an increase of insects. They build in places where we should little expect to find their nests. While fishing lately in the neighbourhood of Dover, I discovered that a pair of Swallows had built under an arch-way of a paper mill, through which the water rushed with great force. The space between the water and the nest could not have been more than two feet, and yet the birds fearlessly conveyed food to their young, and again came forth to seek for more, at moments when the foaming stream appeared to fill up nearly the whole of the archway.

The migration of Swallows, the places of their resort, their sudden appearance and disappearance, are still involved in much mystery. It is to be regretted that travellers in different countries have not taken more notice of the habits of these interesting birds, as to their arrival and departure. In North and South America, the East and West Indies, the Cape of Good

Hope, and, in fact, in almost every part of the known world, the Swallow has its stated periods of migration and reappearance. There may certainly be some exceptions. An observant Naturalist has assured me that he has seen Swallows in this country every month of the year except January. I have seen them as late as the seventh of December.

Although I have only on one occasion seen the arrival of my favourite birds, I have several times witnessed their departure. The large old buildings, which are found in the neighbourhood of the river Thames, are much frequented by Swallows and Martins in the Autumn. Here they congregate in immense numbers, and also on the tops of the surrounding high trees, sometimes taking a flight as if by one consent, and then returning to the same spots again. At night they roost in countless numbers on the willows growing on the different aits or small islets in the river. Their final departure seems to depend on the state of the weather, but generally takes place towards the evening. They ascend to a considerable height, and soon afterwards not one is to be seen. That migratory birds are enabled to take their unerring flight during the night cannot be doubted. They neither require a star to guide nor a moon to light them; and yet they are enabled to traverse the trackless ocean to far distant countries, until they return to enliven us again with their presence.

The sight, indeed, of the first Swallow in Spring

always affords me peculiar pleasure. It is impossible not to feel an interest in all the tribe. They are the harbingers of fine weather after a dreary winter; and we are cheered with their melodious song, which has something in it so congenial to our feelings of pleasure, that poets in all ages have noticed it. If we watch a pair of window Swallows building their nest, we shall hear the notes of exulting satisfaction, which the little architects utter reciprocally as their work progresses. It is, however, when the young brood requires all their care that they are seen to most advantage. The most unremitting and indefatigable exertions are undergone from morning until night, in order to procure the necessary supply of food, which is always received by the young with notes of complacency and pleasure. A very short time is allowed to elapse between each visit of one or other of the parent Swallows to the nest, and then they depart

To hawk aloft, or skim along the flood,

To furnish their loquacious nest with food.

I am not sure, however, whether the habits of the little Sand-martin (*Hirundo niparia*) do not interest me more than those of the Swallow. They excavate their holes in sunny sand-banks with wonderful rapidity, and dart in and out of them in a way peculiarly pleasing, which I am never tired of watching. When the male and female are resting for a few moments in the recesses of their retreat, their gentle notes of love and affection may be heard, and then

they come out to resume their rapid and "amusive" flight.

The courage of the Swallow tribe, when the safety of their young is endangered by the approach of a prowling Cat, or a bird of prey, is quite extraordinary. Fearless of themselves, they will *mob* the intruder, until it is glad to make its escape. This propensity of the Swallow is turned to good account in some of the States of America. A Colonel of one of the Battalions of Foot-Guards informed me of the following curious fact. During a tour he had recently made in the State of Georgia and some other parts of America, he observed, in many farm-yards, a sort of small pigeon-house, fixed on a strong post, with the necessary feeding places. These were inhabited by a colony of Swallows, who were the guardians of the place, and their exertions were rewarded by a careful protection from every injury. The Vultures, which abound in those parts of the country, would commit great depredations on the Poultry in the farm-yard were it not for the prowess of these birds. No sooner does a Vulture appear, than he is instantly attacked by the whole colony of Swallows, who fly at his head with so much courage, and so unceasingly, uttering their wild screams all the time, that the marauder is glad to make a hasty retreat.

The idea that Swallows hide themselves during the winter at the bottom of rivers and lakes is still prevalent in some parts of England. When I was on

a visit at the house on the beautiful island on the Windermere Lake, I was informed, that a person in the neighbourhood of Grassmere Lake has seen Swallows emerging from it. Wishing to learn the particulars as a matter of curiosity, I requested the land agent of the gentleman, at whose house I was staying, to procure me all the particulars in his power. He informed me, that he knew the man who was stated to have seen the Swallows — that he bore a good character for honesty and credibility — and that he was as intelligent as most persons in his sphere of life, being a working carpenter.

A friend of mine preserved his game with more than usual strictness. His keepers had orders to destroy every Stoat, Weasel, Hawk, Owl, Magpie, or Jay, on his estate; and this was done to such a degree, that not one of these supposed marauders was to be met with in his preserves. The consequence was, that Rats and Mice infested his property, to an enormous extent. The former burrowed in his fields and hedge-rows like Rabbits, destroying the corn of his tenants, and feasting not only on the eggs of his Partridges and Pheasants, but also on the young birds when they were hatched. During the winter they committed serious depredations in the barns and stack-yards; and although every means has been resorted to in order to destroy them, they still continue to be a great annoyance.

A similar circumstance took place in the preserves at Kew, where the *vermin* have been destroyed. The Rats have become so numerous in the grounds of that place, that I have seen regular warrens of them. It is, I think, evident that had not their assumed enemies been destroyed, they would not have increased to the extent they have done.

Farmers are now beginning to discover that Rooks also, far from being injurious to them, are among their best friends. They destroy the Wire-worm in great quantities, as well as the grubs of Cockchafer, and those of the long-legged Gnat (*Tibula oleracea*) and other larvæ, which are very injurious to the roots of corn. A gentleman, who farms to a considerable extent, lately informed me, that in those parts of his farm which were most frequented by Pheasants, the Wire-worm was not to be found, while in other places his corn was nearly destroyed by that grub. The crops of Pheasants are sometimes found completely filled with them. Sparrows, also, although they will occasionally feed on the ripe corn in the autumn, are, during the rest of the year, most useful in destroying immense quantities of Caterpillars and other insects, of which there would be too great a redundancy except for these and other birds, as Green-linnets, Chaffinches, Titmice, &c. The Starling and Jackdaw may also be classed amongst the benefactors of the farmer. Owls, also, should be encouraged about farm buildings, as well as Weasels: they are more efficacious than Cats,

in preventing too great an increase of Rats and Mice. Even the loathsome Toad, as it is too generally considered, has its use. A friend of mine took seventeen earwigs from the maw of one of these reptiles; and there can be no doubt they destroy a great number of injurious insects.

Many people are apt, on perceiving some slight present injury, to wage war against various animals; forgetful or unmindful of the many advantages which it was intended we should derive from them. We read in the book of Ecclesiasticus —

“ Oh, how desirable are all His works. All these things live and remain for ever for all uses.”

But we may pursue this subject a little further. In rivers where there has been so great a destruction of fish that few are left, insects which are bred in the water abound so much on its surface at particular periods as almost to cover it.

In South America, where Ants are known to exist in immense quantities, provision has been made to keep them within due bounds, and yet to make them subservient to the uses for which they were created. In order to effect this, there are three species of Ant-Bears, which feed on these insects, and which are admirably furnished with the necessary means of doing so. The claws are long, strong, and curved, to enable them to scratch up the Ant-hills; the tongue is long, and at the root of it, according to Mr. Waterton, there are two very large glands, from which is emitted a

glutinous liquid. This liquid lubricates the tongue when it is put into the nest of the Ants, and they and their eggs stick to it. The Ant-Bear is provided with such a skin, that neither Ants, however large, nor even Dogs, are able to make any impression on it; and its fore-feet are remarkably strong and muscular. Should a great destruction of these useful and harmless animals take place, the Ants would probably become an intolerable nuisance. These animals range the forests fearlessly, as their great strength, and the peculiar toughness of their skin, with its covering, preserve them from the attacks of tigers or of the huge snakes of the country.

It is much to be regretted that farmers do not devote more time to the study of natural history. I am not speaking now of the pleasure it might afford them, but of the real utility to be derived from it. They would learn to distinguish and protect those animals which were evidently created for purposes beneficial to the agriculturist. They would become acquainted with the many species of the vegetable kingdom; and acquire knowledge of the qualities of objects connected with their farming occupation. The study must always produce good impressions, and tend to raise the mind from nature to the wise and benevolent Creator of all things.

There are breeds of wild Dogs still to be found, from among which individuals have been tamed and domesticated; but there has never been a case in which a wild Dog has been found to possess or been made to acquire the moral attributes of the domestic breed; as courage, attachment, fidelity, temper; and a Dog so bred is always marked by a peculiar appearance and manner, which are altogether different from those of a domestic Dog.

Again, domestic breeds of Dogs have been crossed with wild breeds, but there never has resulted from such crosses an animal that has been equal to the domestic breed, and the progeny has always partaken more of the wild Dog than of the tame. Animals and vegetables, when they are removed from a state of nature, become changed, as is the case with plants, by cultivation.

So Bees, if they are carried into climates where they can collect honey at all seasons, and where the temperature also is always high, will cease to accumulate honey in their hives; and domesticated animals and birds lose some of their wild habits and instincts, as well as some of their physical powers, in part or altogether.

In like manner plants that have been changed by cultivation, when they are placed again in a state of nature, resume those attributes that were changed or lost while they continued in a state of cultivation.

Tame bred horses under similar circumstances

become wild Horses; birds return to their original state, but go no further; they never degenerate from that state or lose their species; they never undergo a structural change. Therefore we are forbidden to suppose that domestic Dogs of any kind by returning to a state of nature, though they continued for ever to breed in that state, would undergo a structural change, or acquire the peculiar appearance and manners that belong to any of the existing breeds of wild Dogs, or lose their affection and attachment to man, their courage, fidelity, and temper: still less, that they would undergo so great a structural change as to acquire, like Wolves, oblique eyes; and become unable to bend the back in any direction as they did before.

Moreover, there are in many parts of the world cases where Dogs live in the neighbourhood of man without belonging to individual men; they live banded together in companies, and as they can, in cities and populous places; and breed in that state and become very numerous. But we never hear of such Dogs leaving the places where they so live, and the neighbourhood of man, and overrunning the adjacent country in packs, like Wolves.

Such Dogs also live upon offal food, and are often famished and even starved to death, but they never, in their hunger, attack the larger animals, and still less men, in packs or companies, as Wolves are known to do.

Therefore from the shewing of all these facts, we

are obliged to conclude that none of the breeds of domestic Dogs are the same as those of any existing breed of wild Dogs, and that they never had any thing to do with Wolves.

Buffon makes all domestic Dogs to originate from the Sheep-dog, but for a reason at which he arrived by a false process of arguing, viz.: because a Sheep-dog is superior in sagacity. For it can no more be affirmed that any existing Sheep-dog exhibits the character of the original animal, than that the now existing Sheep-dog is the same in all countries; and therefore there are no existing data of that kind, from which he could have argued. And it cannot be conceded that several other species of domestic Dog are not fully as sagacious as the most sagacious Sheep-dog; while it would be begging the question to affirm, that their sagacity is so great because it is so derived. And the similarity, besides, of the different breeds of domestic Dog, is not nearly so remarkable as that of the Tetraos, or, in fact, of any other genus of birds; and, therefore, we have far less reason to suppose that the different breeds of domestic Dogs originated in one species of Dog, than that the different species of any genus of birds originated in one species of that genus; as the Partridge from a Black-cock; or a Cock of the Wood from a Grouse.

There is still, however, great reason to suppose, that tamed Dogs of whatever species, which were first employed for any useful purpose, were employed as Sheep

or Shepherd's Dogs; because we are taught by history to conclude, that men were Shepherds before they were Hunters, and because the great use of a Dog in the operations of a Shepherd is suggested by his sagacity and obedience, and the instinctive fear of him which has been implanted in Sheep; a fear that never diminishes by experience, but operates equally upon Sheep of all ages.

The terror of Sheep at the bark of a Dog is so great, that when they have learned to associate it with a loud whistle, as they do when they have travelled in a drove, they will be terrified as much by the sound of a loud whistle, as by the loudest barking of a Dog; and run together when they are driven by a man who whistles like a drover, in the same way as when they are collected by a Dog.

There is finally, therefore, as little reason to suppose that all domestic Dogs originated from the same species, as that they originated from any existing species of wild Dog, or from Wolves.

Few facts and circumstances in natural history are more pleasing, than those which illustrate the attachment that animals shew to each other, or to those of the human race who are kind to them.

Every sportsman knows that the common Wood-pigeon (the Ring Dove) is one of the shyest birds we have; and so wild, that it is very difficult indeed to get within shot of it. This wild bird, however, has been

known to lay aside its usual habits. In the spring of 1839, some village boys brought two young Wood-pigeons taken from the nest to the parsonage house of a Clergyman in Gloucestershire, from whom I received the following anecdote. "They were bought from the boys merely to save their lives, and sent to an old woman near the parsonage to be bred up. She took great care of them, feeding them with peas, of which they are very fond. One of them died, but the other grew up, and was a fine bird. Its wings had not been cut; and as soon as it could fly, it was set at liberty. Such, however, was its recollection of the kindness it had received, that it would never quite leave the place. It would fly to great distances, and even associate with others of its own kind; but it never failed to come to the house twice a day to be fed. The peas were placed for it in the kitchen window. If the window was shut, it would tap with its beak till it was opened, then come in, eat its meal, and fly off again. If by any accident it could not then gain admittance, it would wait somewhere near, till the cook came out, when it would pitch on her shoulder, and go with her into the kitchen. What made this more extraordinary was, that the cook had not bred the bird up, and the old woman's cottage was at a little distance; but as she had no peas left, it came to the parsonage to be fed.

"This went on for some time, but the poor bird, having lost its fear of man, was exposed to constant danger from those who did not know it. It expe-

rienced the fate of most pets. A stranger saw it quietly sitting on a tree, and shot it, to the great regret of all its former friends."

One cold frosty spring morning, a Lamb, apparently dead, was brought into the kitchen of a gentleman in Nottinghamshire by his farming man. On being placed near the fire it revived, and eventually lived, and became a great pet in the family. It had the run of the house; took its walks with any of the members of the family; and, if a visit was paid, it would remain very quietly at the door till it was over. It was gentle and amiable, with one exception; it was of so jealous a disposition, that it could never tolerate any mark of favour shewn to any other four-footed creature; an instance of which I will give in the words of my correspondent:—

"We had a remarkably ugly, half-starved, Pointer-dog sent to us. He had a propensity to run away, and therefore was kept tied up. He was so ill-favoured, and so awkward and disagreeable in his habits and manners, that he was universally disliked, and, I fear, neglected. There was one beloved one of our family, who was always the friend of the friendless. The same kind and generous feeling which led her to seek out misery and relieve it, prompted her to notice this forlorn, neglected animal. She would carry him food, undo his chain, and run up and down the green with him till she was tired, and would then sit down upon the grass, out of breath and weary. This was the time

for the pet Lamb to shew his jealousy. He would run at them with his head, try to trample on them, and never rest till the Dog was tied up again, when he appeared perfectly satisfied.

“ When the Lamb was grown up, circumstances obliged us to change our residence. In removing to another house, the pet was left behind, under the care of a woman who had charge of the house. On missing its old friends, it went everywhere in search of them, and stood before the doors of the rooms in which it had been in the habit of finding us. It bleated most piteously; and at last went up stairs, and laid itself down at my bed-room door, as it had been accustomed to do before I was up in the morning. When the door was opened and it saw the empty room, it renewed its lamentations, and this it continued to do all the day. It ate nothing, and did nothing but moan and cry. Sometimes it would run about, as if a sudden thought had struck it, and a new hope had sprung up; and when it found it was a vain hope, and that it could not find us, it refused all food. Its bleatings were fainter and fainter,—it looked ill,—its eyes grew dim,—and soon afterwards it died.”

Affection will, indeed, overcome the strongest impulses of nature in animals. Thus a tame Doe has been known to swim a river, in order to follow a person who has treated it with kindness. And there are numerous instances, besides the one already related, of animals having refused food, and dying, when

the hand which had fed and caressed them was no longer to be met with.

An Arabian Horse was sent in 1841 to Her Majesty, and was safely left at the Royal Stables by a man who had the charge of it. After delivering up the Horse, he set off for Liverpool, in order to return to his own country. From the moment, however, of his departure, the Horse refused to eat, and shewed every symptom of misery. The cause of this was soon suspected, and the man was sent for from Liverpool. On his arriving at the Mews, the poor animal shewed the utmost joy and affection, and soon began to feed as usual. The care and kindness of the man was thus repaid by the noble animal with gratitude and love.

A ship recently foundered in a gale of wind, near Liverpool, and every soul perished. I have been assured, that a Newfoundland Dog was seen swimming near the place where the ship was lost, and at last came to the shore quite exhausted. He continued to do this for three days, swimming to the same spot, evidently in search of the body of his master.

The following instance of kindness and affection in a Dog recently took place in the neighbourhood of Windsor. It is so well authenticated, and affords so strong a proof of the kindly feeling of one animal towards another, that I have much pleasure in recording it.

A schoolmaster had a small Dog, which became much attached to a Kitten. They were in the habit

of associating together before the kitchen fire, sometimes sleeping, and sometimes playing. One day they were enjoying a comfortable nap, when the kettle boiled over and scalded the Dog, who ran away howling piteously. He had not gone very far, however, before he recollected his companion; he returned immediately, took up the Kitten in his mouth, and carried it to a place of safety.

Dogs soon become aware of any misfortune in the family to which they belong, and shew their sympathy in a variety of ways. Sometimes they lose their usual eagerness for food. At others they seem listless and unhappy, and their nature appears to have undergone some alteration. A lady in Lincolnshire died, who had two favourite Dogs. They were of the Mastiff breed, occasionally very savage, and much dreaded in consequence by every one. On the death of their mistress, the wife of the Clergyman of the parish went to see if she could be of any service to the other members of the family. After ringing at the bell and finding that no one answered it, she went, in great alarm for fear of the Dogs, to the back door, which she found open. Entering the kitchen, and seeing the two Dogs, she was about to retire, but the animals merely raised their heads, and laid them down again, without even uttering a growl, and she therefore proceeded. When the deceased was carried to the churchyard, one of the Dogs followed the corpse, and neither threats nor entreaties could drive it away.

Pope tells us that the chief Order of Denmark was instituted in memory of the fidelity of a Dog, named Wild-brat, to one of their Kings, who had been deserted by his subjects. He gave his new Order this motto,—“ Wild-brat was faithful.”

A poor woman in the north of England was in the habit of going about from one village to another, selling different little things for a livelihood, and was generally accompanied by a small Dog. When at home, the Dog usually slept with the woman's child in a cradle, and was much attached to it. The child fell ill and died, and, although the mother lived at Hawkshead, the infant was buried at Staveley. From distress of mind at the time, the poor woman took little notice of the Dog, but soon after the funeral it was missed, nor could any tidings be heard of it for a fortnight. When her wanderings were resumed, the mother happened to pass through Staveley, and with a mother's feelings went to take a mournful look at her child's grave. On going to it, she found to her great astonishment her lost Dog. It was lying in a deep hole which it had scratched for itself over the child's grave, probably hoping to get a little nearer to the object of its affection. It was in an emaciated state from hunger, but neither hunger, cold, nor privation had overcome its love, nor diminished the force of its attachment.

The following is an instance of the good sense of a Dog. A gentleman, whose usual place of residence is in the Island of Anglesea, came to London and brought a little Terrier-dog with him. It was his companion

night and day through the crowded streets of the Metropolis. Upon one occasion he had some business to transact at the bank of Messrs. Drummonds, and during the time he was there the Dog lay at his feet by the side of the counter. In the course of his further walk, it was lost, but its master on returning to Messrs. Drummonds' found the Dog there, on the same spot it had previously occupied, it being the only house, which its master and itself had entered together that morning.

A butcher in North Wales was drowned, in consequence of his horse having plunged and thrown him, whilst endeavouring to cross a river, which had been swollen by the rain. His faithful Dog, who had accompanied him all the day, followed the body as it sank, and, seizing the collar of the coat with his teeth, brought the body to the side of the stream. Raising the head above the water, he held it firmly there during the whole of an inclement night. When discovered in the morning, the faithful animal was half immersed in water, and shivering with cold, but still engaged in its affectionate endeavours to save the master it loved. How deeply it is to be regretted, that such noble and faithful creatures should be ever ill-used.

The following is another instance of the sense and fidelity of a Dog. An Officer, having dined out, was returning to his Barracks rather late in the evening, and rested himself on a large stone near the sea shore

where he shortly fell asleep. He was attended, very fortunately, by a small Dog. The tide came in very rapidly while he was in this situation, and the little animal appears to have been sensible of his master's danger. He set off to the mess-room of the Regiment, which was about a mile distant. On arriving at it, he exhibited the greatest signs of eagerness and distress, and pulled several of the Officers by their clothes. This behaviour of the Dog caused two or three of them to get up, upon which the animal appeared quite delighted, and kept running before them, turning every now and then to see if they followed him. Their curiosity being raised, they allowed the faithful creature to lead them to the spot where the Officer was still fast asleep, the tide having just reached his feet. Had they not arrived at the moment they did, their comrade must inevitably have been drowned.

Another interesting anecdote of the sense and affection of a Dog is mentioned by Mr. Backhouse, in his Visit to the Australian Colonies. The eldest son of a settler near Maitland, when between two and three years old, wandered into the bush and lost his way. The boy would probably have perished, but for a faithful Spaniel that followed him. At midnight the Dog came and scratched at the door of one of the servants' huts, and, when it was opened, ran back towards the place where the child was. A man followed the Dog, which led him to a considerable distance through a thick brush by the side of the river, where he found

the little boy, seated on the ground, but almost stiff from cold.

A waggoner, attended by his faithful Dog, attempted, while driving his team, to get upon one of the shafts of the waggon, but fell, and the wheels went over his head and killed him. The Dog swam across a river, as the quickest way of getting to the farm, where he used almost human means to prevail upon the workmen to go with him to render assistance to his unfortunate master.

These anecdotes may serve to prove, not only the sense and attachment of Dogs, but that when they have been educated by man and become his companion, they may almost be considered as rational animals. I was interested the other day in watching a flock of Sheep, attended by a drover and his Dog, as they were passing along a turnpike road. The man went into an ale-house by the road side, leaving his Dog to look after the Sheep. They spread themselves over the road and foot-path, some lying down and others feeding, while the Dog, faithful to his trust, watched them carefully. When any carriage passed along the road, or a person was seen on the foot-path, the Dog gently drove the sheep on one side to make a passage, and then resumed his station near the ale-house door. Those indeed who have travelled much at the time of the great fair of Weyhill, must have observed the sagacity of the drovers' dogs on the approach of a carriage. A passage is made for it through the most

numerous flocks of Sheep, in the readiest and most expert manner, without any signal from the drover. The fatigue that these Dogs must undergo is very great, and yet one sees them sidle up to their master after each exertion, and look at him, as if asking for his approbation of what they had done.

That Dogs are able to discover likenesses in pictures is undoubted. The following anecdote may serve to corroborate the fact.

Pearce, Bishop of Rochester, calling one day on Sir Godfrey Kneller at his country seat near Hounslow, was taken into his summer-house, where there was a whole length picture of Lady Kneller. It was much damaged and scratched at the feet, and the Bishop expressed a curiosity to know how it became so injured. Sir Godfrey said, it was owing to a favourite Dog of Lady Kneller's, who, having been accustomed to lie in her lap, scratched the picture in that manner in order to be taken up. This made the Bishop mention, that Zeuxis painted a bunch of grapes upon a boy's head so naturally, that a bird pecked at them. "If the boy," said Sir Godfrey, "had been painted as naturally as the grapes, the bird would not have ventured to come near them."

● The sense of Dogs is sometimes developed at an early age. A neighbour of mine had a Spaniel puppy, about six months old, which two ladies of his acquaintance undertook the care of. The Dog had his food given him in a cup, which was always kept in the

corner of the room for that purpose, and was fed while the worthy ladies were having their breakfast and tea. One day they forgot the Dog, being engaged in conversation, but to their surprise they saw him standing by the side of the table with the cup held in his mouth, evidently for the purpose of having something put into it. This he now continues to do regularly at every meal, and it is evident that there is a connexion of ideas between his wants and the means of having them supplied. It is impossible, in this instance, not to give the little animal credit for reflection, if not for some approach to reason.

The following anecdote, which is perfectly well known in the town in which the circumstance occurred, places the intelligence, kind feeling, and noble disposition of the Dog in a strong light, and quite equal to what has been recorded of the Elephant under nearly similar circumstances. A grocer in Worcester had a powerful Newfoundland Dog, which was reposing on the step of his door, when a sort of brewer's sledge was going rapidly down the hill leading to the bridge. Just as the sledge was passing the house, a little boy in crossing the street fell down in the way of the sledge, and would have been killed, had not the dog seen the danger, and, rushing forward, seized the boy in his mouth just in time to save his life, and deposited him on the foot-way uninjured.

Nor are Cats without strong feelings of affection. An old lady had a favourite Cat, which was much

petted by her. One day a young friend was staying with her, and, while sitting at the window of the drawing-room, she began playfully to pat the old lady. The Cat seeing what was going on, and probably supposing that her mistress was being ill-treated, crouched down with glaring eyes and swelling tail, and was evidently preparing to fly at the young lady, when fortunately her mistress saw the Cat just in time to prevent the assault, and it was with some difficulty driven from the room.

Instances of the local memory of Dogs, and their attachment to places where they have lived, are not uncommon, but the Cat is generally supposed to be an animal of an inferior developement of instinct and feelings. We, however, can mention a very singular example both of its fondness for the house where it was bred, and of the means, apparently beyond its power, which it took, when removed to a distance, to regain it. A medical gentleman residing at Saxmundham in Suffolk dined with a friend in the village of Grundisburgh, about twelve miles distant. Late in the evening he returned home; a young Cat had been given to him by his host, which was placed in a basket, and deposited in the boot of the phaeton. This shy, timid, little animal, for such is the Cat, and one quite unused to leave the precincts of its former habitation, three days subsequent to the journey was found, wet, tired, and covered with dirt, at the door of its former master's house at Grundisburgh; having by some instinctive

power, unaccountable to us, found its way from one place to another; assuredly not being guided by the sense of vision, nor the recollection of places, for the former journey had been performed in confinement and utter darkness.

Captain Fitzroy, in his very interesting narrative of his Surveying Voyage in the *Beagle*,—a work which shews the zeal, good sense, and kind feeling of that indefatigable Officer,—tells us that he profited much by observing the flight of Birds when out of sight of land. He thinks that land, especially small islands or reefs, may be discovered in consequence of watching the particular kinds of Birds, and noticing the direction in which they fly in the evening, about sunset. Thus, after a severe gale of wind, he was in doubt whether those remote islands, called the Keelings, were to the east or west. He was inclined to steer eastward, when a number of Gannets flew past the ship towards the west. He immediately steered after them, and early next morning saw the Keelings right a head. He says, that generally speaking, if there is land within fifty miles of a vessel, its existence will be indicated, and the direction in which to look for it will be pointed out, by Birds. He observed some Tern, however, about 120 miles from any known land, and this fact may help to shew within what limits the appearance of those Birds should be considered to indicate the vicinity of land.

The length and strength of the wings of those Birds which take long and frequent flights over the vast Ocean, their peculiar formation and adaptation to the climates and places they frequent, are subjects which must always interest not only the naturalist, but the Christian, who delights in beholding and enquiring into the ways of Providence, as evidenced in the works of Creation. It is one of those subjects which the human mind is, I think, called upon to investigate. It affords us the clearest view of a protecting Power, and of a wonderful arrangement in the organization of every thing, sufficient to stifle the doubts of a sceptic, and to fill the mind of a sincere believer with wonder and admiration. If the inferior works of Creation are so constantly under the care and guidance of a superintending Providence, how delightfully and confidently may the humble Christian, amidst the storms, and cares and anxieties of this life, look up to the same benevolent Hand for support, comfort, and assistance.

I was led into these reflections, by the perusal of a striking passage in Captain Fitzroy's narrative, already referred to. Speaking of the Galapagos Islands, all of which are of volcanic origin, and the lava, of which they are chiefly composed, excessively hard, he informs us, that all the small Birds found upon them have short beaks, very thick at the base, like those of a Bullfinch. This appears, he adds, to be one of those admirable provisions of Infinite Wisdom, by which each created thing is adapted to the place for which it was intended.

In picking up insects, or seeds, which lie on hard iron-like lava, the superiority of such beaks over delicate ones cannot be doubted; but there is, perhaps, a further object in their being so strong and wide. Colnett, in his Voyage to the South Seas, says, that he "observed an old bird in the act of supplying three young ones with drink, by squeezing the berry of a tree into their mouths. It was about the size of a pea, and contained a watery juice, of an acid, but not an unpleasant taste. The leaves of these trees absorb the copious dews which fall during the night; the birds then pierce them with their bills for the moisture they retain, and which, I believe, they also procure from the various plants and evergreens. The torch thistle contains a liquid in its heart, which the birds drank, when it was cut down. They sometimes even extracted it from the young trees, by piercing the trunks with their bills." It is evident that what are called soft-billed Birds would be unable to squeeze berries, and pierce woody fibres, or even leaves only; so that the peculiar formation of those referred to is one of those interesting facts, which serve to prove the directing hand of an all-wise Creator.

The public are greatly indebted to Mr. Gould for his researches in Natural History on the Australian Continent. The introduction he has made of so many new birds and quadrupeds into this country, and his observations on their peculiar habits and localities, must afford new pleasure to every lover of Nature. In

the first part of his splendid work on the Birds of Australia, in speaking of the Sacred Kingfisher (*Halcyon sanctus*) he informs us, that so far from its habits being similar to those of our own glittering bird of that species, it is frequently found in the most arid and dry situations, far distant from water. It appears that a supply of this element is not essential to its existence; and this is the case with many of the insectivorous Birds of Australia. From the localities in which this Kingfisher is found breeding, it must pass long periods without being able to obtain any water for itself or its young. Unlike our own Kingfisher, which seems to delight in moisture, it never plunges into the water, but it feeds on Lizards, Grasshoppers, and Caterpillars, and very small Snakes; the latter being killed by beating their heads against a stone or other hard substance. They are all swallowed whole, and the moisture of their bodies must supply the want of water. This is another instance of the adaptation of a creature to the peculiar situation in which it is found.

Mr. Gould also mentions some curious facts relating to the habits of the Wattled Talegalla (*Talegalla Lathamii*), which forms one of the numerous anomalies of Australia. This bird seems to be allied to the Gallinaceæ, the head having much of the appearance of that of the Turkey, while the body is shaped like those of our domestic fowls. Its bright yellow wattles and red neck give it a peculiar appearance. The feet are large and strong, and of a disproportionate size, and

the claws are slightly curved. We shall presently see the uses for which they are designed.

It is a remarkable fact, that this bird does not hatch its eggs by incubation. In order to effect this object, it assimilates in some degree to the practice of the Ostrich, yet upon a totally different principle. The Talegalla collects together an immense heap of decaying vegetable matter, as a depository for its eggs, and trusts to the heat engendered by the process of decomposition for the hatching them. Mr. Gould says, that the heap employed for this purpose is collected by the birds during several weeks previously to the period of laying; that it varies in mass from two to four cart-loads, and is of a perfectly pyramidal form. The construction of the mound is not the work of one pair of birds, but is effected by the united labours of several; the same site appears, from the great size and the entire decomposition of the lower part, to be resorted to for several years in succession; the birds adding a fresh supply of materials on each occasion, previously to laying their eggs.

The mode in which the materials composing these mounds are accumulated is singular, and proves the utility of their large and strong feet and claws. The bird never uses its bill in collecting materials for the nest, but always grasps a quantity in its foot, throwing it backwards to one common centre, and thus clearing the surface of the ground for a considerable distance so completely, that scarcely a leaf or a blade of grass is

left. The heap being accumulated, and time allowed for a sufficient heat to be generated, the eggs are deposited, not side by side, as is ordinarily the case, but at the distance of nine or twelve inches from each other, and buried at nearly an arm's depth perfectly upright, with the large end upwards; they are covered over as they are laid, and allowed to remain until hatched. Mr. Gould was informed both by natives, and settlers living near their haunts, that it is not an unusual event to obtain nearly a bushel of eggs at one time from a single heap. This fact would, perhaps, serve to prove that more than one female deposits her eggs in the same mound, as is the case with the Guinea-fowl; and the circumstance of the mound being formed by several birds would corroborate this supposition. Some of the natives state, that the females are constantly in the neighbourhood of the heap about the time the young are likely to be hatched, and frequently uncover and cover them up again, apparently for the purpose of assisting those that may have appeared; while others state that the eggs are merely deposited, and the young allowed to force their way unassisted. The upright position of the eggs tends to strengthen the opinion, that they are never disturbed after being deposited, as it is well known that the eggs of birds which are placed horizontally, are frequently turned during incubation.

There seems to be little doubt but that this very interesting bird might be domesticated. Its eggs are

said to be delicious eating, and they are much sought after. Mr. Gould adds that they are in the habit of resorting to the branches of trees, as a shelter from the mid-day sun, at which time they will allow a succession of shots to be fired at them, until they are all brought down. Unless some measure, therefore, is adopted for their preservation, this circumstance must lead to an early extinction of the race.

The habits of the Ocellated Leipoa (*Leipoa ocellata*) are equally curious. It is found in the little-explored regions of Australia, and its favourite habitat appears to be the barren sandy plains of the interior. It is a ground bird, never taking to a tree except when closely hunted. In examining its habits, it is most curious to observe how beautifully the means, employed by nature for the reproduction of the species, are adapted to the situations it is destined to inhabit. In its actions and manner it is very like the domestic fowl and about the same size. It deposits its eggs in a mound of sand, the formation of which is the work of both sexes. They scratch up the sand for many yards around, forming a mound of about three feet in height; the inside being constructed of alternate layers of dried leaves, grasses, &c.; amongst which the eggs are deposited to the number of twelve or upwards, and covered up by the birds as they lay them. The bird never sits upon the eggs, but when she has laid her number, the whole are covered up, after which the mound of sand resembles an Ant's nest. The eggs

are hatched by the heat of the sun's rays, the vegetable lining of the hillock retaining sufficient warmth during the night. The eggs are deposited in layers; no two being suffered to lie without a division. In opening the mounds, Ants are found almost as numerous as in an Ant-hill. These insects may not improbably add to the warmth, and serve as a ready supply of food for the young birds, when they get from their place of confinement. It is not a little extraordinary that they should be able to accomplish this, as in many instances it was found that the part of the mound, surrounding the lower portion of the eggs, had become so hard, that it was necessary to chip round them with a chisel in order to get them out. The inside of the mound is always hot. These nests are always found where the soil is dry and sandy, and so thickly wooded with a species of dwarf plant, (*Leptospermum*) that in straying from the native paths it is almost impossible to force a way through. In these close scrubby woods, small open glades occasionally occur, and here the bird constructs its nest, which is sometimes nine feet in diameter.

I am indebted to Mr. Gould for a description of the two birds abovementioned, but he has introduced a third of the same family still more interesting, called the "Mound-raising Megapode." (*Megapodius tumulus*.) The account is taken from Mr. Gilbert's Notes, which were communicated to Mr. Gould.

On Mr. Gilbert's arriving at Port Essington, his attention was attracted to numerous immense mounds of earth, which the natives informed him were made by the Jungle-fowl for the purpose of hatching its eggs. Aware that the eggs of the *Leipoa* were hatched in a similar manner, he determined to ascertain all he possibly could on the subject; and, having procured the assistance of a very intelligent native, who was acquainted with the places resorted to by the Jungle-fowl, he proceeded to Knocker's Bay, where he was informed a number of these birds were always to be seen. On landing beside a thicket he had not proceeded far from the shore, before a mound of sand and shells, with a slight mixture of black soil, was seen. The base rested on a sandy beach, only a few feet above high water-mark. It was enveloped in the large yellow-blossomed *Hibiscus*, was of a conical form, twenty feet in circumference at the base, and about five feet in height. On asking the native what it was, he replied, it was the Jungle-fowl's house or nest. On scrambling up the sides of it, a young bird was found in a hole about two feet deep. It was lying on some dry withered leaves, and appeared to be only a few days old. So far Mr. Gilbert was satisfied, that these mounds had some connexion with the bird's mode of incubation; but he was still sceptical as to the probability of these young birds ascending from so great a depth as the natives represented, and his suspicions were confirmed

by his being unable to induce the native, in this instance, to search for the eggs, his excuse being that "he knew it would be of no use, as he saw no traces of the old birds having recently been there." He took the greatest care of the young bird, intending to rear it if possible. It was placed in a box, having a large portion of sand in it. It fed rather freely on bruised Indian corn, but proved of so wild and intractable a disposition, that it would not reconcile itself to such close confinement, and effected its escape the third day. During the period it remained in captivity, it was incessantly occupied in scratching up the sand into heaps; and the rapidity, with which it threw the sand from one end of the box to the other, was quite surprising for so young and small a bird, its size not being larger than that of a small Quail. At night it was so restless, that he was constantly kept awake by the noise it made in its endeavours to escape. In scratching up the sand it used only one foot, and, having grasped a handful as it were, threw the sand behind it, with but little apparent exertion, and without shifting its standing position on the other leg. This habit seemed to be the result of an innate restless disposition, and a desire to use its powerful feet, and to have but little connexion with its feeding; for, while thus employed, it was never seen picking up any of the corn which was mixed with the sand.

On his next visit to Knocker's Bay, Mr. Gilbert

had the gratification of seeing two eggs taken from one of the mounds at a depth of six feet, it being one of the largest he had seen. In this instance, the holes ran down in an oblique direction from the centre towards the outer slope of the hillock; so that, although the eggs were six feet deep from the summit, they were only two or three feet from the side. The birds are said to lay only one egg in each hole, and after the egg is deposited, the earth is immediately thrown down lightly until the hole is filled up; the upper part of the mound is then smoothed and rounded over. It is easily known when a Jungle-fowl has been recently excavating, from the distinct impressions of its feet on the top and sides of the mound; the earth is so lightly thrown over, that with a slender stick the direction of the hole is readily detected; the ease or difficulty of thrusting the stick down indicating the length of time that may have elapsed since the bird's operations. Thus far it is easy enough; but to reach the eggs requires no little exertion and perseverance. The natives dig them up with their hands alone, and only make sufficient room to admit their bodies, and to throw out the earth between their legs; by grubbing with their fingers alone, they are enabled to follow the direction of the hole with greater certainty. This will, sometimes, at a depth of several feet, turn off abruptly at right angles; its direct course being obstructed by a clump of wood or some other impediment.

Their patience, however, is often put to severe trials. In the present instance, the native dug down six times, in succession, to a depth of at least six or seven feet without finding an egg, and at the last attempt came up in such a state of exhaustion that he refused to proceed. Mr. Gilbert was too much excited to relinquish this opportunity of verifying the statements of the natives. He, therefore, by the offer of an additional reward, induced him to try again. The seventh trial proved successful, when the native, with equal pride and satisfaction, held up an egg, and, after two or three more attempts, produced a second; thus proving how cautious Europeans should be in disregarding the narratives of these poor children of nature, because they appear extraordinary, or different from anything with which they were previously acquainted.

Mr. Gilbert revisited Knocker's Bay in February, and, having, with some difficulty, penetrated into a dense thicket of cane-like creeping plants, he suddenly found himself beside a mound of gigantic proportions. It was fifteen feet in height, and sixty in circumference at the base, the upper part being about a third less, and was entirely composed of the richest description of light vegetable mould; on the top were very recent marks of the bird's feet. Assisted by a native, he immediately set to work, and after an hour's extreme labour, rendered the more fatiguing from the excessive heat, and the tormenting attacks of myriads of Mosquitoes and Sand-flies, he succeeded in ob-

taining an egg from a depth of about five feet. It was in a perpendicular position, with the earth surrounding, and very lightly touching it on all sides, and without any other material to impart warmth, which in fact did not appear necessary, the mound being quite warm to the hands. The holes in this mound commenced at the outer end of the summit, and ran down obliquely towards the centre: their direction, therefore, is not uniform. Like the majority of other mounds, this was so enveloped in thickly-foliaged trees, as to preclude the possibility of the sun's rays penetrating to any part of it.

The mounds differ very much in their composition, form, and situation; most of those that were placed near the water's edge were formed of sand and shells, without a vestige of any other material, but some of them had a portion of soil and decaying wood. When constructed of this loose material, they are very irregular in outline, and often resemble a bank thrown up by a constant heavy surf. One remarkable specimen of this description, situated on the southern side of Knockers Bay, has the appearance of a bank from twenty-five or thirty feet in length, with an average height of five feet. Another, even more singular, is situated at the head of the harbour, and is composed entirely of pebbly iron-stone, resembling a confused heap of sifted gravel. This was dug into, to the depth of two or three feet, without any change of character being found. It might have been conical

originally, but was now without any regularity, and very extensive, covering a space of at least 150 feet in circumference. These remarkable specimens would, however, seem to be exceptions, as by far the greater number are entirely formed of light black vegetable soil, are of a conical form, and are situated in the densest thickets. Occasionally the mounds are met with in barren, rocky, and sandy situations, where not a particle of soil similar to that of which they are composed occurs for miles around. How the soil is procured in such situations is not a little wonderful, and almost unaccountable. It is said, that the parent birds bring it from a great distance; but as we have seen that they readily adapt themselves to the difference of situation, this is scarcely probable. It is, therefore, likely, that they collect dead leaves and other vegetable matter, which, when decomposed, form this particular description of soil. These mounds are doubtless the work of many years, and of many birds in succession; some of them are evidently very ancient, trees being often seen growing from their sides. The natives do not agree as to the way in which the young make their escape; some asserting that they find their way unaided, and others, that the old birds, knowing when the young are ready to emerge from their confinement, scratch down and release them.

The natives also assert, that only a single pair of birds are ever found at one mound at a time; and

such, from observations Mr. Gilbert made, is, probably the case. They also affirm, that the eggs are deposited at night, at intervals of several days; a statement which appears to be correct, as four eggs taken on the same day, and from the same mound, contained young in different stages of development. The fact, that they are always placed perpendicularly, is established by the concurrent testimony of different tribes of natives.

The Jungle-fowl is almost exclusively confined to the dense thickets immediately adjacent to the sea-beach. It appears never to go far inland, except along the banks of creeks. It is either met with in pairs, or quite solitary, and feeds on the ground; its food consists of roots, which its powerful claws enable it to scratch up with the greatest facility, and also of seeds, berries, and insects.

These birds lay their eggs from the latter part of August till March. Their flight is heavy; and, on alighting on a tree, they stretch out their heads and necks in a straight line with their bodies, remaining in this position as stationary and motionless as the branch upon which they are perched. Their note or cry is said to resemble the clucking of the domestic fowl, ending with a scream like that of the Peacock. Their habits are particularly shy and retired.

It is impossible that the account of these birds should fail to interest every lover of nature. Mr. Gould has shown so much ardour and enterprize

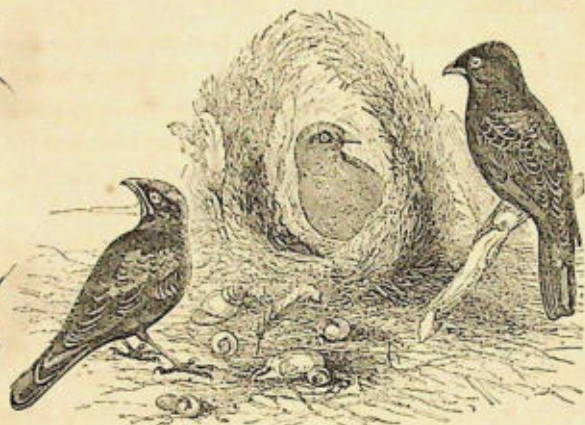
in his researches, accompanied by so much good sense and discrimination in his varied pursuits, that he must always rank among the first of English Naturalists.

Curious and interesting as the account of the Mound-birds may be, we are still further indebted to Mr. Gould, for his having been the first to place upon record a still more extraordinary account of the Bower-Birds of Australia. I will first mention the Satin Bower-Bird (*Ptilonorynchus holosericeus*.)

The principal feature in the habits of this bird is the fact (and it is one of no ordinary interest, both to the Naturalist and the general admirer of nature,) of its forming a bower-like structure for the purpose of a play-ground or hall of assembly; a circumstance in its economy, which adds another to the many anomalies, if not incongruities, of the Fauna of Australia.

These bowers are usually placed over the shelter of the branches of some overhanging tree, in the most retired part of a forest. They differ considerably in size, some being much larger than others. The base consists of an extensive and rather convex platform of sticks firmly interwoven, on the centre of which the bower itself is built. This, like the platform on which it is placed, and with which it is interwoven, is formed of sticks and twigs, but of a more slender and flexible description, the tips of the twigs being so arranged as to curve inwards, and nearly to meet at the top. In the interior of the bower,

the materials are so placed that the forks of the twigs are always presented outwards, by which arrangement not the slightest obstruction is offered to the passage



SATIN BOWER BIRDS.

With their Decorated Playing Ground.

of the birds. The interest of this curious bower is much enhanced by the manner in which it is decorated, at and near the entrance, with the most gaily-coloured articles that can be collected, such as the blue tail-feathers of the Rose-hill and Pennantian parrots, bleached bones, the shells of snails, &c. some of the feathers are stuck in amongst the twigs, while others, with the bones and shells, are strewed about near the entrances. The propensity of these birds to pick up and fly off with any attractive object is so well known to the natives, that they always search

the runs for any small missing article, as the bowl of a pipe, &c. that may have been accidentally dropped in the bush. Mr. Gould found, at the entrance of one of them, a small neatly-worked stone tomahawk, together with slips of blue cotton rags, which the birds had doubtless picked up at a deserted encampment of the natives.

For what purpose these curious bowers are made is not yet, perhaps, fully ascertained. They are certainly not used as a nest, but as a place of resort for many individuals of both sexes; which, when there assembled, run through and around the bower in a sportive and playful manner, and that so frequently, that it is seldom entirely deserted.

The proceedings of these birds have not been sufficiently watched, to render it certain whether the runs are frequented throughout the whole year or not. It is, however, highly probable that they are merely resorted to as a rendezvous or play-ground at the pairing time and during the period of incubation. It was at this season Mr. Gould visited these localities, when he found that the bowers had been recently renewed. It was evident, from the appearance of a portion of the accumulated mass of sticks, &c. that the same spot had been used as a place of resort for many years. A gentleman informed Mr. Gould, that after having destroyed one of these bowers, and secreted himself, he had the satisfaction of seeing it partially reconstructed. The birds engaged in this task were

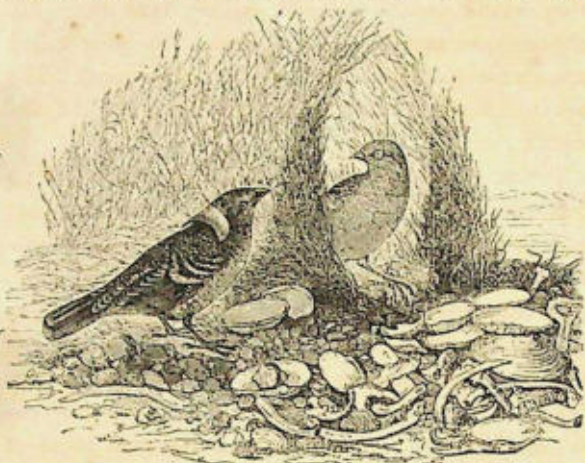
females. Mr. Gould, with much care and trouble, succeeded in bringing two fine specimens of these bowers to England, one of which he presented to the British Museum, and the other to the collection of Natural History at Leyden.

The Spotted Bower-bird (*Chlamydera maculata*) is peculiarly interesting, as being the constructor of a bower, even more extraordinary than the one just noticed, and in which the decorative propensity is carried to a far greater extent. It is as exclusively an inhabitant of the interior of the country, as the Satin Bower-bird is of the brushes between the mountain range and the coast. It has a disposition of extreme shyness, and therefore is seldom seen by ordinary travellers. Mr. Gould found that the readiest way of obtaining specimens was by watching at the water-holes, where they come to drink. On one occasion, near the termination of a long drought, he was guided by a native to a deep basin in a rock, which still held water from the rains of many months before, and where numbers of the birds, as well as Honeysuckers and Parrots, were constantly assembling throughout the day. This natural reservoir had probably been but seldom, if ever, visited by a white man, as it was situated in a remote mountain, and presented no attraction to any person but a naturalist. His presence was evidently regarded with suspicion by the visitants to the spot; but while he remained lying on the ground perfectly motionless, though close to

the water, their thirst overpowered their fear, and they would dash down, and eagerly take their fill, although an enormous black Snake was lying coiled upon a piece of wood near the edge of the pool. The Spotted Bower-birds were by far the shyest of the whole.

In many of its actions, and in the greater part of its economy, much similarity exists between this species and the Satin Bower-bird; particularly in the curious habit of constructing an artificial bower or play-ground. The situations of these runs or bowers are much varied. They were found both on the plains studded with the acacia pendula and other small trees, and in the brushes clothing the lower hills. They are considerably longer and more avenue-like than those of the Satin Bower-bird. They are outwardly built of twigs, and beautifully lined with tall grasses, so disposed that their heads nearly meet. The decorations are very profuse, and consist of bivalve shells, crania of small mammalia, and other bones. Evident and beautiful indications of design are manifest throughout the whole of the bower and its decorations formed by this species; particularly in the manner in which the stones are placed within the bower, apparently to keep the grasses, with which it is lined, firmly fixed in their places. These stones diverge from the mouth of the run on each side, so as to form little paths, while the immense collection of decorative materials is placed in a heap before the entrance of the avenue; this

arrangement being the same at both ends. In some



SPOTTED BOWER BIRDS,
With their Decorated Playing Ground.

instances small bowers, composed almost entirely of grasses, apparently the commencement of a new place of rendezvous, were observable. These structures were at a considerable distance from rivers, from the borders of which the birds could alone have procured the shells and small round pebbly stones. Their collection and transportation must, therefore, have been a task of great labour and difficulty. As these birds feed almost entirely upon seeds and fruit, the shells and bones cannot have been collected for any other purpose than ornament; besides, it is only those that have been bleached perfectly white by the sun, or

such as have been roasted by the natives, and by this means whitened, that attract their attention. Mr. Gould clearly ascertained that these runs formed the rendezvous of many individuals.

Such is the account he has given of the habits of these extraordinary birds, which cannot fail of interesting the Naturalist. I must again offer my thanks for the permission so kindly given me by Mr. Gould, to make use of his splendid work, and to extract what portion I pleased of it.

The language, or the peculiar sounds made by beasts, birds, and even insects, expressive of their wants, fears, anger, or desires, are very distinct from each other, and are very interesting to those who have paid attention to them. A common Cock and the Pheasant have notes of exultation or defiance, others of fear or warning, and a third of complacency or gallantry, when the hens are called to partake of food. The Swallow utters its note of love in the pairing season—screams at seeing an enemy, and greets its young with a tone of affection extremely pleasing. The Goose hisses when angry, cackles when happy, and has a note of alarm. The Duck also expresses its different feelings by sounds. These may all be called domestic birds. Others, which conceal their nests carefully, feed their young not only silently, but with considerable stealth, fearful lest their retreat should be discovered and invaded. When, however, the

young have left the nest and can fly from danger, the food is brought to them, and received, with notes of pleasure and gratification. I have often watched young Fly-catchers, soon after they have quitted their nest, perched on the top of a gate, or on the dead branch of a tree, attended by the parent birds, who merrily dart after flies and small moths, and feed their brood with them. These receive it with all the little blandishments of love, quivering their wings, and exhibiting evident marks of satisfaction. The old birds utter an "inward wailing note," as Mr. White calls it, when their young are in danger.

The Black-bird screams when alarmed, sings when pleased, and has a peculiar note when suddenly surprised. A gentleman at Grantham has a Blackbird which frequents his orchard, and which crows and chuckles as fowls do. It was bred in a nest in a bush close to his hen-house. Starlings, which are restless, sociable birds, have notes which resemble those of song birds, but they are difficult to hear. They are low and plaintive. At other times they utter a note like a sudden snap, and when they congregate in the evening they chatter with satisfaction, or sometimes use an elongated note, especially in the breeding season. I have been assured that so thickly do these birds assemble at their roosting places in some localities, that more than a thousand have been killed by firing shots into the bushes, or low trees, on one night only.

But the most extraordinary bird I ever met with

was my favourite Magpie. He expressed his anger, wants, pleasure, and gratitude in the most marked and distinct manner. When he saw one or two favourites, he would make a noise resembling a kiss, and shew his delight in a way not to be misunderstood. When angry he was vociferous, and scolded at the sight of any one he disliked. His laugh was so hearty, joyous, and natural, that no one who heard it could help joining in it, and he talked as distinctly as any human being. Poor bird! like most favourites, he came to an untimely end, and we missed him as we should have done one of the inmates of the family.

The call of the Partridge when separated from its associates is very peculiar; but when the retreat of its young is invaded, its cries are piercing or rather a sort of scream.

But the language of the Dog is, perhaps, the most expressive of any animal, and to this he adds the language of the eyes. Much of this is acquired, no doubt, by associating with man, from whom he learns to obey signals, and certain words of command. He modulates his tones according to circumstances, whether of anger, pleasure, grief, or warning, howls on hearing discordant sounds, whines for admission when shut out of a room or house, and looks with the fondest love and affection at his master. He shews his gratitude in a way not to be mistaken, and nothing can shake his fidelity and attachment. A kennel might have been seen at Brussels, placed in a particular situation, for a Dog which

could never be induced to quit the spot, where his master had been murdered. There are also instances on record of Dogs frequenting the doors of prisons, to which their masters had been committed, and waiting patiently from day to day in expectation of their release.

The Cat has several different and significant tones, most of them harsh and unpleasing. It shews attachment by purring and gentle mewings, and its fondness for those who have been kind to it is sometimes very great. A Cat is said to have descended a chimney in order to get at her imprisoned master.

Elephants, Horses, Cows, Pigs, and indeed almost all quadrupeds, have different tones in which they express their several wants and feelings. It would be endless to particularize the whole of them, but I may mention the Sheep. It has been asserted that in a large flock of these animals the tones of each are so distinct, that the Lambs readily recognize the voice of their respective mothers. When they have been separated, even for a short time only, they evince the greatest joy at meeting again.

In immense forests where animals of different sexes separate, or are few in number, and where their calls would not be heard, an extraordinary facility has been afforded them of finding each other. This many of them do, as the Pine-martin, Civet, Skunk, and other musky animals, by rubbing themselves against trees, thus leaving a scent, by which they are traced by their

congeners to great distances, and through almost interminable forests. Except for this provision of Nature, it is evident that many animals would have great difficulty in tracing each other, and thus the *notus odor* of each species serves instead of language, or the usual calls. A curious instance of this once occurred in the Zoological Gardens in the Regent's Park.

The late Earl of Derby presented the Society with a Buffalo, which arrived at the Gardens in the evening in a covered van. When the van was at a considerable distance from a yard, in which another Buffalo was confined, they both evinced much restlessness, so that it was evident to the different attendants, that they were aware of the propinquity of each other. The Buffalo in the Gardens was so eager to get out of his enclosure, that it was thought prudent to tie the gate more securely, and this was done with a rope taken accidentally from the newly arrived van. On its being attached to the gate, the Buffalo shewed the greatest pleasure, licking it constantly, and remained by it the whole of the night. The one in the van was equally eager to join the other, thus proving that scent alone made them aware of the approach of one of their species.

Badgers, those solitary and persecuted animals, are enabled probably to find each other by scent alone, as I have never yet heard them utter any sound, neither have I been able to find out, by inquiring of poachers, or other persons in the habit of taking them, that any

cry or call has been made by them. Buffon, and some other writers on Natural History, have affirmed that the Badger digs up Wasp's nests for the sake of the honey. I have no doubt of its destroying the nests of these insects for the sake of the young Wasps, and thus fulfilling one of the designs of Providence, in keeping down too great an accumulation of those noxious insects; but it is extraordinary that Buffon should be ignorant of the fact that wasps do not deposit honey in their nests.

Foxes utter most expressive sounds, and their young are perfectly acquainted with them. They vary their tones according to circumstances. Sometimes they bark and yelp, and at others are said to utter a melancholy cry like that of a Peacock. They have also a peculiar cry when suffering from pain, but they never utter any in the agonies of death. A celebrated poacher and taker of Foxes, now engaged in a better calling, informed me that when he has been in woods at night, the howl of Foxes would sometimes be incessant. At that time the Cubs would come fearlessly out of the earths, but if the old ones, aware of his being in the wood, uttered a peculiar and sharp scream, they immediately retired into them, and nothing would then induce them to come out. He told me, that he has been for hours in a tree, waiting to see if the Cubs would come out, and fall into a hole he had dug at the mouth of the earth and baited with a fowl, but they never stirred if once they had heard the scream of the

old Foxes. His only chance of taking them was by poisoning the old ones, which he did with arsenic rubbed into the paunch of a fresh killed animal. When they were dead, hunger at length drove the Cubs out, and they were either taken in nets or the pit-fall. He once succeeded in securing a young Fox, without destroying the parents, who, on hearing the cry of their Cub, came almost close up to him, evincing the greatest anxiety and distress, and uttering plaintive cries. Indeed the affection of Foxes for their young is quite extraordinary, and the person I have referred to assured me, that when they have considered their Cubs to be in danger, or the place of their retreat to have been discovered, they have conveyed them to considerable distances in their mouths. Foxes have so much sense, that when infested with fleas, they have been known to cover themselves with water, except their head, in which part the fleas necessarily took shelter, and whence they were readily shaken off. In doing this the Fox retreats gently backwards into the water. A Fox has been known to perform this feat with a branch of a tree in his mouth, on to which the fleas made their escape, and which was then abandoned by the Fox to float away with its living cargo.

A Fox kept in a kennel in the yard of an inn at Girvan in Ayrshire, where there were some Poultry, which he probably eyed with a considerable wish to make his prey, had recourse to the following plan to secure one or two of them occasionally. When the

servant brought his food he would eat a part of it, but leave some scattered about. He then retreated into his kennel and feigned to be asleep. In this state he patiently watched for the Fowls to come and partake of the food he had left, when he would spring upon and kill one of them. This is an extraordinary instance of the sagacity and almost of the reasoning faculty of a Fox.

The Mole, like the Badger, utters no noise whatever, at least I never heard it make any. It is, therefore, probable that they find each other by the scent only, and this they will do, not only under the ground but on its surface, where the males may sometimes be seen fighting desperately. The Hedge-hog, also, is a nearly mute animal, the young however make cries when they are hungry. Guinea-pigs, of which a very great number are kept in pens by Her Majesty at Windsor, have three distinct tones, which are very expressive. When they appear happy, and are enjoying the sunshine of a fine summer's day, they have a complacent tone which it is difficult to describe. They squeak when frightened, and have a sort of grunt when they want to express their desires.

Bats make a little squeaking noise, when disturbed or frightened. I have discovered that the Noctule or *Altirolans* Bat migrates in considerable numbers, and may be called gregarious. I have observed it flying near Wimbledon high in the air, and long before the sun had set. It certainly feeds on young birds, and

takes possession of those holes in trees, in which there are broods of Starlings. On thrusting a stick into one of these holes, I have driven out a considerable number of these large Bats, who returned to it after flying about for some time. Strong light, therefore, does not seem to affect them; and, as a further proof of this, I may mention that a migration of some twenty or thirty of these Bats took place in the middle of the day in Spring.

The garden-labourers at Hampton Court were at work near a lime-tree, in which was a hole about eight feet from the ground; this hole led to the nest of a Starling, in which there were young ones more than half grown. The men heard the noise of the flight of the Bats, and saw them all enter the hole. I was very shortly afterwards made acquainted with the circumstance; and, on repairing to the spot, was soon convinced that the Bats had killed the young Starlings, and probably the old birds, as I never saw them near the spot afterwards. It is, therefore, not improbable that these voracious animals migrate occasionally in search of food in the Spring, until the peculiar flies or moths on which they feed in summer are sufficiently numerous to sustain them. It is, I believe, the largest of our various Bats, measuring from the tip of one wing to that of the other from fifteen to sixteen inches. I have kept them alive for some time, but they are very offensive.

Some insects utter sounds, such as the Death-watch

(*Ptinus fatidicus*), a sort of ticking noise, and the House-cricket. A young Queen Bee utters a very plaintive cry, generally on the evening before she quits the hive with a swarm. I can have little doubt that it is produced from the throat, and not by the action of the wings, as I have frequently taken one of those stingless Bees we find in the autumn on sun-flowers and other plants, and on preventing any action whatever of the wings, I have heard it utter the same mournful and distressing cry as that of the Queen Bee. The Field-Cricket makes a cry which every lover of nature must delight to hear, "filling his mind," as Mr. White observes, "with a train of Summer ideas of every thing that is rural, verdurous, and joyous."

I like the little *Faunas*, which are now and then compiled by gentlemen residing in the country, of the birds and plants to be found in their immediate neighbourhood. They are always interesting to a Naturalist, and it is to be regretted that more of them are not kept by those who have the time and opportunity for doing so. I have occasionally one of these lists sent me, accompanied by observations of the habits of birds, and I receive it with much pleasure. Indeed I may say with Mr. White, that my fondness for Natural History, "has led me to the acquaintance of many gentlemen, whose intelligent communications have afforded me much pleasing information; and that the pursuit of it has con-

tributed to the health of my body, and the cheerfulness and peace of my mind."

The following remarks are extracted from some communications made to me by an "out-door Naturalist." They will not, I am sure, prove unacceptable to some of my readers. My correspondent resides in Somersetshire.

"In the winter, Magpies assemble to roost together in large flocks. In a wood near me, there were hundreds, I might almost say thousands, that came there regularly every evening, flying in from all directions. They formerly frequented an orchard on the opposite side of the valley to which the wood is situated; but, having been shot at, they deserted it for the wood. The next evening not one Magpie came to the orchard, but all went simultaneously to the wood, as if they had previously agreed amongst themselves to do so. In moonlight nights they might be seen clustering together on the trees."

This gregarious propensity of Magpies I have witnessed, especially in open countries. In the enclosed parts of England, they are more commonly seen in pairs or in families, like the Jay and Titmouse. In cold frosty weather, Magpies will cluster together on trees, as if to keep each other warm, and then the masses appear like large black lumps. My correspondent continues:—

"I have seen a curious instance of birds of very different habits and nature, such as a Sparrow-hawk,

Jackdaw, Green Woodpecker, Nuthatch, and Wren, all building, and having either eggs or young ones at the same time, either on or in the same tree. There is an old Oak tree near a place at which I was residing, the heart of which is completely decayed. On the topmost branches a pair of Sparrow-hawks had made them a nest, which, at the time I examined it, contained four eggs. In a hollow of the tree, near the top, was a Jackdaw's nest, with five young ones. A little lower, a Woodpecker had another, with five eggs in it. Still lower was a Nuthatch's nest, with seven young ones. And near the foot of the tree, in one of the crevices of the bark, which was overgrown with ivy, a pair of Wrens had made another nest, in which were several eggs. These birds seemed to live in perfect harmony, as I watched them frequently.

"I have been so fortunate as to find a Redwing's nest, the only instance I have heard of in this country. Only one bird appeared to attend the nest, which contained but one egg. This solitary bird had, probably, from some cause or other, been unable to attend its congeners in their annual flight from this country. It was afterwards shot, and is now, with the egg, in my possession.

"I have lately had some curious varieties of birds sent me, viz. a white Thrush, a Greenfinch quite white, except a slight green blush on the breast and wings; a Sparrow of a bright dun colour, and another

with white wings and tail. A man, also, at Bath, caught a white Bullfinch."

Late in the Spring, and before the general migration of Redwings and Fieldfares has taken place, I have heard the former repeat some low and plaintive notes. In the North of Europe it is reckoned a "delicate Songster," as Gilbert White would call it, but I have found no mention of its song being heard in this country. On its first arrival here, the Redwing will settle on the topmost bough of a tree, and look about in apparent alarm or amazement, and then take jerking flights to other trees. It lays six greenish eggs, lining the nest with clay and rotten wood, and it has been surmised that, as the latter shines in the dark, it is possible that this circumstance may have given rise to the idea of the Ancients of an

"*Avis hercynica noctu lucens.*"

During the winter of 1849-50, when we had sixteen degrees of cold (in the West of England) and all the Thrush tribe were greatly distressed, I had an opportunity of seeing a Redwing several times a day, for many days, very near the window of a sitting room, before which there is a narrow grass plot between the house and the road. To that little spot it came constantly, with several Blackbirds and Thrushes, and we observed them at our leisure. We placed on the grass some pieces of apple, crumbs of bread, and egg. The Blackbirds and Thrushes eat the apple &c. freely,

but the Redwing would not touch any of the three things. He often passed very close to each of them, especially to the apple, but he never seemed to take the slightest notice of it. He was, however, continually engaged in pecking off the ground, between the interstices of the thin herbage, and always apparently at the roots of the yellow and white clover where they were bare of leaves, and nothing but the soil was to be seen. His pecking was so constant, that if he had taken up at every operation the smallest quantity of any kind of food, it would seem that he must at last have almost made a meal, whereas he was evidently more weak and distressed than any of his congeners. He had also about the head and neck, where the feathers were particularly rough and ragged, a very distinct and painful expression of anxiety as well as of suffering. It is possible he might have found in the spots over which he was so long engaged, the larvæ of some of the smallest species of gnat; but however that may be, it will equally follow that the food of the Redwing is still more different than we have supposed from that of Blackbirds and Thrushes, since although it has been observed that he does not, like them, eat freely both fruit and berries, it has been supposed that he otherwise eats what they eat. But these Blackbirds and Thrushes nevertheless did not do as he did, although the apple and the other food were not always there. It is by these apparently trifling

distinctions, that the affinities of birds, apparently of the same species, can best be ascertained.

The natural texture of the plumage of birds is much altered by starvation in cold weather. I have killed a Missel Thrush in a severe frost, accompanied by a long spell of bitterly cold winds, which was so thin and weak as scarcely to be alive; and I found to my surprise that the plumage had lost the softness and smoothness that it is wont to have. The feathers were permanently rough as well as staring, and could not be made to lie close to the body, as they do at other times when they are adjusted by the hand. Missel Thrushes also appear to suffer more than Blackbirds and Song Thrushes from long winters. A neighbour of mine, during that same season, picked up two Missel Thrushes alive one morning in the same field, one of which died in his hand and the other after he got home. I saw, too, during the winter, a remarkable proof how slight is the exertion of flying to a bird of average flying powers. I watched a Missel Thrush while he was hopping about in a tottering manner upon the snow until he could no longer support himself, when he fell down and remained for some time without moving. On being disturbed by the opening of a window, he flew away with perfect ease, and in the most light and graceful manner, not only quite as well as usual, but with far more apparent ease and grace.

The cause of the affection, with which the Robin is regarded by mankind wherever he is known, is to be traced to a particular principle, and exhibits the power with which that principle operates upon the human heart, though it is one that we are liable to be slow in appreciating when it comes to us in any other shape than that of a wild bird or wild animal. We love a Robin because he first loved us; because he likes to be near us, and to live under our protection, and comes to us in his distresses, not only for food and shelter, but as if he felt the comfort of our neighbourhood when it is cold and dreary; and thought that our companionship was more comfortable and pleasant to him than that of his own brethren, and is constantly telling us that it is so, in the cheerfulness with which he sings to us in the most cheerless day, even in the dead of winter.

That we do not prefer him to all other birds for his superior beauty is most manifest, because, although he is well made and graceful enough, there are many birds that are far more beautiful in form and more to be admired for their plumage. Nor for his singing, though his singing is also well enough, because there are many birds that sing far better. Nor can it be because he is so docile; although he is, or may be, docile enough, and although the Essex miller made his Robins so docile that they would come to him in his garden when he whistled for them, and hop upon his shoulder; for a swallow

has been made to come down, at the same signal, when he was flying over head, and eat flies from between the fingers of those who had won his heart and made him docile by being kind to him; and we know that all birds which are tameable are, when they are tamed, as tame as, and several of them, much more so than a Robin. We must also remember that, whether or not he is capable of much docility or tameness, we very rarely try to tame a Robin; but are satisfied with his natural philanthropy; so that it cannot be true that we love him for the sake of his superior docility or tameness.

That a Robin is not so intelligent or sagacious as many other birds, which do not interest us so much, will be admitted upon the shewing of universal experience.

And that he is not worthy to be preferred on account of his pre-eminence in abstract goodness, is unquestionable, from the fact that in adjudicating on his claims we shall, if we are honest, be compelled to admit that he is simply the most unamiable among all known birds. There is not a living creature that we can think of, unless it is a Vulture, or a Viper, or a Scorpion, that has so little goodness to recommend him as a Robin; for his temper is such, that he cannot bear the least appearance in any other birds of aiming at, or thinking themselves entitled to the place of honour where he is; and he flings himself up and down and stares at them with all his might, as if he

was saying — “what business have *you* here?” He makes no difference between genera and species, or between species and individuals; he is at daggers drawn with the whole world of birds; even with those of his own feather more than with any others, unless it is in the Spring, when he chooses out a mate; which he does however as evidently upon his own account still; for as soon as he has had enough of her, he attacks her when she comes near him, as he attacks all other birds, without compunction or remorse on the score of former days. No one ever yet, except in the pairing season, saw two Robins on the same ground, when they were not watching, menacing, or chasing each other; or engaged in actual conflict. I have seen a Robin fly at a great Blackbird, and seen the Blackbird retire before him; though it must have been more from his sudden surprise and sense of the ridiculous at the sight and thought of such absurd pugnacity, than from anything like a sense of fear; and there is no bird that comes about our houses which the Robin does not pursue and finally drive away.

I once saw in a dining-room, by the side of an Aviary, a little cage with something in it, sitting on a perch, and therefore, as I supposed, a bird; but although I went very near to the cage, I declare that I could make nothing of it. I could see no head nor any eyes, which, so far, is perhaps the less to be wondered at because it was in London and a London

day in winter; but I could see no wings, nor feet, nor tail, nor even any feathers; I am satisfied that there was not one feather, nor the visible rudiments of one feather on its whole body, which was a round and ragged ball of dirty down, like that of a Duckling only not of the same colour; yet it was, or was all that remained of, a Robin who had been taken out of the aviary *in articulo*, at the last gasp to save his life, or what was left of it, because he did nothing all day long but fight indiscriminately with all the other birds; Goldfinches, Canaries, Chaffinches, a Tomtit, and several others; he took them as they came, and never gave them any peace, though a Tomtit is a match for any bird of his own size, and I believe indeed that it was principally through him, though purely in his own defence, that the Robin had been reduced to the deplorable condition in which I saw him. If therefore we take, from the prior claims of a Robin, beauty, tameness, song, sagacity, and natural amiability; and do not care whether he is docile or not, we shall find that we cannot err in attributing our love for him solely to his having first loved us.

The instinctive feelings of alarm which have been implanted in some animals, and which must tend greatly to their preservation, is worthy of notice. Thus if a Dog run across a meadow in which Cattle are feeding, they at once leave off grazing, and fix their whole attention on the Dog. This no doubt

arises from that dread of beasts of prey, which Cattle partake of in their state of wildness, and which domestication has only partially removed. When a Cat runs along the roof of a house, we hear the notes of alarm from Swallows, as well as a sort of war-cry, which soon collects a great number of these birds. They may then be seen making a swoop at their enemy, and all but striking it, as they dart past in rapid succession. Young Kittens shew an instinctive fear of a Dog as soon as they can see; and I have watched the little fry of Fish get into shallow water for security at the approach of a Pike, or when I have done anything to excite their fears. Newly-hatched Pheasants and Partridges will crouch in the grass, on hearing a note of *alarm* from the parent birds; and every one has observed the fear shewn by young Chickens and Ducks at the sight of a Hawk hovering in the air. Nor is this display of alarm confined to birds and beasts. I have known it evinced by Bees, Moths, and some other insects. The Wood-louse shews its instinctive fear by rolling itself up into a ball; and other insects will put on the semblance of death when frightened; I have seen a Spider do this. Indeed, some insects not only shew their fear, but take extraordinary means of self-preservation.

I now refer to a Spider I recently discovered, and whose proceedings have not, as far as I am aware, been noticed by Naturalists. At night I have observed this insect crawling over the ceiling of a room in search of

flies, which it eats as it catches them, and appears, unlike most Spiders, to have no place of retreat. In the day-time, this Spider appears motionless at some spot on the ceiling, but it remains in the centre of three fine threads which it has thrown out, one end of each of which has its termination at the place where the Spider is resting. On touching one of these threads ever so slightly, the Spider instantly disappears. I at first thought that it had suddenly let itself fall to the ground, but after a short time I saw it in its original position. On disturbing it a second time, I was enabled to ascertain that by means of its two fore-feet, which alone suspended it from one of the threads, the insect spun itself round with so much rapidity, as to become perfectly invisible. This lasted for about half a minute, when I again saw the Spider hanging on the thread by its two feet. I could not but wonder how this rotatory motion was produced, and continued so rapidly each time I touched one of the threads. After doing this several times, the Spider appeared to get weary, and retreated across the ceiling to some distance. The body of the insect was small and round, with rather longer legs than those of the Spiders we commonly find in houses. I have only discovered it in two localities—Hampton Court and East Moulsey; in both of which places I have shewn its spinning faculty to several persons. There can, I think, be no doubt, that this power of producing instantaneous concealment must be the means of preserving

the Spider from becoming a prey to its many enemies, especially as it has no place to which it can retreat as most other Spiders have. It has also another peculiarity, which is, that although I have frequently touched, and otherwise molested it, I never could induce it to do what others of its kind will do under similar circumstances—let itself fall to the ground, and then endeavour to escape. It seems to be fully aware that its safety depends on the few fine threads it throws out, and which it evidently left with reluctance.

The following fact, also, will serve to prove that fear will produce strange fellowships amongst animals. A friend of mine had a fierce Dog, chained to a kennel in his poultry-yard. In the yard there were a number of Ducks, who always kept out of the reach of the Dog, probably from his having shewn a disposition to kill them. One moonlight night a great commotion was heard in the yard, and the servant-man, on opening his window which looked into it, saw a Fox endeavouring to get at the Ducks, which had taken refuge in the Dog's kennel. The Dog protected them with the greatest eagerness, running backwards and forwards as far as his chain would let him, and continued to do so till the Fox was driven away.

Numerous instances might be brought forward of birds and quadrupeds in their wild state coming to man for protection, when their lives have been in danger. I remember, a few years ago, going to see

some hawking on a common near Southampton. There was a large assemblage, and many carriages. A white Pigeon was let loose, followed by a Hawk. After making several circles, the Pigeon, finding it could not escape from the Hawk, flew into one of the carriages, and took shelter on the bosom of a young lady. It was claimed by the owner of the Hawk, and again turned loose, when it came again into the same carriage, and sought protection in the same place. It was claimed a second time, and, I regret to add, was a third time turned out. On this occasion, the poor bird, probably finding that the place of refuge it had sought would not avail it in its hour of need, fled across the country pursued by the Hawk, who struck it down and killed it.

Timid, however, as most animals are and influenced by fear, it is astonishing how strongly affection operates over their greatest apprehension of danger. One of our travellers, I think it is Captain Welstead mentions, that, when he was in Syria, he and some of his party caught some young Gazelles, and, having cut their throats, suspended the carcasses from the saddles of the different horsemen. In this situation they were followed the whole of the day by the bereaved and affectionate mothers, who forgot their own danger in their love for their offspring. The Gazelle is well known to be one of the most timorous of animals; but here affection preponderated over the strongest impulses of its nature.

Lieutenant Wood, also, in his very interesting account of his journey to discover the source of the river Oxus, mentions the following fact, shewing how strong under peculiar circumstances is the affection of animals for their young. His boat was moored on the shore of the Indus, where he disturbed a colony of Otters, which showed some resentment at the intrusion on their haunts. Two full-grown young ones were secured and put into a sack. Their cries brought the old Otters around the boat during the whole of the night. The next day he ascended the river for at least ten miles; and yet, whenever the young Otters made a wailing noise, the Otters not only surrounded the boat, but even attempted to get into it. It was difficult, if not impossible, to ascertain whether the parents had followed the boat that distance, although it is most probable that this was the case. At all events, it shews the sympathy of these animals for those of their species, which were in distress, and their own fearlessness of danger in their endeavours to relieve them.

A Hare is one of the most timid of animals, and yet affection will overcome its fears. A friend of mine, in one of his walks, was attended by his Dog, who caught a Leveret. The mother, on hearing its cries, came up to the Dog, stood close to it on its hind legs, and evidently tried to induce the Dog to follow it, and to quit the young one. A person, on whose veracity I can depend, assured me that he had seen a Hare beat off

a Stoat several times that had attacked one of its young. The gardener of a friend of mine, a Suffolk Clergyman, once saw a Rabbit, that had young, attack a weazel that had come to its nest, and drive it across a field, by drumming with its feet on the animal's back.

While on the subject of Stoats, I may mention the following curious fact, related to me by Mr. G. Nightingale, of Kingston-on-Thames, which shews the care animals will take, in order to place their young out of the reach of danger.

Riding one day with a party of friends in Richmond Park, he observed a Stoat run up an oak-tree, and enter a hole in it at a height of about fifteen feet from the ground. Seeing two boys in search of birds' nests near the spot, he persuaded one of them to ascend the tree, and ascertain what was in the hole. On his arriving at it, two old Stoats bolted from it, and made their escape. After some hesitation, the boy thrust his hand into the hole, and drew out of it a full grown Rabbit, the head only of which had been partly eaten. He then pulled out two young Rabbits, each about half grown, and untouched, and afterwards, nine young Stoats. When we consider what a very diminutive animal the Stoat is, it is surprizing that two of them should have been able to drag a full-grown Rabbit to a perpendicular height of fifteen feet.

A large dead branch on the top of one of the old Oak trees in the Home Park, Windsor, was recently

sawn off. On measuring the height from the ground, it was found to be seventy feet. Some Bees had built their waxen cells in the hollow part of the branch, and, on removing the honey-combs, a Mouse jumped out from amongst them, having evidently contrived to ascend that distance in order to feed on the honey, of which that animal is very fond. By what instinct the Mouse was guided to the spot, it is difficult to guess. Mice sometimes commit much havoc in my Bee-hives.

We might almost suppose that Shakspeare took his description of trees "o'ercome" with Mistletoe from those which may now be seen in the Home Park, Windsor. So completely has the Mistletoe taken possession of them, that they have become ragged, "forlorn and lean." Our great bard must have been a close observer of nature, for it is in summer more particularly that the baneful effects of this parasite on trees are conspicuous. It is then that the dead and decaying branches, which the Mistletoe has deprived of their usual nourishment, can be contrasted with those which shew more life and vigour. This is the case with the lime trees in "Datchet mead," a place so often mentioned in the "Merry Wives of Windsor." It is always pleasing to trace Shakspeare's knowledge of particular localities, and even to fancy that he formed his ideas from facts connected with them.

I have never yet met with any trees so much

infested with Mistletoe, as those I have referred to, and it is difficult to assign a reason why this should be the case. In winter the trees appear as if they were covered with Rook's nests, when seen from a short distance, and it is evident that they are rapidly decaying.

Persuaded, as I am, that every thing has been created for some good and benevolent purpose, I was not long in discovering what appeared to me to be the intended use of the Mistletoe, and if my supposition is correct, it affords another proof of the care of the Almighty for his creatures. The seeds of this plant ripen very late, viz. between February and April, and birds do not willingly feed upon them as long as they can procure the berries of hawthorn, hollies, ivy and other winter food. No sooner, however, does a late frost set in, and the ground become covered with snow in the Spring, as is often the case, than birds flock to the Mistletoe, and find a ready resource thus left them when all others have failed. If its berries ripened early, and were a favourite food of birds, the benevolent design of the Great Creator would not have been as effective as it is by the present beautiful organization of the plant.

Having had my attention thus drawn to the Mistletoe, I have endeavoured to ascertain on what species of trees it has been found, and especially whether or not it has ever been met with on the Oak in this

country, a fact of which many doubts have been expressed. I have had enquiries made on this subject in the Royal Forests and Parks, but I could never hear of any instance of its having been found on the Oak in any of them. Timber merchants have also assured me, that they had never seen it on an Oak. Last year, however, a part of the branch of an Oak tree was sent me from the neighbourhood of Godalming in Surrey, with the Mistletoe growing on it. Although it was not cut from the sacred tree with a golden sickle, as the Druids are said to have cut it, yet it served to prove what before was very doubtful. Since that time, two or three other instances have been communicated to me, and I now, therefore, feel justified in adding it to the list of trees, on which the Mistletoe has been found growing.

A gentleman in Shropshire caused the seeds of the Mistletoe to germinate on the Oak, several of the Pine tribe, Cherry, common Laurel, Portugal Laurel, Holly, Lime, Elms, Horn-beam, Birch, Sycamore, Ash, Chesnut, Hazel, and Acacia, as well as the Apple, Pear, and White-thorn tribe. On these latter they continue to grow luxuriantly, but on the resinous trees they did germinate, but took little or no hold. On the gummy trees they throve a little better, and on the others better still, but on all, except on their usual "foster-nurses," the Apple and Pear tribe, they soon sickened and died.

It appears that the Mistletoe has been found more

frequently on the Oak in England than in France, as Desfontaines mentions that the only instance, which ever came under his notice, is a specimen, with the branch, preserved in the Museum at Paris, and which came from Bourgogne.

Many persons suppose that glutinous or viscous seeds must undergo a certain process, such as passing through the stomachs of birds, or being buried for a certain time in heaps, so as to undergo a certain degree of fermentation, before they will vegetate. If, however, the berries of the Mistletoe are rubbed upon the branches of trees, when they are quite ripe, which they are between the months of February and April, they may be readily cultivated.

It may be as well to caution my readers not to introduce the Mistletoe into their orchards, if they have any value for their fruit trees. A Clergyman in Norfolk, to whom I am indebted for much information, has done this but too successfully. He writes me word that his trees are so full of it, that it forms a great portion of the foliage on two or three of them, and the others are much infested with it. It is, perhaps, a fact worth mentioning, that the Mistletoe has never been known to grow in Ireland.

Mistletoe is usually found growing under, or depending from, the branch by which it is supported; and it has therefore been concluded that the seed is placed on the under side of the branch; or that it

germinates more readily when it has been so attached to the bark.

But those plants that most clearly depend are commonly the largest or heaviest that we see; and they will also, when they are closely examined, appear almost always to have grown originally on the upper surface; for they always communicate with that part more or less and usually embrace the whole branch; while very small plants may be seen growing on all parts of its surface indifferently. The final or depending position therefore must commonly result from the mere weight of the shrub.

The supposition too that the berries of Mistletoe are much eaten by Missel Thrushes, and that such birds are the principal sowers of the seed, is most questionable, and surely most gratuitous; for we do not find more Missel Thrushes where Mistletoe is abundant than where there is little or none; indeed far from it, for there is no Mistletoe in Devonshire unless upon the borders of the county, yet Missel Thrushes are perhaps more numerous in Devonshire, where they are called *Homa Screeches*, than in any other part of England. Though I am willing to admit that Missel Thrushes eat the berries of Mistletoe, I have never myself seen them doing so, nor been led by observation in any other way to connect the bird with the plant, as I have been led by observation to connect it with White Thorn, Mountain Ash, and other berry-bearing trees. The fact is, that

though Missel Thrushes feed readily upon the berries where they are able to get them, they depend almost wholly, as we know, upon worms, slugs and so forth, that are found in large and open pastures; and one reason why they are sooner distressed by frost and snow than Blackbirds, Song Thrushes and Fieldfares, is because they do not, like those birds, retire in such weather to shrubberies and plantations and turn over the leaves under the trees and shrubs to feed on the worms and slugs that shelter there.

The Missel Thrush though less beautiful than a Song Thrush, and fitter, as regards his vocal powers, "for the spit than for the cage," yet deserves to be admired like nearly all his congeners, for remarkable beauty of form. I see nevertheless that in one of our most popular children's books he is spoken of in the most opprobrious terms for his utter want of beauty, as the Bullfinch which is one of the most intelligent of our native birds is declared by another author, who was devoted to Natural History, to be destitute of every superior attribute and every claim to our regard.

If any man, who has an eye for form and proportion, will place upon the table a clean killed Song Thrush, Fieldfare, Missel Thrush, Redwing and Blackbird, carefully supporting each of them on its side, and smoothing down its plumage, he will see that the beauty of the shape of the four first is really wonderful, and that it will descend in degree, if they are

thus arranged, from the Song Thrush to the Black-bird, though there is little difference in the proportions of the three middle birds.

But beauty of form is that kind of beauty which always attracts the fewest eyes. Among fifty who admire a beautiful flower, not one will turn to observe the plant on which it grows, though it is often many times more beautiful.

The social habits of Missel Thrushes possess a remarkable feature, for in the Autumn and Winter they congregate, so to speak; that is to say, they are seen from two or three to a dozen or more in a large field, or flying over head, or sitting in a group of trees; but they are never, under any circumstances, seen together, they never fly nor feed together like Rooks, Starlings, Sparrows and Linnets, but are always, unless by some temporary accident, at a considerable distance from each other, while although a single Missel Thrush at such seasons is also very rarely seen, if two of them happen to meet upon a berry-bearing tree, one immediately attacks the other and pursues, until he drives it away. It is therefore extremely curious to enquire what can be the bond of connexion between them? why Missel Thrushes like to be within sight or hearing of each other; yet never much nearer than at that distance?

Pear trees, in the Perry Counties, where they grow to a great size, have a singular tendency to run to stem. The appearance of such trees is very striking, and cannot fail to engage the attention when they have been once observed. Trees of that kind, though they bear fruit, have very few branches that carry twigs; they are made up of rugged and ascending stems, the bark of which is grooved with deep fissures, that rise to a great height without dividing much and bearing only near their summits a few leaves and fruit upon thick, dwarf spurs. The branch stems of such trees, so ascending, look, where they join the trunk or rise from each other, like the under side of the proboscis of an Elephant, when he lifts it at the same angle of elevation above his head.

But Pear-trees are remarkable in another point of view: viz. for their powerful and long enduring vitality and perfect exemption from all disease. They therefore stand in direct contrast to an Apple-tree, which is never long lived, and always prone to canker. I suppose that no man ever saw a cankered Pear-tree; nor will it decay from being grafted when it has arrived at its full growth, as will always be the case with an Apple-tree. The branches of an old Apple-tree may be grafted in all directions, and the wounds will partly heal, but it will never recover its original aspect, nor be capable of sustaining a full foliage; and if the tree is cut down and the stool regrafted, it will not long survive. But Pear-trees in the Perry

Counties are constantly cut down, and, after being regrafted, grow again until almost all trace of the operation becomes obliterated, except to a practised eye; while the branches ascend and spread as they did at first, and are altogether as natural. I have seen a Pear-tree in Worcestershire, that had been lately sawn off within three or four feet of the ground, where the stool must have been eighteen inches in diameter, and stuck all round with grafts which were growing luxuriantly; and I have seen several old trees, on which the same operation had been performed, where the grafts had entirely grown over the bare stool and restored it to the full powers of the most vigorous youth.

The Perry Counties are richly wooded; the soil is deep and tenacious; the climate somewhat austere, and the seasons therefore late, by which means the trees escape the early spring frosts which are so destructive elsewhere; but in summer the heat is very great. Such a surface, and such a soil and climate are therefore congenial to that kind of tree.

It would appear to have escaped the notice of Naturalists, that there are two distinct varieties of Magpies to be found in this country, one of them being considerably smaller than the other. My attention was first called to this fact by an extensive dealer in birds at Windsor; who appears to know more of their habits, from actual observation and fondness for

them, than any one I have happened to meet with. His success in rearing and taming the Nightingale, Black-cap, and other tender song birds, is extraordinary. The Cuckoo thrives under his care from year to year; and Landrails are quite in a state of domestication. His Blackbirds, Starlings, and Thrushes, sing the notes of the Nightingale; and his Magpies, Jays, and Jackdaws, talk and whistle far better than any parrots I have ever heard. Much of his time has been passed in the haunts of warblers, for the purpose of capturing singing-birds, which he tames with wonderful rapidity. It was from this person that I received the information of the two varieties of Magpies; and, from the specimens he has shewn me, there seems to be little doubt of the fact. The smaller Pie of the two invariably builds in bushes. Its weight is six ounces; the length from one tip of the wing to the other is nineteen inches; and it is sixteen inches from the end of the beak to that of the tail. It may be called the Bush-magpie. The Tree-magpie is considerably larger, weighing very nearly nine ounces, and its plumage is more brilliant than that of the Bush-magpie. It is altogether a powerful bird, and, when compared with the other variety, the difference is very evident.

Much has been said respecting the two passages prepared by a Magpie in the construction of its nest. I perfectly recollect, when a school-boy in Leicestershire, in which county the hedges are of a considerable

height, and in which numerous Magpies' nests were to be found, observing the escape of the bird from the opposite side of the hole, in which I was about to insert my hand in order to secure the eggs. This second hole was not much defined, but still it was evident that a place was left, not so strongly woven together as the other parts of the nest; and which was ingeniously contrived, not as a place of entrance, but of escape in a moment of danger. It may be doubted whether the same contrivance is found in the nest of the Tree-magpie, which is less exposed to depredation.

The Magpie is not only a beautiful, but a very extraordinary bird. A tame one was lately kept in the Cumberland Lodge Gardens, Windsor Great Park, whose great amusement was killing Rats and Mice in which it was very successful. This, however, is not the only instance of birds amusing themselves in the same manner. A farmer in Warwickshire informed me, that in taking down one of his oat-ricks, in which were a number of Mice, he observed a young Cock, which had only its first feathers on, *stock* (that is strike with its beak) the mice as fast as they fell to the ground. He said that it killed them with great rapidity, seldom striking them more than once.

The extreme cunning and shyness of the Magpie appear to be owing to the constant persecution it meets with in this country. In Norway it is on the most familiar terms with the inhabitants, hopping

about their doors, and sometimes coming inside their houses. A gentleman informs me, that at Gottenburg he has seen them in well-frequented streets looking for food as securely as Pigeons in this country. They would hop quietly out of the way, or fly a yard or two, in order to avoid horses and carts, and then settle again. More than fifty have been seen at a time. This familiarity is owing to the kindness with which they are treated, and which it is to be regretted is not practised in this country. Few things can illustrate the cunning, and I may add sense, of the Magpie, more than Sir John Sebright's account of Magpie-hawking.

"Nothing," he says, "can be more animating than this sport. It is, in my opinion, far superior to every other kind of hawking. The object of the chase is fully a match for its pursuers,—a requisite absolutely necessary to give an interest to any sport of this kind;—and it has the advantage of giving full employment to the company, which is not the case in Partridge-hawking. A down, or common, where low trees or thorn-bushes are dispersed at the distance of from thirty to fifty yards apart, is the place best calculated for this diversion. When a Magpie is seen at a distance, a Hawk is immediately to be cast off. The Magpie will take refuge in a bush the moment he sees the Falcon, and will remain there until the falconer arrives, with the Hawk waiting on in the air. The Magpie is to be driven from its retreat, and the Hawk, if at a good pitch, will stoop at him as he passes to

another bush, from whence he is to be driven in the same way, another Hawk having been previously cast off, so that one or the other may always be so situated as to attack him to advantage. The second Hawk is necessary, for the Magpie shifts with great cunning and dexterity to avoid the stoop; and when hard pressed, owing to the bushes being rather far apart, will pass under the bellies of the horses, flutter along the cart-ruts, and avail himself of every little inequality of the ground in order to escape. Four or five assistants, besides the falconer, who should attend solely to his Hawks, are required for this sport. They should be well mounted, and provided with whips, for the Magpie cannot be driven from a bush with a stick; but the crack of a whip will force him to leave it, even when he is so tired as hardly to be able to fly. The Magpie will always endeavour to make his way to some strong cover; care must, therefore, be taken to counteract him, and to drive him to that part of the ground where the bushes are farthest from each other. It is not easy to take a Magpie in a hedge. Some of the horsemen must be on each side of it; some must ride behind and some before him; for unless compelled to rise by being surrounded on all sides, he will flutter along the hedge, so as to shelter himself from the stoop of the Falcon. Many requisites are necessary to afford this sport in perfection;—a favourable country, good Hawks, and able assistants."

When brought up from the nest, the Magpie is

capable of great attachment to the person who has the care of it; and I have observed this shewn in a variety of ways. It will also attach itself to a Dog or Cat which may happen to be in a yard with it, but it generally is the master, from the great strength of its beak. There was a bird of the same class, a Jackdaw, belonging to a butcher at Sunning Hill, Berkshire, which was the inseparable companion of a Dog. He could neither stir nor leave the premises, but his faithful and attached friend went with him; and it was a pleasing sight to see them together, the Dog looking at his companion with much complacency, which the Daw returned with an appearance of affection not to be misunderstood.

The Magpie is not only fond of hiding things, but selects particular localities for that purpose. Two Magpies, kept in a very extensive kitchen-garden, always hid food they could not eat, and also concealed bones, bits of bread, and even grains of wheat, which they searched for and found amongst the stable manure. One day some men were sent to dig up that part of the garden, which had been the favourite hiding place of the birds. The work had scarcely commenced, when the Magpies shewed that they were perfectly aware of what was going forward; and also afforded a proof of the retentiveness of their memory, which was not a little extraordinary. They hastened to the spot, and with their beaks cleared the earth which concealed their hidden treasures, which they conveyed to some distance, returning for the rest. In this way seven

or eight bones and pieces of bread were disinterred, although some of them had been buried three or four weeks; thus shewing that they perfectly recollected peculiar spots.

The Nuthatch also hides nuts, as Jays and Magpies hide acorns, though not for the same purpose; but most probably, like a Dormouse or the Ants, for supplies of food in hard times; because the food of a Nuthatch consists entirely of those kinds that are only to be had otherwise at certain seasons.

I happened on a single occasion to witness the process of the hiding of a nut by that Bird. Sitting near a window on the ground-floor that looked into a garden bordered by a wild shrubbery, I saw a Nuthatch fly close to the window with a large nut in his bill, on which he proceeded to operate in his usual manner. He fixed it successively into several crevices in the dry ground, where he could obtain a purchase, but after inflicting on it many violent blows, which were finally ineffectual, he was fain to regard it as a hopeless case. He then carried it a yard or two, and pushed it by main force into a crevice near the area, and, catching up two or three pieces of moss, carefully and completely covered it with them, and flew away. Being ill at the time I could not keep my eye upon the place, nor examine it until after some days, and when I did examine it, the nut was gone but whether removed by the Bird or not I cannot say.

As to the facts, however, of the hiding process, there can be no doubt, because I was close to him and observed him at my leisure; nor can there be any doubt why he put the nut into the hole, and why he covered it with the moss; or that he did everything for the real purpose of hiding it.

Dogs will hide food, though seldom when any body is looking on; but I had a Dog who allowed me more than once, to be present during the operation, and I have seen other Dogs perform it when they did not see me.

After scratching a hole in the ground with the fore feet, and dropping into it the food, which he was holding in his mouth, the Dog turns back the earth into the hole with his nose; and when he has nearly covered the food in that way, and is throwing up the last portions, he is careful every time to press down the heap by pushing his nose against it; on which account he leaves the soft ground indented with its impressions as with his mark or seal. He then returns to his master looking very innocent, but revealing his secret by his dirty nose.

It may not be generally known, that some of the Queens of England have been in the habit of choosing a fine and thriving Oak or Beech tree in Windsor Forest, to which they have given their name; which, with the date of the month and year of the selection, is engraved on a brass plate, and screwed securely

on the tree. Thus, in one of the most beautiful and retired parts of the Forest may be seen Queen Anne's Oak; the Oak of the amiable wife of George II., Queen Caroline; the Oak of Queen Charlotte; the Oak of the excellent Queen Adelaide; as well as that of her present Majesty: they all have seats around them. The green drives of many miles, along which these trees may be approached, are not only kept in the most perfect order, but at every step we go either some opening view of the castle, or the surrounding country, presents itself to our notice, or else some picturesque and noble tree attracts attention. Here and there are charming glades, down which a gentle stream of water makes its way, crossed by a rustic bridge. It is at nearly the end of this drive in one direction, and in the neighbourhood of the trees I have referred to, that one of the prettiest Cottages imaginable opens upon our view.

Nothing can be more smiling and cheerful, or kept in better order, than this abode of the woodman of the district. His rustic seats, his flowers, and neat kitchen garden, interspersed with fruit-trees, all give the idea of rural peace and beauty. The Oaks and Beeches spread out their arms over the well-kept lawn in front of the cottage, while the Wood-pigeon and Woodpecker are heard in the adjoining thicket.

This sort of Cottage is peculiarly English, and is always noticed with pleasure by foreign travellers in

our Island. Willis, the American writer, says, "England is described always very justly, and always in the same words—'it is all one garden.' There is scarce a Cottage between Dover and London (seventy miles) where a poet might not be happy to live. I saw a hundred little spots I coveted with quite a heart-ache."—And in the description of his drive from London to this immediate part of the country, he uses these graphic expressions:—"The scenery on the way was truly English: one series of finished landscapes, of every variety of combination, lawns, fancy cottages, manor-houses, groves, roses and flower gardens, make up England. It surfeits the eye at last. You could not drop a poet out of the clouds upon any part of it I have seen, where, within five minutes' walk, he would not find himself a paradise." Such language is very pleasing to our English ears, and more especially coming from an American traveller, who had passed more than two years inspecting, with no inattentive or unknowing eye, Turkey, Greece, Italy, Switzerland, and France.

The love of Gardens and of gardening appears to be almost exclusively confined to the English, and is partaken of by the poor as well as by the rich. Nothing can be prettier than the Gardens attached to the thatched cottages in Devonshire. They are frequently to be seen on the side, and often at the bottom of a hill, down which a narrow road leads to a rude single-arched stone bridge. Here a shallow

stream may be seen flowing rapidly, now and then *stickling*, to use a Devonshire phrase, over a pavement of either pebbles or ragstone. A little rill descends by the side of the lane, and close to the hedge of the cottage, which is approached by a broad stepping-stone over the rill, and beyond it is a gate made of rough sticks, which leads to the cottage. At a short distance, an excavation has been cut out of the bank, and paved round with rough stones, into which the water finds its way, clear and sparkling. This is the cottager's well. His Garden is gay with flowers. His Bees are placed on each side of a window surrounded with Honeysuckles, Jessamine, or a flourishing Vine, and the rustic porch is covered with these or other creepers. Here, also, the gorgeous Hollyhock may be seen in perfection, for it delights in the rich red soil of Devonshire. Giant-stocks, Carnations, and China-asters flourish from the same cause; and make the Garden appear as though it belonged to Flora herself.

Nor must the little Orchard be forgotten. The Apple-trees slope with the hill, and in the Spring are covered with a profusion of the most beautiful blossom, and in the Autumn are generally weighed down with their load of red fruit. Under them may be seen a crop of Potatoes, and in another part of the Garden those fine Paington Cabbages, one of the best vegetables of the County. In a sheltered nook is the thatched pig-sty, partly concealed by the round yellow-

faced Sunflower, which serves both as a screen and as an ornament. The mud or *cob* walls of the cottage, add to its picturesque appearance, when partly covered with creepers, and surrounded with flowers.

I have, on more than one occasion, expressed my admiration of the agricultural population of England; and I trust that the time is not far distant, when each individual amongst them will have an allotment of land, at a fair rent, for the better maintenance of himself and his family, not in common fields, but attached to each house.

The taste for Gardens, however, is not confined to the rural districts. Round the town of Birmingham, for instance, there are some hundreds of small Gardens, which are diligently cultivated by the working classes. Each Garden has a little covered seat, where the owner has his glass of ale, and smokes his pipe, at the close of the evening; and here the finest Auriculas, Polyanthuses, Carnations, &c. are to be met with. They are cultivated with the utmost skill and care, and may vie with any produced in this country. I have also been informed that our Spitalfield weavers have the same fondness for Flowers, and are also amongst our best collectors of insects. In some other districts, Tulips are successfully cultivated, and in others the Ranunculus and Anemone. One man is celebrated for his fine Stocks, another for his Pansies, while a third will produce Gooseberries unrivalled for size, or Wall-flowers of the darkest hue.

I am assured, that great and deplorable as the distress often was at Birmingham, a man would sell his clothes, his furniture, indeed all that he possessed, sooner than part with his beloved Garden.

Flowers are cultivated to a considerable extent, and with great success, in the neighbourhood of London, and especially in some parts of Surrey, in which County there are many Exhibitions of Flowers every year. Here the rich and poor may be seen assembled together, each either admiring or criticising particular blooms, and the poor man appearing perfectly competent to appreciate their peculiar merits. It always affords me pleasure to witness these meetings, and to watch the gleam of satisfaction in the countenance of some cottager, when his flowers have been praised, or his well-cultivated shew of Potatoes or Apples has obtained for him some trifling prize.

Persons of influence, residing in the country, should do their utmost to encourage the cultivation not only of Flowers, but of Vegetables and Bees, amongst their poorer neighbours. It not only tends to keep them out of beer-houses, those curses of the labouring man in this country, but improves their minds, their habits, and health. An amiable florist has observed, that the love of Flowers is one of the earliest impressions, which the dawning of reason implants in the human mind; and that happy are the parents of children in whose imaginations this desirable predilection is early evinced. It inculcates a salutary habit of rea-

soning and thinking on subjects worthy of exercising the thoughts, and is calculated to improve them. It gradually trains the mind to the study and observance of that most instructive volume, the Book of Nature. The passion for Flowers is, indeed, one of the most enduring and permanent of all enjoyments. At the coming of each revolving Spring, we anxiously return to our loved and favourite pursuit. With joy and delight we perceive that

Ethereal mildness is come,

and that the glory of reviving nature is returned.

A few years ago, the only eminent landscape-gardener at that time in France brought me a letter of introduction. His chief object was to see the Gardens of private individuals, of which he said he had heard so much. I took him to several; and his astonishment at seeing the well-kept gardens, the rare plants in them, and the verdant lawns, was unbounded. He was constantly exclaiming, "*Votre gazon! nous n'avons pas de gazon en France.*" He wondered at the expense the English went to in having their lawns so constantly mown, and at the appearance of comfort and luxury which he witnessed at the residence of a country gentleman. Nor were our cottage gardens overlooked by him. He had evidently seen nothing like them; and confessed that the fondness of the English of all classes for Flowers must be unbounded: and so it is. It is

one of the characteristics of our country, and long may it remain so.

An English labourer may make his Garden a source of profit as well as of pleasure, if he is encouraged to keep Bees. I have had much experience in these insects, and I am persuaded that almost any Cottager may with a little management pay at least the rent of his Cottage by the produce of his hives. These insects will work earlier and later than himself, and store up their honey while he is at work. He has therefore little to do, but to hive them when they swarm.

In order, however, to make them profitable, they should never be destroyed. In doing so, at least 36,000 industrious insects are immolated at each time. The following instructions, if attended to, will prevent this cruel and unnecessary slaughter. Before, however, I proceed to give them, I may mention that, independent of the profit to be derived from his Bees, they afford the Cottager an instructive example, by which he may, in many instances, govern his own conduct. He may perceive their cleanliness, their indefatigable industry, their saving habits, their early rising, their cheerfulness and loyalty. Indeed in the vast creation of insects (for vast it is) there is not one whose history presents to us such a prodigious number of wonders as the Bee. This insect, so weak, so small in appearance, is seen working without relaxation in collecting the materials for its habitation, in using

them with so much art, and constructing those wonderful edifices, the architecture of which has been a subject of meditation for the most profound Geometricians.

After this short digression, I will endeavour to prove how little a Cottager consults his own interest who follows the old practice of suffocating his Bees, at that time of the year when, after all their labours, they have laid up a sufficient store to maintain themselves through the winter.

A hive of Bees should be considered like a sum of money in a Savings Bank. It will pay you good interest, and also increase your capital, by proper management; whereas, by destroying them, you lessen, if not annihilate your capital, and prevent the increase of that wealth you might otherwise have.

The fact is, that a healthy hive of Bees, in all tolerably good seasons, can afford to part with a portion of their hoard, and yet have sufficient to support themselves through the winter. This portion may be taken in the following manner.

With a sharp knife, cut out two or three rounds of the straw at the top of the hive, so as to make a hole four or five inches in diameter. Have ready a small hive which will hold from seven to nine pounds of honey, with a piece of glass in the side, or else a small square box, also with a piece of glass in it (the use of which I will presently mention) and place one of them on the top of the hive, protecting it from the

weather by a straw-huckle, an old coal sack, a piece of matting, or any thing that will keep out the wet. Plaister the cage of the straw cap, or box, with clay, cow-dung or mortar, and let all this be done about the middle of May. The glass not only enables you to see when the hive is full, for the cells will be sealed up, but the light it affords almost always prevents the Queen from depositing her eggs in the cap or box, and the honey in it is consequently whiter and purer, and therefore brings more money in the market. In a good season, I have known one of these caps filled in three weeks. It may then be taken off, and another put on, which will also probably be filled. In addition to these two caps, which will readily sell for sixteen shillings, I have not unfrequently had a swarm from the same hive, which, if an early one, is worth from ten shillings to a pound according to its strength. If not sold, it goes to increase the stock of the owner. This is no small profit from one hive, and one which my Bees constantly yield me. Care should always be taken that the Bees have a sufficient stock of honey left to last them through the winter and early spring, as many stocks are lost from a want of attention to this point. This may be readily ascertained by lifting up the hive. If it feels light, a little coarse honey or dissolved sugar should be given, by means of narrow troughs of scooped out elder branches, put through the entrances of the hives. Those who can afford to substitute glass instead of straw caps or boxes, will

derive additional pleasure as well as profit by the change, as they will not only be enabled to see their Bees at work, but honey made in glass is of a purer quality, and sells for more money than that which is made in straw or wooden tops.

In taking off the tops, nothing is necessary but a table-knife and a bunch of nettles. At sunset, separate the top from the hive, after removing the clay round the edge with the knife, and replace it with an empty top. Take the one which has been filled, a little distance off, turn it bottom upwards, and cover it with the nettles. Most of the Bees will quickly leave it for the parent hive. If any young Bees are left in it the next day, they can be brushed off with some of the nettles. In this way not a Bee need be killed.

Let me give one more hint to the Cottager. Whenever he can get an old seven or nine gallon cask, he will find it an excellent substitute for a straw-hive, by taking out the bottom, making the usual entrance, and cutting a hole in the top for the cap. A hollow piece of elm, smoothed in the inside, and having a board nailed on the top, also makes a good hive, and I have generally found that Bees do better in wooden than in straw-hives. A Cottager, however, may soon learn to make the latter, and it is, at the same time, a useful, and not an unpleasant employment for him on a winter's evening.

I trust that these hints may be of service to the industrious and hard working Cottager. I had many

hundred copies of them printed, and distributed in Cumberland and Westmoreland, where the practice of smothering Bees has long prevailed among the fine and well conducted peasantry of those Counties. Let me now express a hope that some of those country gentlemen, who endeavour to improve the condition of their poorer neighbours, will disseminate the foregoing hints amongst them.

Hornets, Wasps, and Humble Bees, like most insects and animals, may be perfectly managed by understanding their nature and habits.

Thus, two or three whiffs of tobacco-smoke used in a fumigator with a rose-nozzle—a very small one, that can be held between the teeth, is large enough—will instantly tranquillize all such insects and render them quite harmless as to their sting; making them appear as if they had forgotten that they possessed such formidable weapons. The sting of a Hornet I have never felt, nor that of the largest Humble Bee. The pain of the sting of other Humble Bees is a fine smart, much more intense, as well as more local, than that of a Wasp or Hive-Bee, though, in accordance with their name, they rarely use their stings until they are provoked to the last degree. The sting of a Wasp is the least painful of all.

When we break into the folds of the grass and moss, with which Humble Bees surround their nests, the inmates do not immediately fly out and assail the of-

fending party; but a number of them throw themselves on their back, opposite to the quarter in which they are assailed, and make a stridulous noise with their wings, while the abdomen is elevated and in continual motion.

A single whiff of smoke into the entrance of a Bee-hive will enable a Bee-keeper, at any time, to turn it up and examine it at his ease, and to extract some of the combs and put it back upon the board, without any danger of being stung, if he continues now and then, during the process, to breathe a little of the smoke over the hive. The nests of Wasps and Humble-Bees may, by this means, be easily dug out and taken during the day, and the combs transferred to boxes, placed near the same spot, for subsequent observation. The inmates of the nests, as I have repeatedly proved, will soon find them out and continue their operations as before.

I once also, by the same means, took a very strong Hornet's nest out of an old Ash-pollard, and with the same complete impunity; though I cut out the comb and carried it away, and was a long time at the work, during which the whole community were booming about me. But Hornets, as I then ascertained, are more easily confused than either Wasps or Hive-Bees. I did not at first feel quite at my ease, but these Hornets never offered to sting, or even to strike me, as Hive-Bees and Wasps will do, when they are angry, without stinging.

The Grubs of Hornets are white and fat with very

small heads and strong black mandibles. When they want food they scrape with their mandibles down the side of the cell, and so produce a sound that can be heard across a large room. If food, on such occasions, is given to them, they are quieted for a time — their mode of eating is also very curious, — and when they renew the scraping, they may always be quieted in the same way. There can therefore be no question that it is the food-call of the Grub to the old Hornets, though it does not therefore follow that it is heard, since it may be felt by being vibrated over the combs.

There is, however, no reason to suppose that Hornets do not hear, when we know that the sense of hearing in Hive-Bees is so prominent and so important to them. I do not know whether Wasp-grubs also ask for food in the same way, but it is probable that they do not, because the attending insects are, in their case, so numerous.

The peculiar hum that is produced by a young Queen-Bee from the bottom of the hive, when there are two Queens in it, and the deep-toned answer of the old Queen from above, is one of the most striking things in Bee-keeping, and we cannot well attribute it to the operation of any other sense than that of hearing.

Bees are exasperated by breathing on them, as much as they are quieted by smoke. In operating as above, when the sting of a Wasp or Bee produces violent effects, and always in having to do with Hornets, the face and neck should be protected by a black silk gauze veil,

tied round a broad-brimmed hat, and folded behind where the two ends should meet. The veil is to be put under the coat-collar, and the coat to be buttoned over it in front. A broad tape is to be tied round the wrists and ankles, to hinder the insects from crawling up the coat-sleeves or under the trousers; the ankles must be defended by boots or gaiters, and the hands by thick and soft double gloves that fit well and easily. The operator, so armed, may defy all stings.

There are few things in Nature more curious or interesting than the economy to be found in a nest of Wasps. It is well known that out of a colony of many thousands of these insects, the female, or Queen, as she is called, alone survives in the Autumn, and becomes the solitary founder of another colony. When the warmth of Spring revives her, she leaves her retreat in some old tree or wall, and constructs a few cells, in which she deposits her eggs. I do not think, however, that any Naturalist has remarked on the position the female Wasps assume during their hybernation, and therefore the following remarks on the subject may prove interesting.

The attitude of a female Wasp when she is in a state of hybernation is one of the most remarkable things in Nature, and exhibits in a beautiful manner the intelligence of her instinct.

Those external parts of her body which, when she wakes up again, will be the most essential to enable

her to fulfil the purpose for which she survives the winter, are her antennæ and her wings. For if an Hymenopterous insect is deprived of its antennæ, or if one of them only is a little injured, it appears to lose its senses, hurries about in extreme agitation, and comes to an untimely end; while we know that if its wings are injured, so that it cannot fly, it will inevitably perish. Accordingly it is of these, her most precious instruments, that she takes the greatest care; for she puts her forefeet over her antennæ and her hind feet over her wings, and draws the antennæ under her head and the wings under her body; in which position they are defended on all sides! I have observed female Wasps so standing, and watched one while she was in the act of releasing her captive members, when I roused her from her torpor.

Female Wasps, towards the middle of October, are apt to fly into rooms and hybernate behind the window-curtains.

If a female Wasp is at that time put into a box of some sort where there is sufficient ventilation, and the box into a cold place, I have no doubt that she may be induced to hybernate there in the way that I have described. I do not think that female Wasps require food after they have left the nest for the purpose of hybernation. I believe that I am right in saying that the hind feet are used to confine the wings, but I speak from distant recollection, and am not quite sure that it is not the middle pair.

Wasps and Hive-Bees never fly in straight lines, unless they are returning to their nest or hive, or are collecting food abundantly in some one direction, as, in the case of Bees, from a cluster of Limes or a field of Buckwheat, or, still more, when they are engaged upon refuse combs containing honey. Their speed is then so great, that no eye can follow them: they are visible at the moment when they leave the hive, but they almost immediately vanish.

The way to find Wasps' nests is accordingly to look down the hedges and banks, when the sun is shining against them, so that the eye may have the hedge on one side of it, in a sharp line of shade, and rest in the distance upon the sky. It is easy then to see every insect that flies within the range of vision, to or from the hedge; and when several are seen to fly in a straight line into and out of it at about the same spot, it is almost certain that a Wasp's nest will be found there.

In this way, as I know by experience, a long hedge may be examined in a few minutes, and all the hedges in the neighbourhood of a garden in a morning, without much risk of missing a nest.

But we cannot, unless by accident, find Humble-Bees' nests in that way, because the habits of Humble-Bees are very different from Wasps and Hive-Bees. Humble-Bees never, under any circumstances, fly in straight lines, and during their breeding season, or when they have a nest, they have besides a most re-

markable habit of descending, in their flight along banks and other such localities, in a manner that indicates intention, and as if they knew their nest was there and were going to fly into it. But they never alight at such spots, for it will be found that, after descending till they almost touch the ground, they will always reascend and fly in the same way to some other spot, where the same thing will be done again, and so on, four or five times, until they are out of sight.

I have often seen the females of the largest kind of Humble-Bees, when I have been sitting under tall trees, fly down in that manner to the foot of every tree, in or near the line in which they were flying, and so descend and reascend till they were lost in the distance. And they always flew with the utmost precision, as if they knew where each tree stood and that their nest was at the foot of it; but I repeat that I never once saw one of them alight at a nest, and never once succeeded in finding a Humble-Bees' nest by watching a Bee in its flight, the peculiarity of which is so very great and the practice so universal, that we cannot do otherwise than attribute it to instinct; and when we see that it enables them so well to deceive and tire out the patience of those who are watching them, as to the place of their nest, we are obliged to suppose that it has reference, though not therefore direct reference, to that purpose; a conclusion which is rendered probable also by other evidence

that may be discovered by attending to the nature and habits of Humble-Bees.

There are some plants, the leaves or other parts of which, besides their flowers, are supplied with glands that secrete a saccharine matter. Such glands are extremely prominent in one shrub, the common Laurel; and on one herbaceous plant, the common Vetch (*V. sativa*) which is grown as food for horses, and called Tares. It is not, however, to be supposed that those two species alone are provided with such adjuncts.

On the under side of the leaf of the common Laurel, close to the rib near its base, there are always two or more such glands, which are in pairs; the glands of each pair having the rib between them. They are as large as an ordinary pin's head and in colour when they first appear, are of a faint yellow or flesh colour. I never saw one leaf that had not one pair, and there are usually two pair; sometimes two pair and a half, or five glands. I never saw more than five upon a Laurel-leaf; and, when there are five, the fifth gland is an odd one, almost always through the failure of one of the middle pair.

The glands in each pair are opposite, but seldom exactly opposite to each other. They follow in fact, or usually follow, the relative points at which the sides of the leaf meet the upper surface of the rib near the base, and those points are seldom exactly opposite to each other.

The glands when they are seen through the leaf, from the upper side of it, look like bruises in the parenchyma, which become, I think, more prominent as the season advances. They are extremely prolific in honey, which continues to be secreted as long as the plant is growing, and on that account, during those months, common Laurels, when they are large and flourishing, always resound with the humming of Bees.

In dry weather after Midsummer, Ants take possession of the glands, which then become brown. The glands in Tares are as abundant in honey as the glands on Laurels and afford as excellent pasture for Bees. It begins to appear in them before the flowers are matured, and continues to be secreted for some time. I never saw Bees go near the flowers.

But it is not always that these glands are developed, for they only appear when the field is saved for seed, or cut much later than it is usual to cut Tares, which is before or during the development of the glands.

Now these glands are so prominent a feature in the common Laurel, and in the Tares, that we are obliged to suppose them to be useful to the plants, and that their importance also, bears some proportion to their size and the abundance of sweet liquid that is secreted by them. But what their purpose really is, still remains a matter of doubt.

The vast number of Bees that, in the honey season, are seen or heard among the leaves of common Laurel has constantly attracted the attention of Naturalists,

and been mentioned in works of Natural History; one, I believe a *late* Author, was struck by the multitudes that he saw upon his own shrubs one morning at a very early hour when it had been raining and therefore when the leaves were wet, and "there was no honey-dew." But it is singular that he should have satisfied himself with wondering what they were doing, instead of watching them for a minute or two in order to find out; and that no other Naturalist should have done so. He would then have seen that the Bees always flew to the same parts of the leaves and from one leaf to another, as they fly among flowers, from one flower to another. The existence of the glands would then also have been made manifest, because at the distance of two or three yards they are almost as conspicuous as the Bees themselves.

Honey-dew, I think, is rarely found on Laurels or other evergreen shrubs, that is to say, it is rarely produced on such plants. I have never seen Aphides upon evergreen shrubs or trees.

I lately had an opportunity of watching a leaf-cutting Bee, (*Apis centuncularis*) while she was at work in a hole that had been left in a garden door, and succeeded in witnessing the process of closing the entrance of the cylinder or cell-tube, which does not appear to have been previously seen; previous observations having been confined to the making of the tube and closing the cells.

The Bee had already closed the last cell, in the

middle of the cover of which there was a round protuberance like the end of a thimble, or a large boss in the middle of a round shield, but I was not able to examine it more closely without disturbing the Bee. I conclude that she had already closed the cell with the usual three thicknesses of leaf; but, probably because it was the last or outermost cell, she bestowed a great deal more time and pains in defending it from external injuries; for she added, during the time that I sat by the door, ten more such pieces! after which she did a very curious thing in the way of a cunning device; for she brought a piece of leaf, not shaped like the others but more oblong, and not large enough to close the cell, and it was evident that she did not use it for that purpose, because she fixed it so that it looked like a kind of expanding frond, growing out of the mouth of the tube; after which she brought two more of the same shape and size, and fixed them also in the same way, so that the mouth of the tube was hidden by them, and the three fronds together, thus artfully disposed, looked as if they were the remains of a leaf or two that had been poked into the hole with the end of a stick and left accidentally adhering to the sides of it; indeed they had so manifest an appearance of studied negligence, that they must have been designedly placed there for a screen.

There are many facts in the economy of Nature which are truly surprising, and which serve to prove with what tenderness, care, and wisdom everything has been created and regulated. An instance of this may be mentioned with respect to the nests of some of those birds which build on slender branches of trees, or amongst reeds and rushes, where their nests would be liable to be much blown about and shaken. In this case the birds have had a peculiar instinct implanted in them of bending in, or rather of making a sort of rim round, the upper part of the nest. But for this foresight and peculiar architecture, it is evident that the eggs would roll out of the nest when the branches were much agitated in high winds. This apparently trifling fact shews how beautifully the Almighty has provided for the well-being of his creatures. Nothing has been overlooked. Even in the structure of its nest, the little bird has been taught to make it of the size exactly necessary to contain the future young, and to line it, as the case may require, either with the warmest feathers, or with hair or cobwebs. The small fan-tailed fly-catcher of Australia makes its elegant little nest on the slender stalk of a tree. It resembles a wine glass in shape, without the bottom part, and the stem is fastened to a lower stalk, thus preserving a due balance. It is outwardly matted together with the webs of spiders, which not only serve to envelope the nest, but are also employed to strengthen its

attachment to the branch on which it is constructed. The whole is woven together with exquisite skill. This is also the case with some of the nests of the Humming-bird, where the use of the rim is very apparent.

If writers on natural history, who make their remarks on animals as they see them in a state of captivity, could watch them in their native haunts, much that has been said of them would have been omitted. In some instances the wisdom of the Great Creator has been called in question, as if everything that He had made was not perfect, and afforded proofs of infinite wisdom. Buffon and some other Naturalists have described the Sloth, for instance, as an unhappy, miserable animal, almost incapable of crawling on the earth, shedding tears instead of defending itself, and so imperfectly formed as to require two days to enable it to ascend a tree. But what a different account do those give of it, who have seen it in the localities to which it has been assigned by Providence. Instead of being the helpless animal that it has been described, it is, on the contrary, wonderfully adapted from its formation and habits to the mode of life it was destined to lead. Nor are we to suppose that this animal has not its full share of enjoyment, as compared with that of other quadrupeds. The Sloth may be called a *tree* animal, with quite as much propriety as the horse or cow may be called *terrestrial* animals. When this fact is known, and the anatomy of the Sloth examined with re-

ference to it, we shall find that nothing can be more perfect than its organization. It lives on trees, and dies on trees, nor is it obliged to descend them to procure water, as it does not require any. Its legs are extremely muscular, and are perfectly capable of supporting the weight of the animal. In suspending itself from branches of trees, all the four legs are used, and this is evidently its natural position. In moving from tree to tree, also, the body always hangs downwards. When in search of food, or of its own species, the Sloth can shew considerable activity. So careful has Providence been of the preservation of this harmless, and apparently defenceless animal, that its fur is of the same colour as the moss on the trees on which it lives. This circumstance must render it difficult to be seen in the dense forests which it inhabits.

When birds have been found on little rocky islands, where no fresh water whatever is to be met with, the bills of the birds are all strong, enabling them to squeeze the juice from berries into the mouths of their young, and thus to supply the want of water. If we examine and enquire into the recent discoveries of plants and animals in Australia, we shall find much that is new to us, but all beautifully organized and arranged.

Migratory animals are well adapted by their peculiar habits and shapes for the task which has been allotted them. When the great annual migration

of Storks takes place in the Archipelago, those young ones which are not able to fly are placed on the backs of the old birds. The Quail would appear to be incapable of a long migration, but flies near the ground, and seldom more than a few hundred yards at a time. Woodcocks may be almost called nocturnal birds. They feed in the night, and also perform their migrations in the night, and are admirably adapted to do this from their peculiar structure. There is also another circumstance respecting the Woodcock, which may not be generally known. This bird is now ascertained to breed very frequently in some parts of England and Scotland; the nests, which almost invariably contain four eggs, are found in warm and dry situations, and as soon as the eggs are hatched the old birds immediately remove the young ones by taking them up in their feet, and conveying them to soft ground where they can find worms and insects. I have been assured by an Officer of rank in the army, that he has not only repeatedly seen the removal of the young birds in this manner, but that his companion shot an old bird with a young one in its claws. If the Woodcock were to build in low, swampy situations, the eggs, which are laid early in the Spring, would be liable to be chilled from rains, or perhaps flooded over. It is a peculiar instinct, therefore, which induces the bird to make its nest in dry spots, and to remove the young to places more adapted to their habits.

Quails, although migratory birds, breed to a great extent in this country, and appear to have favourite localities. In one district in Essex, numerous eggs have been found during the mowing season; and as many as sixty couples of these birds have been killed in the course of a few days' shooting on one manor in that County. In other parts of England it is very seldom indeed that a Quail is found. They are found in Sutherlandshire and Morayshire, and occasionally in Ireland.

It is an interesting fact respecting the Quail, and one clearly proved by Mr. Yarrell, in his interesting work on "British Birds," that the common Quail (*Coturnix dactylisonans*) was the food of the Israelites in the Wilderness. It is the only species that migrates in enormous multitudes, or indeed that migrates at all. The instinct of the bird was, therefore, made use of by the Almighty to supply the wants of His famishing people; "and it affords," says Mr. Yarrell, "a proof of the perpetuation of an instinct through a period of 3300 years." It does not pervade a whole species, but that part of a species existing within certain geographical limits; an instinct characterised by a peculiarity, which modern observers have also noticed, of making their migratory flight by night. We read in the sixteenth chapter of Exodus, "And it came to pass that at even (probably night) the Quails came up and covered the camp." Thus we see the most ancient of all Historical works,

and Natural History, each throwing light on the other.

I have always considered that the instinct, which has been implanted in defenceless birds, to make their migrations by night, affords a very extraordinary and delightful proof of the care and tenderness of a benevolent Creator towards His creatures. If such birds as the Quail, Woodcock, Snipe, Nightingale, Swallow, &c., performed their migrations in the day-time, they would be subject to the attacks of birds of prey, and also of man. How seldom does it strike us that so many of the little migratory warblers, which come to us in the Spring, enlivening our walks, and delighting us with their music, have so lately had a midnight flight over extensive seas, guided by His hand who watches over them, and who has declared that not even a Sparrow is forgotten by Him. What a strong inducement should this consideration be to every one to avoid every species of cruelty, and to treat with care and with kindness those animals, which a good and beneficent Being himself protects and provides for.

The exterminating propensity of man has deprived us of many birds, and some quadrupeds, which formerly were found in this country. The Bustard no longer stalks over our downs, and the noble Eagle is seldom to be seen making its beautiful gyrations over our heads. The hoarse croak of the Raven is rarely heard, or its interesting flight seen; and the

pretty little Owl (*Strix passerina*), and the lesser Bittern, once so common, are now looked at as objects of curiosity when accidentally met with.

The Lombardy or Italian Poplar has not very long been known in this country, for when Gilpin wrote his Forest Scenery, he tells us that it had not then been long introduced. It is evidently a favourite with the citizens of London, for in the environs of the Metropolis almost every house has one at least, either before or behind it. I am not aware whether it is a different species, or only a variety of the Black Poplar. Its foliage can scarcely be distinguished from that tree, but its manner of growth is very different. The Italian Poplar rises like the Cypress with a sharp cone, while the Black Poplar spreads the surface of its branches nearly into a semicircle. It is extraordinary that a tree so easily to be procured as the Italian Poplar, should have escaped the observation of Ray, Wheeler, and many other Botanists and travellers who had visited Italy, and turned their thoughts to ornamental gardening. It may be useful to observe that this, like other aquatic trees, thrives best near the water, but decays if the roots are constantly, or too long covered with it. This is the case with the Poplars planted by Queen Caroline, the wife of George II., along the Ha-ha fence of Kew Park. They are all either dead or decaying.

Lord Rochford introduced this tree from Turin about one hundred and ten years ago in the form of

small cuttings. Twenty-five or thirty years afterwards, some of the trees from these cuttings were measured, when the largest was found to be nearly five feet in circumference, three feet from the ground, and about seventy or eighty feet in height.

This tree, like the rest of the Poplars, according to the Linnaean system is diœcious, that is having male blossoms on one tree, and female on another, but the only tree I have ever seen in bloom was a male.

I will here give some extracts from an account published at Dijon in 1766 by Monsieur Bolet, an inhabitant of Burgundy, where this Poplar had been cultivated for many years. He says,—

“The Italian Poplar requires no care or attendance, and flourishes on the banks of rivers, and in places that will produce nothing else. It thrives most in marshes, and grows with such great quickness that in fifteen years it is larger and taller than any other sort of Poplar is in thirty. Some of the Italian have in twelve years been six feet in circumference, full eighty in height, and in fifteen years were fit to be felled as timber. A plantation of an English acre of this tree would pay the proprietor in fifteen years about one hundred and fifty pounds sterling. This Poplar grows so fast that it will in fifteen years be equal to a thriving oak of one hundred and fifty. Neither are all the merits of the tree confined to its growth. The many excellent qualities of the wood make it also very valuable. It is worked with great ease, is pleasant

under the tool, without knots, and is equally good for joiners, carpenters, or cartwright's work. This wood may also be wrought into very flexibles hafts for carriages and even fellies for wheels."

The writer adds, that in two years cuttings would become trees ten or twelve feet in height.

There can be no doubt that this tree flourishes more in Burgundy than in England, probably because Burgundy is nearly in the same latitude with the northern parts of Italy, where it seems to be indigenous. A cutting, planted at a village in Hampshire, had in eight years become a tree forty-three feet in height, and two feet two inches in circumference, two feet from the ground. A small tree planted near London was, in nine years, two feet nine inches in circumference, three feet from the ground, and full forty-five feet in height. But after making proper allowances for the difference of climate, and perhaps also for the sanguine expectations of a native of Burgundy, there is little doubt but that this tree may be cultivated to advantage in England, either as underwood, or as a kind of timber, exclusive of its elegant foliage and singularly beautiful appearance, which recommend it as a feature in ornamental plantations.

Perhaps the finest Poplar in this country is now growing and flourishing in the grounds of Mrs. Gosling at Whitton Park near Twickenham. It has a girth of about eighteen feet, and its height is calculated to be from one hundred and twenty to one hundred

and thirty feet. There is another near the entrance gate to the house in Sudbrook Park near Richmond, a very flourishing tree without any appearance of decay, which measures seventeen feet at four feet from the ground and is about one hundred and twenty feet in height. Mr. Loudon, also, in his "*Arboretum Britannicum*," mentions a tree at Great Tew in Oxfordshire, that at fifty years old had reached the enormous height of one hundred and twenty-five feet.

The Yew tree is dioecious according to Linnæus. Scoboli, however, who was an accurate observer of the productions of nature, assents in his "*Deliciæ Floræ et Faunæ*," to the objections which Thunberg, in the preface to his "*Flora Japonica*," makes to this class of Linnæus, as well as to the classes Polygamia, Gynandria, and Monœcia.

Minute rudiments of the bloom of the Yew appear on the female at the latter end of Summer, and continue to enlarge through the winter into a berry of a peculiar construction, which does not ripen till the succeeding Autumn. The blossoms of the male expand in the first mild weather in Spring, and the farina is so plentiful in large trees as to be dispersed in a considerable clond, which may account for the perfect seed on solitary female trees.

Yew is most certainly poisonous to large cattle, although in many places a most unaccountable incredulity prevails on this point. I have known

several horses and cows killed by it, from whose stomachs the deadly branches have been taken. Yet it is a curious fact that sheep seem to feed upon it with impunity, as the lower part of this tree, in sheep-walks, where the boughs come near the ground, are as much formed into shapes by their browsing as any other tree or shrub. It is however so common to find a sheep dead, that the cause is seldom inquired into. The berries are eaten by birds after the haws are consumed or destroyed by frost. In general this fruit is not detrimental to swine, who are fond of it; yet I remember a tree which was said to have been fatal to several hungry and greedy sows, who are supposed to have devoured large quantities. Next to the Box, the Yew is the best wood this country produces for handles to small tools; and the bodies of old trees are often beautifully veined, and are in great request for inlaying and veneering at Tunbridge and elsewhere. Neither should any part of this tree, when cut down, be consigned to the fire, as it makes posts and stakes of much superior duration to any other.

Though I have observed the Yew-tree growing wild in many parts of the kingdom, yet I doubt whether it was originally a native. Had any indigenous tree, whose seeds are disseminated by birds, like the Yew, been planted in almost every churchyard throughout the kingdom, been cultivated for archery, and introduced into every ornamental garden of former times, it would certainly have become one of our com-

monest trees. Instead of which, the Yew-tree, since bows have been laid aside, and it has been excluded from gardens, is manifestly in a decreasing state, for very few young trees are to be found in proportion to the number of old, many of which, however, are of great antiquity. It is probable that the Yew was very early dispersed through Europe, as the Saxon and British names are the same, which we believe is observable in no others, that general and most useful tree, the Apple, excepted. Seeds and plants of the tree, which would make bows much superior to any other, would be equally sought after in early times, and would be as precious as iron was to the inhabitants of the Islands of the South Sea. The wood of this tree in warmer climates is superior to any which grows in this country, and therefore Spanish bows always bore a much greater price here than our own. This inferiority is by no means an argument against its being a native, for there are few if any of our undoubted indigenous trees whose timber is not equal in quality to that of the foreign species. Voigt observes that Yews love a northern and cold situation, but in this country they thrive best in a warm and sheltered one, provided it has sufficient moisture, which would seem to shew that with us they are in a colder climate than their own.

It is difficult to discover what led our ancestors to place this tree so generally in Churchyards. Scarcely any could be selected so ill adapted for protection,

from the slowness of its growth, and the horizontal direction of its branches, both of which circumstances prevent its rising high enough, in a century, to shelter from storms even a building of a moderate height. Neither could one tree supply a whole parish with haws. From its dark and gloomy foliage it might have been considered as an appropriate tree to plant near the resting place of the departed, or it was probably on account of some superstitious belief attaching to it. We find that in the tenth century Howel Dda, in his code of laws for the Welch, fixes the price of a wild Yew tree (*Ywen coed*) at fifteen pence, but that of a Holy Yew (*Ywen sant*) was a pound. Wotton and Williams, the Editors of these laws, remark that the Holy Yew-trees were dedicated to some Saints, and are now common in Churchyards, but they produce no authority for this assertion.

I am not aware of there being any Yew-tree in England that is now in its natural state. I mean one that has not been lopped or pollarded. The only instance, with which I am acquainted, of an un mutilated tree is one now standing in the grounds of Arngomery House, Stirlingshire, the seat of William Leckie Ewing, Esq. Nothing can be more beautiful and graceful than this tree. Its girth is thirteen feet, and ten feet at the spring of the branches. The height of the stem to the branches is seven feet six inches, and the height of the tree thirty-five feet. The circumference outside the branches is one hundred

and ninety-two feet, and the circumference inside the branches at three feet from the ground is ninety-nine feet. The age of this tree must be quite conjectural. Mr. Ewing states that when his grandfather, Dr. Leckie, returned from Jamaica in 1749, just one hundred and three years ago, he was told by the oldest man in the parish, who was nearly 100 years of age, that it was an immense large tree in his young days. When Mr. Ewing took down the old house a few years ago, he found stones in it which his architect said must have been hewn at least 800 years before, and probably were laid in their places when the tree was planted.

There are some remarkable specimens of large Yew-trees still left in England, of which I will mention the following. A Yew in Braburne Churchyard, in Kent, had a diameter of nearly twenty feet, or a circumference of about sixty feet. There is also one in the Woods of Cliefden, near Maidenhead, still healthy, and called the Hedron Yew, which has a diameter of twenty-seven feet. In Langley Churchyard, near Slough, may be seen the *shell*, if I may call it so, of a Yew-tree, whose diameter formerly was probably as great as that at Cliefden. This Langley Yew would seem to support the opinion of physiologists, that exogenous trees are, by their nature, of indefinite growth—that they never die except by a violent death. This, I believe, is the case also with the Vine, the Olive, and the Fig tree.

The Ankerwyke Yew near Windsor, which I visited

last year, is supposed to be upwards of one thousand years old, according to Strutt. It is near Magna Charta Island, and under its shade Henry VIII. is said to have met Anna Boleyn.

I have also seen the Buckland Yew near Dover. It is evidently a tree of very great age, and has a singular appearance. Mr. Loudon gives a figure of it in his "*Arboretum Britannicum*."

Perhaps the finest collection of Yews, and Mr. Loudon thinks the most extraordinary in the world, are now flourishing at Elvaston Castle, near Derby. The late Lord Harrington, whose fine taste in horticulture was undoubted, purchased venerable Yew-trees at considerable distances from his Seat, and, at a great expense, conveyed them to it. I believe I am correct in stating that there was not a single failure in transplanting these trees. They were grouped about rock-work and other places in the fine gardens at Elvaston Castle, and, as I said, are the finest collection to be met with either in England or elsewhere, considering how recently many of them have been planted or rather transplanted.

Decandolle thinks that of all the European species of trees the Yew attains the greatest age. According to his calculations, thirty centuries must be assigned as the age of the Yew at Braburne in Kent, and from twenty-five to twenty-six centuries to that at Fortingal. There is also a very ancient one at Crewhurst in Surrey, and another at Studley Park, Yorkshire.

In a portion of the grounds which formerly were attached to the Old Palace of Richmond in Surrey, and which are now leased by the Crown to my kind and excellent friend, Dr. Julius, a most interesting and flourishing Yew-tree is still to be seen. It has a circumference of about eleven feet, and its branches cover an area of ground of considerable extent. This tree is mentioned in the Report of the Parliamentary Commissioners in 1649, and such is the care taken of, and the interest attached to it, that in all the old and more recent Crown leases of the property on which it stands, a clause is inserted, under which the lease may be forfeited should this Yew be in any way cut, lopped, or mutilated.

It is difficult to ascertain the age of the tree. The Old Palace is mentioned in Domesday Book, and therefore it is not impossible that the tree existed before the reign of William the Conqueror, and its appearance will bear out this supposition, especially with reference to other old Yews.

"O Reader! hast thou ever stood to see

The Holly-tree?

The eye, that contemplates it well, perceives

Its glossy leaves

Ordered by an intelligence, so wise

As might confound the Atheist's sophistries.

Below a circling fence its leaves are seen,

Wrinkled and sheen:

No grazing cattle through their prickly round
Can reach to wound ;
But as they grow where nothing is to fear,
Smooth and unarm'd the pointless leaves appear." *

Of the several evergreen trees that are now found in our Island, the Holly is the only one that claims the undoubted right of being a native. Like some other trees, it does not always accord with the Linnæan System, as it has generally hermaphrodite, and consequently fruitful blossoms ; but sometimes it bears only male bloom, and these plants are of course unfruitful. When this is the case, the country people distinguish the tree by the name of the *Holm*. It is occasionally killed by Mice, who bark its roots, and even its branches, for want of other food, when the ground is covered with snow, but the severest frosts of our country do it no injury, although this tree is not found far north. It is a native of Denmark, but not of Sweden, and probably for this reason. Forests of Pines, Firs, and Junipers abound in the most northern parts of Europe. Consequently the shelter of the Holly is not there of so much consequence as with us, who have naturally no other evergreen tree.

It is found most plentifully where the ground is left in an uncultivated state, and therefore our Forests are generally ornamented with it. The wood of this tree being exceedingly white, and retaining its colour, was formerly much valued for inlaying and veneering,

* SOUTHEY.

and its quality of not warping recommends it to the workmen who cut blocks for printers on linen or paper. In former times it was valued for purposes very different. In the Forest Laws of Canute it was enacted:—"No man shall lay hands upon any wood or underwood without leave of the Officers of the Forest; but if any one shall be found offending against this law, he shall be accounted guilty of a breach of the Royal Chase; but if any one shall cut a Holly-tree (*ilicem*) or any other tree that supplies food to the beasts of the Chase, he shall pay twenty shillings to the King, besides being guilty of a breach of the Royal Chase."

Though this is a severe fine considering the value of money in Canute's time, yet his Forest Laws are mild when compared with the sanguinary edicts of his savage Norman successors.

The berries of this tree alone would furnish but a very small quantity of food, provided the birds would suffer them to fall, and whilst it is growing, it is too well defended by its sharp species; but in severe winters, foresters cut down branches, on which, when withered, the Deer browse, and by this means find subsistence till milder weather arrives. The custom is continued to this day, I believe, in Epping Forest.

In some parts of England, a very pleasing effect arises from such Hollies as grow naturally in hedges, being suffered to shoot up into standards; thus they become very ornamental, without any trouble or ex-

pense, and cheer the eye with their verdure during the dead, leafless months, affording, also, when grown large, a shelter for Cattle. It is also pleasing to think what a retreat they furnish for flocks of Linnets, Goldfinches, and many other small birds, which, by a kind Providence, are directed to retire to us in Winter from the severity of more northern climates, thus shewing in their migrations a forethought which cannot but raise our wonder and admiration. As the notes of small birds only are adapted to please the human ear, may we not infer from it that they are placed, in a particular manner, under the protection of man, when we see that cultivation affords them shelter, and encrease of food, and at the same time drives away the larger kinds. It is to be regretted, however, that that delightful songster, the Lark, meets but with little compassion, and yet he sings nearer Heaven than any other bird. If persons refrained from eating them, or ordering them of their Poulterers, their charming notes would be more frequently heard.

The Holly is a favourite tree, and so it will be, like the Thorn and the Box, with every one who either plants with taste or has an eye to what is beautiful and picturesque in Nature. It is always to be admired, whether as a single tree, or for subdividing fields and gardens. In single trees, the beauty of the glossy foliage, the scarlet berries, and the shape of the plant when unmutilated, as it so seldom is, must attract

general attention. In hedge-rows, also, the effect is very striking. I have seen, in Staffordshire, a Holly-hedge about twelve feet high and at least eight feet in diameter, one great length of green. Evelyn mentions a Holly-hedge at Say's Court, Deptford, which was four hundred feet in length, nine feet high, and five feet in diameter. Evelyn further says that he had seen hedges of Holly, or rather stout walls, twenty feet in height. But these appear almost as nothing to the Holly-hedges planted by the Earl of Haddington, at Tynninghame, in Haddingtonshire, about the year 1705. In the Gardener's Chronicle, vol. 2, it is stated that there are 2952 yards of Holly-hedges or more than one mile and a half. These are in different lengths, and varying in height from ten to twenty-five feet, and from nine to thirteen feet in diameter. Mr. Loudon also informs us that the largest single Holly at Tynninghame, according to the dimensions sent to him in 1835, was forty-two feet high. I wish he had informed us whether this tree stood apart from any others, because we have seen many in woods drawn up to that height or more, but then they were anything but fine bushy trees, and were destitute of their lower branches.

When the art of gardening consisted in trimming and forming trees into shapes, the Box was in great request; but since that time it has been much discarded, chiefly on account of its offensive smell in hot weather. It ought, however, to be preserved in the borders of ornamental plantations, as we have so few other hardy evergreens capable of diversifying the scene during the long and dreary winters. With young Beeches and Hornbeams, both of which retain their withered leaves, the thick foliage of the Box, especially as it is not eaten by cattle, would much assist in sheltering game. The Box-trees of this country are of inferior size, and the wood of less value, than what is imported from the Levant; neither is it found to the Northward of us, yet in a very severe winter some years ago, it bore the frost better than any of our evergreens, except the Firs and Junipers.

Kempfer informs us that this tree grows in Japan; and Thunberg says it is cultivated by the industrious inhabitants of that island, who make combs of it, which, when ornamented with a reddish varnish, the women wear in their hair. The ancients also made their combs of this wood, and so did the English in the last century. Its various uses in this country are well known, and the wood is in great request, and brings high prices. Some years ago the late Mr. Poyntz, of Cowdray Park, near Midhurst, planted a large old gravel pit with Box, and on cutting it

down, and putting it into lots, it brought him, as he himself informs me, one thousand pounds by auction. When I saw the pit a very few years afterwards, the Box had sprouted up again and was growing vigorously.

The Romans planted the Box at their burying-places, probably on account of its longevity.

It is surprising that so little should be found in ancient writers concerning so obvious a memorial of the dead as planting memorial trees. It might have been expected, when few were acquainted with letters, that this method of shewing respect to the dead would have been generally practised. An Oak, a Yew, or a Box, would very frequently have outlived the remembrance of the person to whom it was dedicated. However it appears by Olaus Wormius, that the early inhabitants of the Northern part of Europe sometimes surrounded with trees, instead of circles of stones, the barrows or tumuli in which eminent persons were buried.*

A remarkable instance of its confined state appears at the extensive plantation of this tree at that most beautiful place, Box-hill in Surrey; not a plant is to be seen in any of the adjoining fields, and, after close inspection, I could scarcely find a young seedling, but the succession supports itself; for, when cut, it rises again from the old stems like a coppice. Tradition attributes this noble and beautiful plantation

* Monum. Danor. Hafn. 1643, fol. p. 38.

to an Earl of Arundel. How few possessors of such useless wastes have left behind them so valuable an example of their patriotic pursuits. Even the success with which the Duke of Cumberland, of Culloden memory, clothed and enriched the barren sands of Bagshot, has excited little attention, although it would have amply repaid a cultivator who sought only for profit.

Our oldest Botanists agree in supposing this tree not to be a native. "There groweth," says Turner, "in the mountains in Germany great plenty of Boxe wild without setting, but in England it groweth not alone by itself in any place that I know." *

"Boxe delighteth to grow upon high cold mountains, as upon the hills and deserts of Switzerland and Savoye, and other like places, where it groweth plentifully. In this country they plant both kinds in some gardens." †

Gerard would have done well to have specified those "sundry waste and barren hills in England," on which he asserts the Box grew in his time. Evelyn affirms that "these trees rise naturally at Boxley in Kent, in abundance;" and succeeding writers have too hastily followed him. For, in a tour I made through that County, I called at this village, and on examination of the neighbouring woods, and strictest enquiry of those who were best acquainted with them, I was thoroughly con-

* Herbal, 1568.

† Lyles' Herbal, 1586.

vinced that his assertion was totally groundless. To say the truth I was not greatly disappointed, as I recollected what Lambards had said long before Evelyn's time, that "Boxley may take the name of the Saxon word Boxeliage, for the store of Box-trees that peradventure some time grew there." *

At a very ancient Catholic House in Worcestershire, there was, and I hope there still remains, an avenue of Box-trees that deserves to be recorded. The avenue-walk had been at first a straight garden-walk between two borders, edged in the usual manner with Box; but the Box-edging afterwards, through long neglect, had been allowed to follow the course of nature and to grow at will. The consequence was that a number of the strongest plants acquired an ascendancy over the rest and grew to the size of tall trees; under which, when I saw them, there was a deep shade and an elastic soil composed of their decaying leaves. I think also that I walked under their lowest branches, which must therefore have been from five to six feet from the ground. Speaking from distant recollection, I should say that the length of the walk might have been a hundred yards; but the trees were of such a size that three hundred pounds had been offered for them by the button-makers of Birmingham.

If we turn to books of Botany, we find Ivy classed

* Perambulation of Kent, 1576.

among "climbing evergreen shrubs," and described according to the aspect that it has when it is growing in such places, which gives us no idea of its real nature. The specification of Ivy is, however,—a climbing evergreen tree with a bushy head, that will grow in the shade, but thrive only in the sun; the size of the head, other things being equal, never depending as in other trees on their age and the length of the stem or trunk, but wholly on the presence of sun and air.

Ivy cannot rise from the ground without support; but if it can procure support for its stem or lift itself into the sun and air, it becomes a tree like any other tree, with a trunk and spreading branches. Ivy only developes its real nature when, after raising itself from the ground, it can look at the sun, and live in it all day long; and provided that it can so rise up and procure a firm support for its stem, the length of the support is immaterial, for the length of its stem depending always on the height from the earth at which it can reach the sun, it will form as large a head upon a short post, as on the top of the tallest tree; the sole reason, why it climbs to the tops of trees, being as I have said, in order to find sun and air to enable it to fulfil its nature.

The perseverance with which an Ivy-tree will persist in trying to fulfil the purpose of its being, the patience with which it will wait for its opportunity is greater and more indomitable than that

of the corn, which will live for tens of centuries in a mummy-pit waiting for air and moisture; because the Ivy is growing all that time and spending the vigour, which in the corn lies dormant.

Ivy is therefore, as we commonly see it, almost indestructible. It will live any length of time as a ground-creeper without increasing much in size, or changing its appearance in any way; and if it ascends in the shade, though it may reach the clouds, it will grow, but do no more than grow; nor while it is growing in the shade will it ever decay. We never see an Ivy-tree that is decayed from old age, unless it is on a wall, or on the trunk of another tree of which it had long ago taken full possession, and in the face of the firmament accomplished that which was the end and aim of all its patient waiting, the bringing forth and perfecting the seed that was in itself.

I have seen some Ivy-trees of very great size, that had grown upon Firs which they had conquered and killed, and so totally overcome, that even their very trunks had become invisible.

As soon as an Ivy has lifted its leading shoot into the light for which it had been longing, the leading shoot ceases to grow in length, and becomes a thick truncheon or spur, that carries a mass of leaves;—other similar branches spring forth on all sides from the lower parts of it, and extend to different lengths, until they have obtained their share of the divine fire;

the leaves become as different from what they were before, as those of the holly under the same circumstances; all the branches below the head gradually die away, and the stem increases in thickness, until at last, if it is short as well as thick, it is almost able to support itself.

The sight of an Ivy-tree covered with berries is therefore, like a ruined garden, full of poetry;—the one because of the days that are gone and the flowers that gave pleasure to the dead,—the other, because of past exertions and long waiting, and patience crowned with victory.

The mucilaginous seeds of Ivy are not found in ordinary situations to grow well, however carefully they may be sown; while those that are self-sown, or sown by birds, under trees will grow abundantly; from which it has been supposed that such seeds require to be passed through some digestive process in order to make them fruitful. But Yew-berries and Quince-seeds are mucilaginous and grow freely; and so do Mistletoe and Cress and other such seeds, which have never been eaten by birds.

I have seen young Ivy-plants self-sown in a shaded place, though far from the stems of any trees, that were growing as close together as cabbages in a seed-bed, the soil being damp and very retentive though not a stiff clay.

Where Ivy, that has a thick stem, is cut down below the lowest branch, it does not, I think, shoot again

that is to say, the proper stem or trunk of an Ivy does not produce buds.

The fanciful trivial name of "Aquilina" given to the Common Fern, Brakes or Bracken, (*Pteris Aquilina**), is adopted from the old Botanists, who happened to discover that if the stalk of this plant be cut off near the root, towards the end of Summer, there would be frequently seen a resemblance to the Imperial Eagle; and this likeness is really stronger than many of their comparisons. It were to be wished that Linnæus could, in his very useful Introduction of trivial or specific names, have always found a mark even so distinguishing as this.

Virgil says, that in Italy the ground which produces Fern is fit for Vines. In this country it indicates a proper soil for tillage, as bushes do for pasture. These two plants were the chief covering of the open and fertile part of our Island before cultivation took place, while heath was spread over the barren lands. It is remarkable that this species of Fern should be one of the commonest of plants, though the rest of the Class *Filices* are most of them local, and many of them very rare. It emerges from the ground very late in the Spring, with the leaves rolled downwards into a ball, a kind of foliation called by Linnæus *Circinal*, which is peculiar to Ferns, and some sorts of Palms.

At this most scarce season of the year for vegetables

* LINNÆUS.

both for man and beast, the industrious cottagers in Hampshire boil the young shoots for their hogs, and this food they say makes them thrive and *snode* well, that is, change their coat of hair. Man, in a state of nature, has recourse to the roots of this plant for sustenance, as is, or was, the case among the natives of New Zealand. The principal part of their food, in fact their bread, is the roots of the Fern which grows upon the hills, and is nearly the same with that of our high commons in England, and is called indifferently Fern, Bracken or Brakes.

The inhabitants, also, of more fruitful Islands make use of this root in times of scarcity, and in several parts of Europe men have been driven by hunger to the same resources. Swine, in a wild state, subsist on Fern-roots in winter, at least I was informed so many years ago by an intelligent person who lived on the verge of the forest of Bere near Portsmouth.

Fern becomes brown with the earliest frost; and its early shoots in the Spring are blackened by late frosts. When dry, it is much the most preferable covering to defend tender vegetables from the severity of winter. Parkinson, who obtained the title of "Botanicus Regius Primarius," and who became Apothecary to James I, has a remark in one of his works, which is worthy to be recorded for the benefit of frugal families, who live where wood-ashes are not easily to be procured. He says, "they use in Warwickshire, above any other country in this land, instead of soap to wash

their clothes, to gather the female Fern, for that is most frequent with them about Midsomer, and to make it up into good big balls, which, when they will use them, they burne them in the fire, untill it become blewish, which, being then lay'd by, will dissolve into powder of itself, like unto lime; foure of these balles being dissolved in warm water is sufficient to wash a whole bucke full of cloathes."

It is worthy of remark that many of our native animals, who rest on the ground, have their clothing exactly of the colour of Fern when withered, such as the Stag, Hind, Hare and Partridge. All these would be exposed, in the nakedness of winter, to the ravages of their enemies, were they not screened by the similar colour of the plant which harbours them. For the same reason in Northern countries, Hares and Ptarmigans (*Tetraodagopus*) turn white at the approach of winter, so that they are not distinguishable in the snow. In these two instances we have a glimpse of the admirable regulations of Providence, which takes care to prevent the carnivorous animals from preying too largely on the graminivorous.

In the curious Anglo-Saxon song, quoted by Dr. Burney in his History of Music,* which mentions the note of the Cuckoo among other rural incidents attendant on the return of Summer, "Backe vertith," (the buck browseth on the new Spring foliage) is explained by "frequents the green Ferns." This must be an erroneous interpretation, for the Cuckoo

* Vol. II. . 405.

ceases to sing while the Fern is scarcely above ground. Neither does Manwood, in his scarce old book on Forest Laws, allow Fern to be vert. He says, "there are two sorts of vert in every forest; that is to say, over vert and nether vert. Over vert is that which the lawiers doe call Hault Boys, and nether vert is that which the lawiers doe call South Boys, and in the forest laws, over vert is all manner of Hault Boys, or green wood, as well such as beareth fruit as such as beareth none. Old Ashes, and Hollie trees they are accompted over vert. Nether vert is that which the lawiers doe call South Boys, and that is properly all manner of underwood, and also bushes, thornes, gorse, and such like; and some men do take Fern and Heath to be nether vert, but it cannot be so, unless the same be underwood, or of the kind of underwood as Master Sergeant Fleetwood saith; and yet it is not lawful for any man to burn or destroy either Fearne or Heath, or such like, within a forest, because that is taken by the Assizes of the forest to be coverts for the King's wild beasts."*

The Ancients, who often paid more attention to received opinions than to the evidence of their senses, believed that Fern had no seeds. Our ancestors imagined that it had seed which was invisible. Hence, from an extraordinary mode of reasoning, founded on the fantastic doctrine of signatures,† they concluded that those, who possessed the secret of wearing this

* Cap. VI. Sect. 2. † See Brown's *Britannia's Pastoral*, 1613.

seed about them, would also become invisible. This superstition the good sense of our great poet, Shakspeare, taught him to ridicule.

"GADSHILL. We steal as in a Castle, cocksure; we have the receipt of Fern-seed, we walk invisible.

CHAMBERLAIN. Nay, I think rather you are more beholden to the night than to the Fern-seed, for your walking invisible."*

It would appear that this absurd notion was not totally exploded in the time of Addison. He laughs at a Doctor "who was arrived at the knowledge of the Green and Red Dragon, and had discovered the female Fern-seed: nobody knew what this meant; but the Green and Red Dragon so amused the people, that the Doctor lived very comfortably upon them."†

Extravagancies of this kind did great prejudice to the study of medicine in those days, by discouraging a rational enquiry into the virtues of our indigenous plants, and by that means leaving room for the introduction into our Dispensatories of pernicious and dangerous preparations from minerals and metals.

There is a very common idea amongst some of the peasantry in this country, that the roots of the Fern are connected with each other all over the kingdom, so that the termination of the root of any one Fern is not to be found. Certainly I have endeavoured to have a root traced for a considerable distance, but never could arrive at the end of it, a proof how far

* Henry IV. Part I. Scene 2. † Tatler, No. 240.

they run under ground. The best way of getting Fern to grow in a park, or other place where none previously existed, is to have a deep and wide trench dug, and to empty into it cart-loads of Fern-leaves, with the roots, and the soil in which they grew.

Girdling trees is not always fatal; an Elder will live and thrive after the bark has been cut quite away, three or four inches in width, all round the trunk, near the ground, and the wood laid bare to the weather. I have seen an Elder that had been so treated three years before; it has therefore lived through two full years without any communication from the roots to the leaves, between the bark and the wood, yet it is still flourishing and is now in blossom. The bark is quite alive, both above and below the bare part of the trunk, but as yet there is no appearance of an attempt to produce new bark or to heal over.

It is indeed almost impossible to conceive the multiplicity of created objects, which people the earth, or the enormous number of peculiar species. For instance, in the tropical forests, Beetles, Ants, and many other insects are found, especially at certain periods of the year, in such prodigious numbers, that no one, who has not been a witness of the fact, would be capable of forming any idea of it. We must not suppose that these vast quantities of insects are permitted to exist without some important and useful purposes

having to be performed by them. In the forests referred to, vegetation is not only exceedingly rapid, but the decay of it is equally so. Large trees, also, to which parasitical plants have clung, are thrown down by hurricanes or other causes. Forests, therefore, would become almost impassable, both for man and beast, and the atmosphere would be rendered more hurtful to them, if the decaying vegetable matter was not quickly consumed by myriads of insects. Notwithstanding all the researches of Naturalists, and they have been great and indefatigable, the varieties of Beetles alone are so exceedingly numerous, as to have as yet defied all attempts to catalogue them; and Mr. Darwin, in his "Researches in Natural History," says that it is sufficient to disturb the composure of an entomologist's mind to look forward to the future dimensions of a complete catalogue of these insects. It is also an interesting fact, that carnivorous Beetles, and insects that feed on flesh, are very rare in these forests, while they abound in places where animals are very numerous. Mr. Darwin, states, "that a person, on first entering a tropical forest, is astonished at the labours of the Ants alone. Well-beaten paths may be seen, branching off in every direction, on which an army of never-failing foragers are seen, some going forth, and others returning, burthened with pieces of green leaf, often larger than their own bodies."

The beautiful manner, in which an Almighty Power has adapted certain insects to perform particular ser-

vices, may be further illustrated by the following fact. —We know that the Caterpillars of many of our English butterflies feed on cabbages and lettuces. These vegetables are now cultivated in the gardens round Rio de Janeiro, having been of late years introduced there. Mr. Darwin informs us “that neither the Caterpillars of the numerous Butterflies, which abound in that country to an extraordinary degree, nor even the Slugs, will touch them. Other food has been allotted to them to feed upon; in doing which they fulfil one of the designs for which they were created.

Part of the dead branch of an Oak tree found in Windsor Great Park was once sent to me, on which the Caterpillar of the Puss-moth (*Bombyx vinula*) had constructed the outer case of its cocoon, or rather a very ingenious covering and protection to it. This case was formed to resemble the bark of the Oak so completely, that it was almost impossible to distinguish it from that substance. Indeed so complete was the deception, that until I shook the piece of branch, and heard the rattle of the cocoon in the outer case, I did not discover it. It is difficult to conceive the possibility of a Caterpillar producing this imitative covering, which is quite as hard as any part of the bark of an Oak, and also of fixing upon it a small piece of moss to assist the deception. That the *barky* and mossy substances have been eaten off by the insect, and then reproduced in their present form, cannot admit of a doubt. But as

this case must have been made by the operation of the Caterpillar from the inside of it, it is wonderful how the junction of the new with the old bark was effected with the extreme nicety with which it was done, and also how the case was closed up when nearly completed.

In another instance, a Caterpillar of the same species of Moth made its case on some old paling, and the colour of the wood was completely imitated. I consider these as amongst the most curious specimens of insect architecture I have met with, and they afford proofs of the instinct implanted by a benevolent Creator in insignificant insects for their preservation. No wet can penetrate, and no bird could discover, or get at the imbedded cocoon. I can only regret the difficulty of giving an adequate idea of this curious structure.

In order to produce the necessary number of insects requisite to carry on the purposes for which they were created, each species has its own particular habitation, in which the young can be lodged and protected. Many of these are formed with great skill, and shew astonishing ingenuity. The Mason Bee, for instance, may be called an architect, for she makes a building composed of sand and mortar. Some insects have the power of boring into decaying trees, which they do to a great depth with considerable skill and perseverance. Others penetrate into the earth, or drop their eggs in the water, while many live in communities, defend-

ing themselves and their young with so much courage, that even the largest animals have been obliged to yield to their united assaults.

It is evident, that the great multiplicity of insects would be attended with injury, if various causes did not serve to diminish their numbers, where there is an undue proportion of them. Birds devour them, and so do the larger tribe of insects, such as spiders, wasps, &c. Another means of preventing a superabundant proportion of them, and of keeping down the numbers of certain insects, is the migratory principle which pervades certain species; during the progress of the migrations vast numbers are destroyed. Mr. Darwin tells us, "that when the *Beagle* was off the shores of Northern Patagonia, and about ten miles from the Bay of San Blas, vast numbers of Butterflies, in bands or flocks of countless myriads, extended as far as the eye could range. Even with the aid of a glass, it was not possible to see a space free from Butterflies. The seamen cried out, 'it was snowing Butterflies,' and such in fact, was the appearance. The day had been fine and calm, and the one previous to it equally so. It is not, therefore, probable, that the insects were blown off the land, but we may conclude that they voluntarily took flight. Before sunset, however, a strong breeze sprang up from the north, and this must have been the cause of tens of thousands of the Butterflies having perished." Captain Fitzroy, in his narrative, says, "that this flight of white

Butterflies occupied a space of not less than two hundred yards in height, a mile in width, and several miles in length, and that they were as numerous as flakes of snow in the thickest shower." This migratory instinct in insects is not confined to Butterflies. Numerous Beetles have been found far out at sea. Numbers of them were discovered seventeen miles from land, swimming in the open ocean, and apparently not much injured by the salt water.

The interesting fact of insects being blown from the Patagonian shore was observed by Captain Cook, and has been ably remarked upon by Mr. Darwin. Amongst other facts, the latter informs us that while the *Beagle* was in the mouth of the Plata, the rigging was coated with the web of the gossamer Spider. The weather had been fine and clear, and in the morning the air was full of patches of the flocculent web, as on an autumnal day in England. The ship was then sixty miles distant from the land. Vast numbers of a small spider, about one-tenth of an inch in length, and of a dusky red colour, were attached to the webs. Many thousands of them were on the ship. The little aeronaut, as soon as it arrived on board, was very active, running about, sometimes letting itself fall, and then reascending the same thread; sometimes employing itself in making a small and very irregular mesh in the corners between the ropes. It moved with facility on the surface of the water. Its stock of thread appeared to be inexhaustible; and this I have observed

to be the case with our own little gossamer, and, like them, when they were suspended by a single thread, the slightest breath of air would bear them out of sight. On other occasions, when they had been placed, or had crawled, on some little eminence, they would send forth a thread, and sail away in a lateral course, with a rapidity which was quite unaccountable. Some spiders, however, have the power of darting through the air without the help of any thread. This I have noticed more than once, and it has been observed by others. M. Virey, in his "Bulletin des Sciences Naturelles," thinks that by means of a rapid vibration of their feet, they *walk the air*. In the case of a spider, placed upon a stick, fixed in the centre of a basin-full of water, a thread is thrown out, of sufficient length to be carried by the slightest breath of air to the edge of the basin, to which it seems to adhere in consequence of some glutinous substance at the end of the thread. By means of this thread the spider makes its escape.

When the net of the large Garden Spider is heavy with dew and is made to swing or wave in the air so as to endanger it, the Spider will fix his feet in the centre filaments, and swing his heavy body to and fro in a very extraordinary manner, producing, by that means, a series of vibrations in quicker time than that in which the net is moving, by means of which the strain upon the fabric is diminished, and gradually neutralised. He begins the operation by throwing his body

rapidly and violently from and towards the net, and causes it by that means to vibrate a great deal, but he continually diminishes the space through which he moves, and goes faster and faster, while he is diminishing it, until his body becomes almost imperceptible, and the motion appears to cease before it actually ceases, from its extreme rapidity, as well as from the continually diminishing space through which it is performed.

In the Autumn, early in the morning, after a dew, and when there is no wind, if the net is waved slowly, without scaring the spider, by swinging one of its chief supports, the process may be observed without interruption. I have also seen other Spiders of the same genus in furze and hedgerows do the same thing in a high wind, but the wind interferes with the regularity, as well as with the visible duration of the process.

In a quiet mill-head or clear pond, or in any other such place where there are Eels, and where the ground is soft and easily seen, there are commonly to be observed, upon the surface of the mud, a number of round and cup-shaped holes.

Now the fresh water Mussels (*Mya ovalis*) are wont to bury themselves in the mud, and will lie at the bottom of the same kind of holes, which they make by opening and then forcibly closing their large shells, and so repeatedly throwing out the water, with the mud

that it contains, to a certain distance, until at length the latter subsides round the place and leaves a cavity in the surface. I cannot, however, say that it is so from my own experience, but I know that the same effect is produced by a Bull-head, who operates, in a similar manner, with his mouth.

The holes to which I allude are not made by the Mya, but by Eels, who, after burying themselves, make them, I have no doubt, by the same mode of proceeding as that of a Bull-head.

Most certain it is, that when we see such a cavity of about two inches or more in diameter, which appears to be fresh and evenly formed, if we are able to get close enough to it, we shall also be likely to see the lips of a large Eel just barely protruding from the bottom of it, and slowly performing the process of respiration, while the rest of the head is invisible.

Moreover, if we carefully let down a Lob-worm, and hold it so that it may gently touch his nose, the consequences will, as probably, be such that the fisher will not soon forget them; for the Eel will most likely seize the worm, and if he does so, he will seize it like a tiger, or with such a desperate and sudden snap, and plunge away with it at the same moment, so far into the mud, that if the fisher's nerves are tenderly strung, it may go hard with him for a while; the effect in such a case being often little less than that which is produced by the bang of a pistol, when it is fired

close behind a man, who is alone and unconscious that such a thing is going to be done.

Consequently, when such holes abound, there arises the following method of fishing for Eel, which is both scientific and exciting.

A short and thick needle is tied to a silk line; or, in other words, the angler makes a "sniggling needle," but shorter and stronger than such a needle is commonly made, because it is commonly made too long, and with much too thin a needle; and having killed a lob-worm, by throwing it with sufficient force upon hard ground, and dividing it, and taking the head part; into the other end of that part of it he inserts the needle, as in a case of sniggling, or so that the head of the worm may be presented to the Eel: such a bait, or, I suppose, a Minnow, though I never tried one, the head of the needle being pointed towards the Minnow's head, is let down to the holes from the end of a stiff rod, and will commonly prove most successful.

The way to kill an Eel and to take out the needle, is to throw over him enough dry earth or sand to cover him with it, but earth I think is better, because it will more immediately absorb the moisture of the skin, which being absorbed, he will lie still, and therefore enable you to handle him. He is then to be killed by dividing the spine at its juncture with the head, which kills him instantly; a fleam, employed in the usual manner, is much the best thing with which to

operate. The needle, being made to shew itself under the skin of the fish's throat, may afterwards be drawn out by the head, together with the line to which it is tied, through a small slit made in it at the part with a sharp penknife.

The above is a detail of the Natural History of the cavities that have been described, and of the piscatory results to which it leads. But Eel-fishing, in that way, is nevertheless no more than the most pleasurable method of Eel-fishing, which is the least pleasurable, perhaps, of all the branches of the Art of Angling.

At Dudson, near Birmingham, about thirty years ago, there was, in a small pond in the garden, a large tame Perch, who put everything that I offered him into his mouth, and did not seem to be afraid of anything. I even presented my finger to him, which he tried in the most vigorous manner to get down his throat, pressing against the end of it with distended jaws, and with a wriggling motion performed by means of the tail. I also lifted him out of the pond without scaring him.

If he was not visible at any moment, when the water was splashed by the hand he soon appeared, and remained some time near the surface, looking about; after which, if there was nothing for him, he went down again;—for a large Perch always lies at the bottom, commonly upon the ground; where he rests,

like all his species, under the same circumstances, on the tips of the ventral fins and the tip of the tail. He was extremely deliberate and sober in his proceedings, moving as little as possible. And from not being aware of the fact that a large Perch is always at the bottom of the water, and is a slow mover, it arises that few Anglers are able to catch a large Perch.

The way to succeed in doing so is to fish close to the bottom, and to let the bait lie several minutes in one place, moving it also very slowly, when it is moved, and not more than a few inches at a time. If that is done, and properly done, the Angler will catch only a few fish, but they will all be large; whereas if he fishes like most men, upon the roving principle, or moves the bait continually and does not keep it deep enough, he may catch a great many, but there will not be among them, unless by mere accident, one large fish.

All other fish that I have observed, when they move their pectoral fins, move them together; a Perch moves them alternately.

A Perch is the Whiting of fresh waters, but a very superior fish to a Whiting, though few people will acknowledge his superiority; which is owing altogether to the little care that we take to enquire into his habits, and to catch him for the table at the right time of the year.

We catch Salmon at a certain season and then they are in the best condition; but Perch we can catch at

any time, and never trouble ourselves to consider whether it is the proper time or not for such fish to be in good condition. The fact is they should be eaten, as Salmon are eaten, just before they spawn, which is in the very beginning of April; and consequently the time to eat a Perch, in perfection, is in March, and neither before nor after.

The use of the Back Fin has long been a question that has interested Ichthyologists not a little, though unhappily the desire to understand Ichthyology has not extended to the other fins of fish; while the desire to understand the science of the Back Fin has extended no farther than to suggest the theory that it is to enable the fish to keep himself upright. Experiments have accordingly been made to ascertain the fact; one of which was to see if it was used by fish in the act of swimming; so, in order to set that question at rest, the Back Fin of a fish was cut quite off, and when it was found that the fish appeared to swim as well without it as before, or in the same upright position, it was held to be proved that the use of the Back Fin is not to enable a fish to keep himself upright in the water.

But by the same reasoning, if we wanted to ascertain the use of a fish's head we should cut it off, and when we saw that it produced immediate death, should decide that the use of a fish's head is to enable him to live, and nothing more. If on

the other hand we look at a fish that possesses all his fins uninjured, and, while he is perfectly free to move them as he likes, observe what he does when he moves in different ways under different circumstances, we shall finally see that the chief use of the Back Fin is to enable the fish to sustain himself when he meets with conflicting currents, that is to say, against a lateral motion in the water—not always, but when he is moving slowly; or after he has turned and suddenly stops; or when he is at rest.

When there is a lateral motion in the water, whether previously existing or produced by himself, a fish, and particularly a deep fish, requires the help of his Back Fin while he is moving slowly, almost as much as when he is at rest; but it is only in slow motion that it is of use to him, and therefore when he is moving or preparing to move quickly he puts it down and does not raise it again until he ceases to move quickly. In like manner when he is at rest, and the water is still, the Back Fin is also quite motionless; but if there is the slightest motion in the water, so that it meets him in any direction on his side, he immediately begins to use the Back Fin with a vigour corresponding to the force of the motion, for the manifest purpose of preventing himself from being swayed by it. And the science with which he does it; the mode in which he opens the fin or returns it to its place, so that it shall offer the least resistance to the water when it is required

that there should be no resistance — the beautiful adaptation of the whole instrument to its particular purposes; might be displayed perhaps to some extent in a Treatise on the Fins of Fishes, but is altogether unapproachable within the compass of this work.

The fish, whose Back Fin was cut off in the above experiment, was a Roach, and no fish can more manifestly shew us why he uses it, as well from the prominent manner in which he operates with it, as on account of his slow and constant motion.

The fish that I have examined with reference to their use of the Back Fin are a Roach, a Minnow, a Perch, and a Gold fish. A Perch however moves so little that he does not add much to our knowledge of the matter.

There are no doubt other uses to which the Back Fin is applied, for nature seldom makes a thing to serve a single purpose. Thus a Perch, whose Back Fin is very spinous, erects it when he is in the act of feeding, and often suddenly at other times. The size of the Back Fin may be expected to be small in very broad fish, and large in those that are deep and otherwise insufficiently provided with the means of supporting the body; that is to say, the size and situation of the Back Fin depend on the shape and habits of the fish, and the relative situation and power of his other fins and tail, together with the nature of the waters that he inhabits.

All the fish that I have observed move the Eyes

in three directions but not upwards. The way in which they move them however in most cases, is peculiar; they cannot move them smoothly or to any angle, but only to a certain angle and with a jerk. They can also move each eye independently of the other. Minnows, again, contract and dilate the pupil very much, but I never could detect the same faculty in other fish.

Those who make up the great body of people with whom we come into contact during our journey through the world, when we have seen them a few times under ordinary circumstances, are known and understood as well as if we saw them every day; because they are all made up of the same materials, and are altogether the creatures of those circumstances.

But with a few, the case is very different; we may see them every day, for years together, and yet never know nor understand them after all, because the mind, in such people, though it may not go much deeper, is not created out of their ordinary circumstances; from which it arises that, if we would understand such people, we must have an opportunity of seeing them on some occasion when the differences or peculiarities of their character are called forth. A very trivial circumstance will suffice to call them forth; and therefore a moment of time is enough to enable a man with a sharp eye to come at length to

..

know them thoroughly; a man with a sharp eye being a man who has penetration to discern the causes of human conduct, or to trace the motive of what is said or done, and therefore to discern the kind of person who says and does it.

And we shall find that it is the same with different species of animals, or with different individuals among ourselves. Thus with Horses, Cattle, Sheep, and Poultry, though a few individuals, here and there, may differ somewhat in individual propensities, yet when we have seen them under ordinary circumstances, their habits and manners are so perfectly made known to us, that if we were to live among them all our lives we should find out very little more about them; or rather should discover that they were always the same animals.

But it is not so with all species of animals that are common enough in many places; as for example with Stoats and Weasels; because, although we may see such animals numberless times, it is only on some rare occasion that we are able to see them under circumstances that cause them to develop their real characters and resources; as also in their case, because, where they are seen, they are commonly looked at as creatures to be killed, and are hotly pursued like a mad dog, until they are circumvented and put out of the way; instead of being contemplated with the eye of a Naturalist, as creatures who are endowed with mysterious attributes and unintelligible power.

I have watched Stoats and Weasels in their secret

haunts and seen their secret proceedings; and we have no wild animals who would oftener be visible if it was only possible to get a glimpse of them; for no animal is more constantly going about, and none works harder for his living than a Stoat or Weasel.

But he is secret and mysterious in all that he does; he is always darting into holes and oozing out again through other holes to which he had travelled underground, or appears for an instant at a loophole in a hedge and is gone before we are certain as to his identity; and he is so silent as well as quick in all his motions, and cautious and continually peering about, — though he chiefly depends on his ears as much to warn him of danger, as on his nose to find his food, for his eyes are of use to him only at the shortest distances — that when we have caught a sight of him in his natural wilds we must be well acquainted with him if we would know where he is likely to appear again.

He is also as curious and inquisitive as he is quick and cautious, or seems to be so, because he cannot see well; and therefore when he hears a noise, being interested in all that may tend to his good or evil, and also cautious, and accordingly slow to decide about the meaning of a thing until he has found out what it means, he is obliged to go close to the place before he can make up his mind. From which it arises that when we have disturbed a Stoat, or Weasel, if we are careful to stand still and be quite silent, we are almost sure to see him again; particularly if we are able to

imitate the crying of a Rabbit or a Rat, when we may safely depend on seeing him, and also on his coming very near to us.

A Stoat is not by any means a fleet animal, but what he wants in speed he makes up in address; so that a dog on his own ground can rarely manage to get hold of him.

I was sitting on some logs of wood in a quiet field by the side of a quiet coppice, and had also with me a dog for a companion, who was used to my quiet way.

After I had been there some time, I saw a rabbit run out of the wood and go towards the middle of the field; he did not go far and seemed to hesitate, and, after some uncertain movements, turned and lay down or squatted in the grass. He had an unusual appearance, and from his running in that manner I was led to suspect that a Stoat was hunting him, so I kept my dog where he was, and shortly saw a Stoat come out at the same place and follow upon the scent.

But he was not then the lurking and timid creature that he is when we see him at other times, but earnest and violent, and bold and brave; he threw himself from side to side with his head up in the air, like a well broken pointer who is quartering a field, until he hit off the line in which the Rabbit had gone, when he kept it with the skill and ardour of a Bloodhound, who knew from the state of things that he was close upon his prey.

..

He was therefore not long in reaching the Rabbit, though he did not, as usual, see it till the last moment, when he immediately and repeatedly leapt upon its neck, biting and shaking it with all the force he could put into his violent blows, and retreating, each time a pace or two in order to produce the greater effect.

At that stage of the proceedings I ran up with my Dog, a most sagacious Retriever and superior performer, though a small Dog of his kind, who counted I believe as much as I did on making an easy capture of the Stoat. But we were both of us mistaken, for as soon as he saw us, though he must have felt that the matter was likely to be serious and even desperate, he did not shew the least alarm nor lose his presence of mind. He merely turned his head towards the side of the wood from which he had just come, and without taking the slightest notice of the Dog, or going an inch out of his way, went back the whole distance, full twenty yards, in a series of high, long deliberate and steady leaps, during which the Dog, though he had no difficulty in keeping up with his real pace, could never accomplish his seizure; because the Stoat was never on the ground except for a moment at the interval of each leap, and the intervals were so long and the motion so unusual, that the Dog lost him, as it were, after every descent, and was not able to reach him when he next touched the ground, before he had vanished again.

Now it is a fact, that a Dog, when he is trying to

..

catch an animal which is running before his nose, although his eyes are so placed in his head that he can easily see above him, can very rarely see the animal if it happens to make a sudden leap and rises much above his eyes, but hunts about upon the ground and then turns, most commonly in the wrong direction, and looks round in a state of the greatest astonishment. We are, therefore, to conclude that the Stoat, in his danger, was led instinctively to practice the device by which he saved his life, and that he practised it with instinctive skill. A Weasel I suppose would not have fared so well, but never having seen a Weasel under the same circumstances, and knowing how quick and cunning they are, and how fertile in contrivances, I am not at all sure that he would not have escaped, though not, perhaps, so easily.

I once killed a Weasel on the bank of a river where he was probably looking for a Water-rat; he was thin and old, and his teeth were worn down like those of a Dog, who has passed his life in the service of a rat-catcher; and he had all the appearance of having fared badly through old age.

We may also see Snakes and Frogs at all seasons when they are above ground, and yet never know more about them than that they are Snakes and Frogs.

Hundreds of Naturalists, or at least thousands of people who live in the country, have seen common Snakes, yet never saw them bite or swim, still less

ever saw them swimming under water; and of every ten thousand who are intimate with Frogs, not one man perhaps, or not more than one, has heard the loud and shrieking scream that they will utter when they are conscious of great or peculiar danger,—as when they are leaping in long grass before a mower's scythe,—which is a voice that, in intensity of expression as well as volume—the expression being increased perhaps by proceeding from such a creature,—is undoubtedly the most appalling and ghastly sound that can be heard among animal voices or can well be imagined; for it embodies a mass of distress from sudden dread, or is made up of the last agonies of terror and horror.

During the first thirty years of my life I had probably as much to do with Snakes as any body; I have caught and handled them in all ways, and, when a boy, have even taken them into bed with me and done with them all that foolish boys can do who desire to get at the meaning of a thing, or whose curiosity and thoughtlessness are greater than their sense of fear. Therefore, I must have annoyed and exasperated them in every kind of way; yet I never saw a common Snake attempt to bite, and never heard of any boy or man, in all those years, who had been bitten by a common snake.

But the Author of "the Journal of a Naturalist," on the contrary, whose intercourse with such creatures can hardly have been greater, says that he has been

bitten by them many times, and with the same effects as from the bite of an Adder, though much less in degree.

So, of those few Naturalists who have seen Snakes swim, how many have seen them swimming under water, as if it was their natural element?—for I do not think that there is a single instance in which such a sight is recorded to have been seen. In after years, however, I happened on the same occasion to see a Snake swim in that way and also bite.

I was walking with a companion by the side of a little brook where, in a deep and quiet hole, and at the bottom of the water, we saw distinctly a common Snake of full size. He was moving a little when we first saw him, but afterwards lay without motion and apparently at his ease; he looked therefore but for his colour, exactly like an eel. After a while I took him out without any resistance on his part; he allowed himself indeed to be so easily caught, that I am led to think that he did not see me; and therefore conclude that Snakes do not see well under water.

I then carried him to a bare place near the bank and put him on the ground, where, being ignorant I suppose of local bearings, instead of proceeding to effect his escape, he immediately coiled himself into a ball and tried incessantly to protect his head by hiding it among the folds of his long body. He also emitted freely the characteristic effluvia of his species when they are irritated or alarmed.

..

After he had spent some time in that way, he suddenly lifted his head, though without uncoiling his body, and hissing violently and darting out his tongue, struck at my shoe like a viper, several times, hitting it every time with his jaws a vigorous and very audible blow.

In writing about Snakes it is legitimate to ascend from a Slow-worm to the Sea Serpent; and therefore I will add that all the Snakes which I have seen in the act of swimming on the surface, swam with the head and neck considerably elevated and so that no part of the body was immersed. They also moved, of course, as they move on land, viz.: with lateral or horizontal folds; whereas the Sea Serpent is described and figured with the head erect in the same way, but as if he moved with vertical instead of horizontal folds; which must certainly be a mistake, because it is impossible that locomotion could be so performed, unless by repeatedly diving down the head, which he has never been seen to do.

Concerning the motion of Eels on land and the stories that are on record of Eels that have been seen in the act of passing from pond to pond, I may likewise mention that Naturalists are inconsistently incredulous, their incredulity arising from want of observation; for when a fresh caught Eel is thrown on stalky grass that affords him a firm lateral support or purchase, and is thoroughly saturated with rain or water, he will move forward through the grass as

easily, if not as fast, as in water among thick weeds, though he will no doubt suffer from the friction of the grass if he continues the operation long.

The croaking of Frogs is another phenomenon which is constantly heard but very rarely seen. I happen to have seen a Frog in the act, under circumstances that will be mentioned by and bye, when I observed that the breath was drawn into the mouth through a very small and narrow aperture in the middle of it; and that the passage of the air down the throat produced a sharp external bead, which increased in size towards the chest, and in which the pulsations arising from the division of the stream into the roll of notes that constitutes croaking, were very well defined.

But there is an instinct or faculty belonging to Frogs, which it will afford us much instruction as well as interest to contemplate; viz.: the faculty that they have, if not always, which is probable, yet at all events at a certain season, of knowing when they are in the neighbourhood of water, and of distinguishing in some manner the direction in which it lies, at a distance perhaps of several miles. •

Now if we are told that a Pigeon which had been taken out of a back room in an obscure house in the most crowded part of Paris or Antwerp, and put into a basket and carried in the dark to the most crowded part of London, and, after a day or two, thrown up into the air, is seen to describe two or three large circles and then to fly straight off in the right direction

and continue to fly in that direction until he settles once more upon the top of the house, or enters the very window from which he was taken—being hindered from doubting the fact on account of its notoriety—we are contented to wonder at it and to think it very curious.

But when we see Hive-bees and Wasps do the same kind of thing, almost as often as we see them, we are not at all surprised. While if it is asserted that the same faculty at which we wonder in a bird and do not wonder in a bee, is possessed also by our common domestic quadrupeds, we are always incredulous more or less.

Thus, if we should read in the papers that a Horse, or a Donkey was taken out of a stable in the heart of London and led blindfold by the high road, into the heart of York or Liverpool, or at least into some town at a distance from London which is proportional, according to their locomotive powers, to that of the places to which a bird or bee will fly, and that in due time the animal found its own way back again and was seen once more standing by its own stable, it would require much effort and very great deliberation, and the testimony of several intelligent and honest witnesses, to enable us, not only to believe the particular fact, but its abstract possibility.

It is there then that the instruction lies, which is to be derived from an investigation of the nature of the faculty, and the causes of the different conclusions at

which we arrive from considering the same facts under different circumstances.

That Frogs are enabled to know when water is in their neighbourhood, and that they will take long journies in the spawning season in order to reach a pond or a ditch, I have had repeated means of ascertaining in places where there was a pond on the other side of a wall or close paling. I have found Frogs during that time in numbers, lying close to the impeding fence, and with their heads against it, and when I threw over some of them, they immediately proceeded towards the water, which must have been as invisible to them as the sun at midnight is to us.

The habit that Frogs have of leaping or falling into pits and wells and the areas of houses, is also almost certainly to be attributed to their instinctive search after water, and explains the reason why we find so many more Frogs in such places, during the Spring months than at other times.

I lived for a few years in a house in the country which was surrounded by a deep area, and every Spring the floor of the area was strewn with them.

Frogs are supposed to croak from pleasurable motives only; but I heard the Frogs in that area croak at intervals when they were miserably thin and feeble and dried up. On one occasion also during the first day of the plague, when I had collected a basket-full and was throwing them, one by one, over the garden-wall, a wretched looking creature erected himself in

the basket and croaked two or three times in loud and hollow tones; on which occasion it was that I observed the circumstances which I have mentioned above.

Now the croaking of those Frogs may seem to suggest that it could not have been pleasure that made them croak; but on the other hand they may have croaked in the area on the occurrence of changes in the weather that were pleasurable to them, and the Frog in the basket might have croaked, because he perceived that he was getting nearer to the water; for if we allow that an animal can know by sensation where there is water, when it is a long way off, we cannot deny that he may know by the same means when he is getting nearer to it.

Observers do not seem to have remarked that Toads, in the act of darting out the tongue, will frequently miss their aim. I have seen Toads make many attempts at a large fly and sometimes fail after all. But perhaps that occasional want of skill might have arisen from their being fully fed, or from the manner in which the flies were presented to them. We know that high feeding in horses acts morbidly upon the eye, producing in that case a sense of fear, from some cause, and to a degree that has never been explained; though it is a phenomenon that often occurs and is most curious—that an extra feed or two of corn should cause a horse to be terrified.

and start at the sight of things, which he would have passed without any fear or starting if he had not had the corn.

A Toad when he is feeding is liable to catch up, along with his prey, some extraneous substance, as a blade of grass or moss; in which case he frees himself from it in a very striking manner; for he raises one of his fore feet with which he draws it out of his mouth, and at the same time turning his head towards the other side, throws his foot from him.

But everything about a Toad is worthy of our attention; all that he is and all that he does.

Thus, when he is sitting upon moss or on whatever else will yield under him, if he wishes to retire, he first pushes his body backwards into it, and then lifts it up with his hind-legs; and so, alternately pushing and lifting he almost immediately buries himself; going by that means into his retreat, remaining there and coming forth again, in the same position, viz. with his face towards us.

At the end of last Autumn I put a Toad into a small garden-pot, upon a little moss, and the pot into the ground, a foot below the surface, covering the top of it with loose slates; and, replacing the earth that I had taken out of the hole, heaped over him a barrow full of grass and leaves. He lay there until April, more than six months, when I dug him up again.

I remember that when the Pig, which was buried by the falling of a part of the cliff at Dover, was dug out

after a confinement of six weeks, though he was still alive and lived to be fatted, it was found that the eyes had lost all their colour and that he was stone-blind; having been blinded, most probably, at the moment of his disinterment from the sudden exposure to the light. I was therefore very careful to observe the effect that the day-light, under the same circumstances, had upon the Toad.

When I took off the last slate, I found him sitting, as he sat at the moment of his burial. His skin was moist and very clear and healthy; differing only from its common appearance in tending, a little more than usual, towards a yellow tinge. His eyes were wide open and in colour, as dark as ever—imagination made them rather darker; and although a Toad always shuts his eyes—directly that an insect or any accidental substance touches him near the eye-lid, he did not attempt to shut his eyes. He did not flinch in the least degree, from the light or from the air! The composure with which he returned to the light was like the silence in which he had sat in the darkness; and when, in the evening, I brought him into the house and offered him a Beetle, he seized and swallowed it as vigorously as if it had been his last Spider in the Autumn.

At the will of another he sat alone for six months, in darkness underground. At the will of another, he came up out of the earth again, as he had gone down into it, and, if I had kept him there six years, I

should have found him still the same. If he had laid in his grave for more than six centuries, there is reason in the thought that he would have been found with no more marks of time upon him than after these six months interment. Time has no dominion over him, or has never made good his title, for he lives on and on and does not care for Time.

When water is dropped on him or poured over him from a height, he does not shew the slightest surprise, not even at the first drop, unless it falls upon his head: but sits peacefully enjoying the coolness and refreshment of it as long as the stream continues. If on the other hand he can get no water, he is contented to be dry.

When he opens his enormous jaws—we do not see his body! his whole body disappears behind the gulph of his great jaws, like a hill behind a huge and yawning cavern that yawns at us out of the face of it, and his aspect is tremendous.

When he is walking before us after his gaunt manner, if we did not know how harmless he is, he is so hideous that a nightmare might be far less terrible to a troubled mind. But his harmlessness is such that those who know him, instead of being appalled, are merely astonished at him.

Among those of the Beetle tribe, with which we have most to do, are to be numbered the *Blattæ*, a class of Insects of which one species, the Kitchen Beetle, is so great a nuisance in our houses.

In consequence of the disgust that it creates in the minds of the Inmates of the Kitchen—according to the principle on which a Cow, when it is met by a Lady in a narrow lane is afterwards described as a great Cow, though she may have been the very smallest of her species, or stigmatised by the epithet of a horrid Cow, though the meekest and most beautiful of domesticated kine—they are always called, under similar circumstances, black Beetles and great black Beetles, though without any final reference to their size or colour; for the size of such creatures is extremely various, and their colour is never black but always brown, though of different shades in different individuals, and darker in the full grown than in the younger and smaller.

The ways of black Beetles if they are observed by the light of a candle conveniently placed after the household are gone to bed, and care is taken not to alarm them, are well worth attention for a night or two. During those hours they come forth in crowds and may easily be watched while they feed and roam about.

When such Beetles are startled from any cause, they dart back into their retreats in the nimblest manner; but what is very singular, when they come forth again,

which they will do almost directly if they were not much scared, they will move very slowly and apparently with the greatest labour and pain; they look in fact as if they had been maimed, or were torpid or dying, and could hardly get along. In the same condition they will crawl, at the same pace, up the slope of a Beetle-trap, and when they come to the glass, which should be covered on the outside with paper pasted over it, go down the fatal declivity as far as they can reach by hanging to the edge with their hind feet; but if they are touched while in that position, with a stick or straw, they will instantly drop down, and, recovering at once the full use of their limbs, scuttle and dash about on the floor of the trap, where they will make, for a few seconds, almost as much noise as peas or shot when shaken in a box, after which they will become again as lethargic as before.

So, if a pointed stick is fixed at right angles into the middle of the surface of a thin crust or piece of toast, and the bait is held near the crevices where they are most plentiful, they will come out in the same laborious way, and collect upon it until they totally cover it. They may then be lifted slowly from the ground by means of the stick, over a shallow basin or deep dish, without heeding or appearing to be aware of what is going on, but the slightest shake or twisting of the stick will cause them to rush about and fall pell-mell over one another into the basin, where the same scene will be enacted as in the trap.

Mere noise, like mere motion, causes them simply to retreat like a mouse under the same circumstances, where the retiring is prudential and habitual or instinctive; but if they are touched by the breath, it has such an effect on them that they lose all recollection of where they are and what they are about, and rush and flounder away in a kind of madness, forgetting in their haste and agony their proper retreats, and scrambling any where, in all directions until they have managed to hide themselves; after which they will venture out no more at that time.

I see that the pest of Kitchen Beetles was discussed at a late Meeting of the Entomological Society and that various remedies were proposed, but they were not final. It is curious that these Insects are most greedily fond of Hemlock-leaves and stalks, fresh gathered and strewed about, the latter being split longitudinally so as to expose the succulent contents. They will eat up a great quantity of the plant night after night, for it does not kill them, or at all events until they have eaten it for many nights together, when I am told that "they will all be gone;" but if a few pieces of leaf and stalk are put into a basin, clean and dry, against the edge of which a few slabs of wood are placed for the Beetles to ascend, they will crowd after their favourite food and be caught in multitudes.

Kitchen Beetles are always said to shun the light, because they run away when a lighted candle is brought

into the room ; but that is a mistake which arises from a false reasoning, and it is always well to reason correctly, even about Kitchen Beetles. It is not by the candle that they are scared, but by the noise and motion which accompany the candle ; for when there is neither noise nor motion they will come forth freely, whether it is light or dark, though perhaps more freely during motionless and silent darkness.

Strictly speaking, however, it will be found that although they may be sometimes scared by a sudden light, the real cause of alarm in every case, is motion that produces vibration in the floor or other place on which they may happen to be, mere noise has as little effect on them as mere light.

“It is only by the united observations of various persons, that we must expect to learn many facts in Natural History of which we are still ignorant.”

I am strongly induced to believe that the destruction of Sparrows and small birds, generally, is very injurious to those who have gardens and orchards. A proof of this has been sent to me by a correspondent, to whom I am indebted for much interesting information. He informs me that attached to his garden is, a fruit plantation of three acres, containing gooseberries, currants, raspberries, cherries, apples, pears, plums, &c., and that he never allows birds to be destroyed or their nests taken. The consequence is that he is never annoyed with Caterpillars. He adds,

that about two miles from his residence, there is "a Small Bird Club," the members of which are bound to produce a certain number of small birds every week. Each year the Caterpillars devastate the plantations, and last year an Apple-orchard of more than ten acres was so infested, that the owner employed women to pick off every blossom in order to save the trees. It is hoped that a knowledge of this fact will induce persons to discontinue the wanton destruction of small birds, intended, as they have been, for the benefit of man.

A friend, (the Rev. J. Mitford) whose opinion is at variance with this view of the question as to whether some of the smaller birds are useful or injurious to fruit trees or vegetables, has sent me some twigs of the cherry, gooseberry, and *Pyrus Japonica*, in which the blossom-buds, he says, are entirely eaten out by the Bullfinch; and he adds, that all the buds in one large bush of *P. Japonica* in his garden are destroyed by them. His gardener, who is a very experienced and observant person, informs him, that he has seldom seen any birds but the Black Titmouse, in Autumn, feeding on Caterpillars; even the Robin seldom, as it prefers Earth-worms and Earwigs. His gardener has added the names of the birds that he considers the most destructive to the garden crops, stating the particular nature of the mischief they do.

The Bullfinch.—Eats all buds, cherry, gooseberry; after these, the apple.

The House-Sparrow.—Gooseberry buds and peas.

Chaffinch.—All vegetable seeds, as they come up in the Spring.

Linnet.—All seeds ripening in the Autumn, especially spinach and beet.

Hedge-Sparrow.—Draws out of the ground young onions and leeks.

Thrushes and Blackbirds.—Eat ripe fruit of all kinds.

Norfolk Nightingale.—Cherries, raspberries, &c. when ripe.

The Jay.—Strips off whole rows of ripe peas, and beans.

These observations were made in a garden on the eastern side of Suffolk, and are here stated, that their truth may be examined and verified, in other quarters.

Fresh-water Fish in salt-water, and salt-water Fish in fresh-water, living, breeding and thriving, have been seen in various places in Scotland; and also in a pond in Guernsey, which has been recovered from the sea by draining the neck of a narrow isthmus.

In a former work, I have given some account of a large Spider, found at Hampton Court, there called "the Cardinal." They are so large that when one was put into a tumbler, the legs reached over the

edge of it. They are very swift in their motions, and hunt about for their food. They bite off the wings of Moths, and, unlike the Common Spiders, which suck the juices of their prey, they appear to eat the body. They may be heard distinctly when they run along the paper on the walls. They are always found in pairs—at least if one is caught, another is sure to be seen directly afterwards. They are most frequently seen in Autumn. It is a general remark at Hampton Court, that the Cardinal Spider makes its appearance previous to wet weather.

I am glad to find that the fact I have formerly mentioned of the Long Tailed Titmouse, or Bottle Tit, placing a feather occasionally across the entrance to the nest, has been corroborated by others. This feather is beautifully placed, probably for the purpose of adding to the warmth of the nest, and pretty firmly fixed amongst the lichens, webs, and wool, of which the nest is composed. The nest, which is a sort of ball, and lined inside with an amazing quantity of feathers, will sometimes contain from ten to fifteen young ones. It is somewhat elastic, and the labour bestowed upon it must be prodigious. I know nothing in the architecture of birds more interesting and beautiful. The hole is so small, that it appears scarcely large enough to admit the old birds, and it is over this hole that the feather is placed, like a swinging door.

So sagacious are animals, that the Cattle in Australia are never known to feed beyond that point in the prairies, which will enable them to get down in the evening to their drinking places. The Shetland and Orkney Cows, and even the Ponies, observe a strict regularity in coming down to the shore, as soon as the tide is out, in order to feed on the seaweed, moving off as the tide comes in, and repeating the same thing both night and day punctually.

It is a curious fact, that a Gentleman in Wiltshire, who is a strict preserver of his game and fish, has his ponds regularly visited by Herons on a Sunday; not a Heron is to be seen near them on any other day.

Shrew Mice feed upon Frogs, and attack them with great energy.

The Rev. Gilbert White in his MS. Memoranda says, "A colony of black Ants comes forth every Midsummer from under any staircase, which stands in the middle of my house; and as soon as the males and females (which fill all the windows and rooms) are flown away, the workers retire under the stairs and are seen no more. It does not appear how this nest can have any communication with the garden and yard; and, if not, how can these Ants subsist in perpetual darkness and confinement?"

The dark colour of many wild Birds must be a great preservation to them. The young of many others do not have their full gay plumage till their second and third year,—in fact till they are strong enough to take care of themselves.

“Farmers say, that when Chaffers abound, they fall from the trees and hedges on the Sheep’s backs, where, being entangled in the wool, they die, and being blown by flies, fill the Sheep with Maggots.”
A useful hint for Shepherds.

Some Cape Geese, in Richmond Park, laid their eggs on the ground for two or three years, but finding that the Rats destroyed them, they made their nests in some old Pollards near the water, to which they safely conveyed their young. Moorhens, probably for the same reason, will frequently fix their nests in an ingenious manner amongst tall rushes.

During the very mild Winter of 1843, I observed the Rooks haunt their old nests in the Home Park, Windsor, as if preparing for the breeding season. In Mr. White’s unpublished MSS., he mentions a Rook’s nest, with young ones in it, as early as the 26th of November; and states, that on the 6th of December, one of the young was found dead under the nest, about half grown.

Hornets fly about on a moon-light night in Autumn. They have flown into my room late in the evening, attracted by the light. They, probably, are in search of Moths.

Mr. White remarks, that all Quadrupeds that prey on fish are amphibious. This is not the case. Dogs, in Greenland, feed on fish, and watch for it on the sea-coast. The Polar Bear, also, dives after fish, and yet cannot be called an amphibious animal. The distinction seems to be this. "The Otter, Seal, &c. have a remarkable deposition in the eye, through which they are able to elongate or shorten the axis of the organ at pleasure, and by that means to see equally well in two media of very different density, viz. water and air." I am indebted to Blumenbach for the latter observation.

I am always pleased with anecdotes of the affection of animals towards each other. A gentleman in Scotland had a cock Golden Pheasant sent him, which he confined in a pen with a solitary Chicken. These birds formed a great affection for each other, which they shewed in a variety of ways. The Pheasant, however, died, and was immediately stuffed, and the Chicken turned loose. It appeared miserable, however, after the death of its companion, and having been shewn it, in its stuffed state, it drooped its

wings, after having attempted to get at it, kept its eyes fixed on it, and in this attitude died.

I think that I have found out a reason why the eggs of the Guinea-fowl are so much harder than the eggs of any other birds of the gallinaceous tribe. The Guinea-fowl is found in large quantities in Upper and Lower Guinea, where Snakes abound, and probably other animals, who would destroy their eggs. These are laid on the ground, and in unusual numbers. The shells of the eggs are so hard, that Snakes cannot easily break them. They, probably, carry a few away, but there are so many of them, that this circumstance cannot materially lessen the numbers of these useful birds. The Guinea-fowl, also, is peculiarly cautious in concealing its nest, which is made in the thickest bushes or tufts of grass, having generally two runs or passages to it. This is a foresight given to the bird which must be the means of preserving its eggs, as well as itself, from predatory animals.

At the great fair, at Novgorod, in Russia, many Kirguis Horses are brought for sale. The Marquis de Custine, who was there on one occasion, says, that these animals shew the greatest affection for each other. As long as they remain together they are quiet, but when one of them is sold, he has to be cast, and forcibly dragged, with cords, out of the

enclosure, where he is confined. His companions then never cease to endeavour to escape. They neigh piteously, and shew signs of anger, as well as of great sensibility. "I have seldom," he adds, "been more affected than I was yesterday, by the sight of these unhappy creatures, torn from the freedom of the Desert, and violently separated from those they love."

There is an Alder, growing on the banks of the river Mole, at East Moulsey, Surrey, having a girth of twelve feet. The stem is 45 feet in height, and contains 135 feet of timber, besides what is in the large branches. The tree is perfectly sound and thriving, and is the largest of the sort I have yet seen or heard of.

The fact of Snakes being found in the sea, away from land, has been confirmed to me by an officer of Her Majesty's Navy, who, in his surveys among the Greek Islands and the Dardanelles, has observed them swimming in the sea.

When Hares are seeking their young at night, in order to suckle them, they utter a faint cry, something like the feeble bleat of a fawn, and the leverets answer it, but in a still more feeble tone.

Gold and Silver Fish derive their colours from the skin, and not from the scales.

Two Sea-Gulls, of different varieties, have bred together lately in an enclosure at Wentworth House, Yorkshire. The male was a black-backed Gull, and the female, in the account sent to me, is called the blue-backed Gull. They made their nest in an old stone quarry, (which had been enclosed for the purpose of keeping birds in) forming it of pieces of stick, and small dried sods. One egg only was laid, which the male and female took it by turns to sit upon. The young bird, when hatched, was covered with down, which changed to a spotted grey. The old birds began to make a second nest but no egg had been laid in it when my account was sent. This is the only instance I have met with of Gulls breeding while in a state of confinement.

Just after the first appearance of Swifts last year, there was a remarkably cold day, preceded by two as particularly warm. This cold day completely torpified the Swifts, and they clustered together in lumps or masses, something like a swarm of bees. A large cluster of these birds were seen hanging to the waterspout of Harwich Church. Some boys were able, with poles, to knock them down, and many were caught. A few only were able to fly away, so benumbed and torpid had the greater part of them become.

We have evidence to prove, that Fish and Molluscous animals may be frozen without destroying their vitality. A Gentleman, at Camberwell, had an inflamed eye during a severe winter, and a Leech was applied to the temple several times. It was kept in water, in a vial, placed near the fire-place of the parlour, but the cold at that time was so severe, that the Leech was frozen every night, and thawed the following day. Captain Franklyn, also, mentions, that during the severe winter he experienced near the Copper-Mine River, the Fish froze as they were taken out of the nets, and in a short time became a solid mass of ice. In this state, by a blow or two of the hatchet, they were easily split open. If, however, after being in this completely frozen state they were thawed before the fire, they recovered their animation.

The Jews probably are not aware of the discovery by Leuwenhoek. that Eels have scales, or they would, no doubt, eat them. At present they do not form one of their articles of food, as they were commanded to eat of no fish that has not scales.

A large quantity of Eels have been observed, in one of the Cumberland Lakes, to form a circle round a shoal of small fish, in shallow water, and, after driving them to the shore, they readily caught and fed upon them. I have observed the same thing take place in the Canal in Hampton Court Park.

Hedge-Sparrows have been known to hatch three times in one season. They begin to build very early in the year.

The hen Robin is certainly gifted with song, although it is not so powerful as that of the male bird.

A pair of Song Thrushes made their nest in a bush, and while the hen-bird was sitting, the cock constructed another nest in an adjoining evergreen, about six feet distant from the first. Soon after the hen had hatched her eggs, she began laying others in the fresh nest, and the care of rearing the young birds entirely devolved on the male. Both broods were brought up. This, I believe, is a very unusual circumstance.

A Nobleman, who had a house in the Isle of Wight, had a young Spaniel of King Charles's breed, which he wished to take to his seat in Lincolnshire. The Dog was accordingly conveyed in the steam-boat to Southampton, and thence in his Lordship's carriage, through London, into Lincolnshire. On arriving there, the Dog appeared to be uneasy, and was soon afterwards missed. He found his way back, however, to the Isle of Wight, where he was born, and which he had never previously quitted. The instinct which enabled him to find his way back from so great a distance, and to cross the sea, is not a little extraordinary.

On the 9th, 10th, and 11th days of April, 1837, a friend of mine, then residing at Hastings, observed several Fish floating on the surface of the water, and men and boys wading in and pulling them out, the Fish apparently making no effort to escape. On enquiry, he found that they were all Gurnards, no other fish exhibiting this phenomenon at that time, although he was informed that a few years before, some Conger eels were, during severe weather, in the same predicament.

Some of the fishermen attributed the helplessness of the Gurnards to the circumstance of their having been blinded by the cold. Others said, the Fish mistook the flakes of snow, which fell on the surface of the sea, for insects, and that they, by leaping up so constantly and eagerly, for the purpose of catching them, at last "blew themselves;" meaning that they so distended the air-bladder, that it lost its elasticity or power of contraction, and thus they became helpless. On inspecting a Fish just caught, the eyes were perfect, but upon opening the abdomen, and removing the air-bladder, the latter was found extremely distended.

It is probable that the Gurnards came into shallow water in search of food, and the shallow water being much colder than the deep water, the Fish became so benumbed, that when they had once distended the air-bladder to mount to the surface, the muscles had not power to compress it, and hence they could not sink

and make off. It is, however, a curious subject for enquiry.

It is both curious and interesting to watch the flight of Kites and Buzzards, as they sail round in circles, with wings expanded and quite motionless. A friend of mine informed me, that he had frequently watched the flight of the Carrion Crow (*Vultur Aura*) both in Africa and the West Indies, where, as in all tropical countries, they abound, and are invaluable. This bird soars at very great heights,—at one moment it seems stationary, and at another it sweeps round in large circles, without the slightest visible motion of the wings, the wind at the time blowing steadily from one point. How are these circles completed *against* the wind without perceptible muscular exertion?

Large flocks of Starlings roost among Willows and Alders, growing by the sides of ponds and rivers. They spend the twilight in making a prodigious noise and chattering, with occasional short flights backwards and forwards. The flights of these birds are very curious. When a flock of them is viewed from a distance, with the sun reflected on their wings, they appear and disappear as they turn to the left or right, according to the gleams of light.

A Gold Fish, in a small fountain, in the grounds of a Gentleman of my acquaintance, swam about for more than two months with its belly upwards. It appeared perfectly healthy and lively. This change from the natural position of the fish was, probably, owing to an enlargement or defect in the air-bladder.

Keepers have informed me that Weasels will sometimes kill and feed on Snakes.

Efts, or Water Lizards, will feed greedily upon Tadpoles.

That the peculiar food of some animals is made subservient to the benefit of man, and that digestion does not always destroy its vivifying principle, cannot admit of a doubt. For instance, many birds feed on the spawn of fishes, and this will account for fish being found in great variety, in lakes and pools on the tops of mountains and hills, far removed from rivers. Many seeds also vegetate after having passed through the stomachs of birds, as well as of quadrupeds.

Persons who have resided much in the East Indies are perfectly aware of the fact, that ponds having no communication with rivers, and which have become perfectly dry and sandy in the hot season, have had fish in them after the periodical rains. This fact can

best be accounted for by the supposition that birds have conveyed the spawn of fish to them.

The lactation by the crop in Pigeons is one of the most curious phenomena in the animal economy, and is deserving of much more attention than has been hitherto paid to it by Naturalists, with the exception of the celebrated John Hunter. It will probably be found that the crop is gradually thickened, and the glands enlarged, during the period of incubation in most birds, just as the milk glands are prepared during gestation in mammalia; and that the curdy substance, or milky secretion of Pigeons, is also to be found in the crops of many other birds, such as the Parrot, Trogon, Heron, Rook, &c. The remarkable thing in the Pigeon is, that the secretion is quite as abundant in the male as it is in the female; and a friend of mine discovered that the process was going on in the male after it had ceased in the female. This is a striking provision of nature, as when the female, having hatched, goes to the nest again, which she will sometimes do before the young are half grown, the feeding of them devolves on the male, who also supplies nourishment to his mate during the latter period of incubation, when she sits close, or hard, as it is called. If, from any cause, the eggs do not produce young birds, the breeders of fancy Pigeons take care to give the female an opportunity of getting rid of her secretion, by allowing her to

feed other young Pigeons, or, as their phrase is, feeding off her soft meat to keep her in good health. In both sexes this secretion serves the purpose of a macerating solution to soften dry corn, or other hard substances, collected as food. The curd-like appearance of this secretion in the crop is, perhaps, effected by the action of the gastric fluid, the orifices for the passage of which open into the œsophagus, immediately below the cavity forming the crop.

The fluid, or curdy matter, has never, I believe, been carefully examined. Its chemical character and ultimate structure would furnish an interesting subject for enquiry; it should be subjected to a microscopical examination, during the progressive changes in the crops both of male and female. The lining membrane of the crops should also be microscopically examined, for, if the secretion differs, it is most probable that the membrane does also.

Since writing the above, I have been informed by my intelligent friend, Mr. Gulliver, that a process like that which takes place in the crop of Pigeons has been discovered in the female Crocodile. If the fact be correctly stated, it is well worthy of further enquiry, because it may possibly turn out to be common to other Reptiles, and accordingly explain some of the habits of these curious beings, which have hitherto puzzled all Naturalists. For instance, some anatomist should examine the structure of the stomach and gullet of the breeding Viper, and tell us

whether it be really nothing more than for the purpose of hiding, and protection from injury, that the young of this reptile is wont to take refuge in the throat of the dam? At all events, until Mr. Hunter's observations on the Pigeon, it was always supposed that nothing like lactation was known except among warm-blooded quadrupeds. He has shewn that the old popular saying about "Pigeon's milk," which was a sort of April fool's errand, had some foundation for it, and proves that a degree of truth generally lurks in the adages of our ancestors. It may also possibly turn out, that whatever horror people have of 'Crocodile's tears,' this detested reptile secretes the bland milk for its tender young. At all events, if it really be a fact, it is one singularly curious and interesting.

The more we search into the arrangements of Providence, with a view of ascertaining the reason why certain objects were created, and why they are found in certain localities and not in others, the more cause we shall find to admire the wisdom and goodness of the Great Creator. The adaptation, also, of various animals, fruits, and vegetables, to peculiar climates and soils, all of them necessary to the comfort and well-being of man, is not a little extraordinary. If we look at the construction of the Camel, we shall find it capable of supplying the place of the Cow and the Sheep, as regards food and clothing, to the wild Arab

of the Desert. The Goat is of the same use in another district; while the Laplander is equally benefited by the Rein-Deer. Wheat, that hardy plant, which retains its vital power through a long succession of ages, and is so necessary to man, will flourish in almost any climate, and in every country. Those who have been in hot countries speak with delight of the refreshing juice of the Water-Melon and other indigenous fruits; while bread, milk, and even a sort of butter are found on or in trees in other climates, as if prepared expressly to supply mankind with these necessary articles of food. We have wool, flax, cotton, and silk, for clothing; and, in the coldest countries, we find furs of the warmest kind, which are used for the same purpose. We have fuel provided in the greatest abundance, the clearest springs to quench our thirst, and various kinds of food to sustain us. That noble animal, the Horse, has been created for our use and enjoyment. The Cow yields us milk and butter; the Ox labours for us; and the flowers of the field, and the little birds of the air, add to our gratification and pleasure.

It would be an endless task to endeavour to enumerate all the benefits bestowed by a bountiful Creator on man in the various countries of the world. Man seizes upon these gifts as his right, little mindful of the gratitude he owes to the Giver. He fells the noblest trees of the forest to build his ships—he digs into the earth for iron to accelerate his passage from

one place to another—his comprehensive and enquiring mind brings to light the power of steam, and thus he is enabled to make conquests and discoveries, and to draw countries, once far distant, to a nearer and nearer approach to his own. While thus engaged in his own projects after wealth or power, he forgets that he is but an agent in the hands of Him, who made all, and rules over all, and who guides this intellectual power of man, in order to to fulfil His own designs and purposes.

These remarks on the arrangements of Providence for the benefit of His creatures are beautifully illustrated by the following fact. In the vast Prairies of Texas a little plant may always be found, which under all circumstances of climate, change of weather, rain, frost, or sunshine, invariably turns its leaves and flowers to the north. Let us fancy a solitary traveller making his way over one of these trackless Prairies to some far distant spot. He has no star to guide, no compass to direct him; but he finds the latter in a humble plant, and he pursues his way certain that it will not mislead him. This fact affords another proof, not only of the goodness of a benevolent Creator, but that the mechanical and other discoveries of man have not only been forestalled, but may probably all be found in the works of Nature. It is, indeed, a fundamental truth, one which cannot be controverted, and which must be apparent to every one who will take the trouble to reflect on the subject,

that the Great Creator has stamped a proof of his existence, power and love, on all the works of his hand. We may see it in the smallest flower and insect, in the gummy covering of a bud, in the secretions of a bee from which the wax is made, in the light which has been afforded us, the heat which warms us, in the air we breathe, and in the food which has been so abundantly provided for us. But when we survey the heavens, consider the earth, the seas, and all that they contain, wilfully blind must he be, who does not perceive the existence of a powerful, wise and benevolent Creator.

Women are supposed to be more loquacious than men, but in the case of the animal creation this is not so, and we shall find that the distinction has been made by a benevolent Creator for a good and wise purpose. The female of almost all birds is invariably silent or at least monotonous. If she was tempted to sing during the progress of incubation, or while rearing her young, her retreat might be more readily discovered. Even if disturbed she steals off her nest in the most silent way possible, and without uttering a single note either of alarm or surprize. The cock-bird, on the contrary, warbles sweetly from some distant spot, cheering his partner by his well-known notes, and leading his young to imitate his delightful music. It is always pleasing to reflect on the variety of ways Nature takes to preserve the lives of her creatures, or

to keep up a due proportion of each. This is done in some cases by a profusion of animal life, and in others by an instillation of peculiar art, cunning, and circumspection. Sometimes the male warns the female by a particular cry of approaching danger, or defends her with the greatest courage. Those creatures which multiply in abundance have a proportionate number of enemies, whilst the Lion and the Eagle have little to fear except from man. These are able to defend themselves, but timid animals make use of evasion, and a variety of means to ward off impending danger. Fear is therefore implanted in them, and is a great preservative. The lofty forest tree, the unsightly heap of nettles, or the common h Bramble, are places to which a feeble bird may retreat, when apprehensive of an attack being made upon it.

Some animals, under unusual or peculiar circumstances, seem to lose the power of self-preservation. Numerous instances have occurred of Hares being overtaken, or met on a railroad by engines, and becoming so completely paralyzed with fear as to make no attempt whatever to avoid the coming danger. This they might easily have done by running to the right or left. Instead of which they have waited till the noisy and rapid machine was close upon them, when they have given one convulsive spring, and have thus been caught in the scoop under the engine. The same thing has happened with respect to Partridges, and in one instance as many as five of these birds were knocked

down at the same time by an engine, and afterwards picked up by a person sent for that purpose from one of the adjoining Stations. When trains have been passing along the fine Viaduct over the Thames at Maidenhead, Rooks have flown against them, as if the power of self-preservation had abandoned these otherwise crafty birds, or rather as if they had lost the faculty which would have enabled them so easily to have avoided the danger. The same thing has happened with Pheasants, and one is now alive at Steven-ton, which flew into one of the windows of a railway carriage, when going at a rapid rate, and was taken.

The following extraordinary circumstance lately occurred on a Railway, and it proves not only that Pigs are sensible animals, but that they are possessed of a certain degree of reflection, presence of mind, and nerve. One morning fifteen young Pigs broke out of a field, and got upon the railway, and were between two of the rails, when a train approached with all its appalling accompaniments of noise, fire and smoke. The Pigs were seen, but too late to stop the engine, and their owner, who happened to be on his farm, expected to have seen them all killed. They remained however in line, and stood perfectly still till the train had passed over them, and not one was hurt. They appeared to be sensible of the escape they had had, by running back to the field squeaking and capering with satisfaction.

was once a witness to the superiority of the
age of a Sparrow-Hawk to that of a Kestrel,
though it is a much smaller bird. A Kestrel flew
behind me, over head, and, as it proved, had a
prey in his talons. Almost immediately afterwards
a Sparrow-Hawk, who had evidently seen both the
Kestrel and his prey, flew out of an Oak in the hedge
in which I was walking, chased the Kestrel and
took, and tried I suppose to strike, or at least to
"flet" him; but though he failed in reaching the
Kestrel, he followed so close and pressed him so hard
before the latter could reach the opposite side
of the field, the Sparrow-Hawk made him drop the
prey—which was not dead, for it flew, though rather
weakly. On seeing the Lark, the Sparrow-Hawk left
the Kestrel and flew after his prey, but the hedge
prevented it, and it managed to escape a second time
by going up the tall hazels; though whether finally to sur-
vive is a question, for the decision of which we must
rely on the accuracy of the assertion that obtained
among the Hawkers of former days, as to the final
effect of the stroke of a Hawk's talon.

When cries of animals in distress are heard, it
excites the sympathy of others of their own
species. Birds have been known to feed the young of
those whose parents have been destroyed; and Swal-
lows, Sparrows, Rooks and other gregarious birds, will
join together in defending their young from predatory

birds and animals. I lately, however, was informed of an anecdote, which places the kindly disposition of the Dog in an interesting light.

A Servant had thrown a litter of new-born Kittens into a tub of soapy water, which stood in the yard of his Master's house, in order to drown them. A Newfoundland bitch happened to witness this, and, watching her opportunity, took each of the Kittens out of the water, and conveyed them to her kennel, where she was seen endeavouring to foster and nurse them. She had no milk to give them, but, as she had, the act would not, perhaps, have been extraordinary. It must, therefore, have arisen, from an innate benevolence of disposition, thus exemplifying the beautiful precept of shewing kindness to every other. Indeed, during our passage through this world, we can seldom be better employed than in endeavouring to alleviate misery, and in fostering those feelings of love and good-will, which we are all enjoined to show to those around us. Much may be done towards softening the sufferings of others, even when we have little to offer beyond our sympathy, and this will certainly be more appreciated by the unfortunate than pecuniary assistance. If we can shew kindness where it is most needed—if we visit some afflicted, and, perhaps, forsaken being, and offer him a little mite of compassion and solace, we may be enabled to afford comfort when the heart is feeling its own bitterness.

590
JES



ZOOLOGICAL GARDEN

BOOK

12