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WONDERS
OF
THE ANIMAL KINGDOM.

BIRDS.

There is a voiceless eloquence on earth,
Telling of Him who gave her wonders birth.

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Bird of the broad and sweeping wing,
Thy home is high in heaven,
Where wide the storms their banners fling
And the tempest clouds are driven.
Thy throne is on the mountain top,
Thy fields the boundless air ;
And hoary peaks, that proudly prop
The skies, thy dwellings are.

THE EAGLE.

Aquila.

THE Eagle was called by the ancients the celestial bird, from its stately demeanour and its power of ascending to a vast height in the air. Its figure in gold or silver placed on the end of a spear was the military standard of the Romans and Persians; and in modern heraldry it has been adopted as an emblem of power. Napoleon Buonaparte assumed the Eagle to surmount his banners, displacing for this purpose the Gallic cock, the former military ensign of the French nation. The Royal or Golden Eagle (*Aquila chrysaetus*) is more common in the eastern and southern parts of the world than in any other quarter, abounding in Egypt and on the coast of Barbary, but rare in the centre of Europe. Eagles seem to prefer the extensive forests of hilly countries, where they subsist chiefly on living

prey, such as birds and small quadrupeds, especially the latter. They always kill their prey on the ground, which distinguishes them from the falcon tribe; and with their talons, which distinguishes them from the vulture. In strength, in vigour of the wing, acuteness of sight, and powerful clutch of the talons, the Golden Eagle is superior to every other bird. In size, it is generally about three or four feet long, and seven or eight feet in the expansion of the wings. This great extent of wings makes them, when folded, as long as the tail. The female is larger than the male. The plumage of a full-grown Eagle is of a blackish-brown on the back, the tail is of a deep grey barred with brown, the head a lively golden red. The powerful tendons and muscles by which the talons are moved are protected by a thick coating of feathers, covering the foot-bones down to the very division of the toes. The feet are composed of three powerful, sharp, and hooked talons, of a yellowish colour, and defended above by three horny plates or scales on the last joint of each toe. So admirable is the mechanism of the foot, that when dried, it may be made to

act powerfully by pulling the tendons, which are amongst the strongest of animal substances.

In old age the Eagle becomes hoary, and changes colour also during long captivity, or when suffering from severe hunger. Some varieties have been found quite white. From the great strength of these birds, they can give terrible annoyance to their prey without much danger to themselves. They have been known to attack full-grown deer, foxes, wolves, and even bears; they generally fasten on the heads of the larger quadrupeds, pick out the eyes, and then beat them to death with their wings. In the northern islands they are most destructive to the red deer, and commit vast ravages amongst the gulls and other aquatic birds that breed there. The Sea-Eagle has been frequently mistaken for the Golden Eagle, both in Scotland and Ireland; and in some districts every large eagle is called the Royal, the Golden Eagle, or the Eagle of the Sun. Large specimens of this bird have from time to time been found, and probably it was more common when the wild countries were left free to their range. One specimen was shot at Warkworth whose out-

stretched wings measured eleven feet three inches. A very fine one was also taken in Scotland in 1829 ; this bird measured seven feet two inches in the spread of the wings, and weighed ten pounds and a half ; that part of the leg commonly called the drumstick was larger than could be grasped by a man's hand. In a clear sky the Golden Eagle soars to a great height, but flies lower in cloudy weather ; his muscular force enables him to encounter the strongest winds. The cry is peculiarly loud and shrill, and may be heard long after the bird has soared out of sight ; and such is the acuteness of its vision, that even from this elevation it will mark a hare, or even a smaller animal, and dart down on it with unerring aim. Many birds are possessed of the power of altering the form of the eye at will. This power is possessed by the Eagle and other birds of prey in a remarkable degree ; and they are thus enabled to see the smallest objects close to them, and to discern them at a vast distance. Eagles are said to be very long lived, but the duration of their lives has never been accurately ascertained. One is said to have been kept in captivity at

Vienna for a hundred and four years. A Golden Eagle is mentioned by Pennant as having been for nine years in the possession of Mr. Owen Holland, having previously lived thirty-two years with the gentleman from whom he received it, but who was unacquainted with its real age. They can also exist without food for a long time, especially when deprived of exercise. The bird that belonged to Mr. Holland was, from the negligence of a servant, at one time suffered to remain without food for twenty-one days, and yet survived. Another, which was taken in a fox-trap, refused food for five weeks after its capture, and was then killed. A large Osprey, or Sea-Eagle, which is now in the Museum at Scarborough, alighted in a completely exhausted state on the rigging of a small vessel passing Flamborough-head. It assumed a very dignified appearance on being carried round for sale by the sailor-boy, and, although excessively hungry and fatigued, refused with apparent disdain the piece of raw meat that was offered to it. As they are so constituted as to be enabled to bear hunger for a very long time, their feeding is voracious in proportion, and though

an Eagle will carefully pluck a bird and remove the hairy skin of an animal, it always swallows more or less of the bones. The male and female usually hunt together, and the mountaineers say that the one beats the bushes and the other pounces upon the game. Each pair of Eagles lives alone, taking up their abode on some high and craggy cliff, at a respectful distance from others of the same species. The nest is usually placed horizontally in the hollow of some high and steep rock, and is formed of a platform of sticks five or six feet in length, interlaced with pliant twigs, and covered with layers of rushes, heath, or moss. Unless destroyed by some accident, it is supposed to suffice, with occasional repairs, for the same couple during their lives. In the Orkneys the nest of a pair of Eagles has been observed on the same spot for a long series of years.

The female usually lays two eggs, sometimes only one, and rarely three. These are of a dirty white colour, spotted with brown. An Eagle's egg may be seen in the British Museum. The Eaglets are at first covered with a white down; and their early feathers are of a pale yellow. The age may

be known for the first four years by the quantity of white feathers which gradually appear and disappear. These are entirely lost when the bird arrives at full size, after which period the age cannot be ascertained with any certainty. The parent birds are extremely attentive to their young, and feed them most assiduously in their state of helplessness. It is said that a peasant once got a comfortable subsistence for a length of time by robbing an Eagle's nest, and that he protracted the assiduity of the old birds by clipping the wings of the young, and thus retarding their flight. It was lucky for him however that the old ones did not happen to surprise him in his plundering expeditions, as their resentment might have proved fatal. An Irish peasant, who had determined to rob an Eagle's nest, on one of the small islands in the Lake of Killarney, was less fortunate. He swam to the island indeed, when the old birds were gone, and secured an Eaglet, but on his return, while still up to his chin in water, they fell on him—killed him on the spot, and rescued their offspring.

De Thou, the historian, relates, that when he

was with Marshal Schomberg, on an embassy from Henry III. to the King of Navarre, they were entertained for some days at Maude, the seat of the Bishop and Count of Gevaudan. At their first repast it was observed, with some surprise, that all the wild fowl or game brought to table wanted either a head, a wing, a leg, or some other part. Their host informed them, that in the mountainous regions of that district, the Eagles were accustomed to build their nests among the almost inaccessible rocks, which can only be ascended by means of ladders and grappling irons. The peasants, when they have discovered a nest, erect a small hut at the foot of the rock, in which to shelter themselves from the fury of the birds when they convey food to their young; and also to watch the times of their departure from the nest. When this happens, they immediately plant ladders, climb the rocks, and carry off what the Eagles have conveyed to their young, substituting the entrails of animals and other offal. This prey has generally been mutilated by the young Eagles before the men can get at it, but in compensation for this disadvantage, it has a much finer flavour

than anything the markets can afford. He added that when the Eaglets have acquired strength enough to fly, the shepherds fasten them to the nest, that the parent birds may continue to supply them longer with food. Three or four Eagles' nests were in this way sufficient to supply a splendid table throughout the year, and so far from murmuring at the ravages of the Eagles, the Count thought himself fortunate in being situated in their neighbourhood, and reckoned every nest as a kind of annual rent. In Stanley's "Birds," a curious account is given of one of these Eagle-nest larders:—"For several summers two Eagles had occupied a nest upon a rock. There was, within a few yards of it, a stone about six feet long, and nearly as broad, and upon this stone almost constantly, but always when they had young, a number of grouse, partridges, hares, ducks, snipes, ptarmigans, rats, mice, and sometimes kids, fawns, and lambs were to be found. When the young Eagles were able to hop the length of this stone, to which there was a narrow road, hanging over a dreadful precipice, the Eagles often brought hares and rabbits alive, and placing

them before their young, taught them to kill and tear them to pieces, as a cat brings live mice to her kittens and teaches them to kill them. Sometimes, hares, rabbits, rats, &c., not being sufficiently weakened by wounds, got off from the young ones while they were amusing themselves with them, and one day a rabbit escaped into a hole where the old Eagle could not find it. The parent bird another time brought to her young ones the cub of a fox, which, after it had fought well, and desperately bitten the young ones, attempted to make its escape up the hill, and would in all probability have succeeded if the shepherd who was watching the motion of the Eagles, with a view to shoot them, had not prevented it. As these Eagles kept so good a store-house, a gentleman near, frequently sent his servants to see what his neighbours the birds had to spare. When the game was carried off, the Eagles lost no time in bringing another supply, but when it was not taken away, the old ones loitered about, amusing themselves with their young, till the stock of food was exhausted. While the hen Eagle was hatching, the table on the rock was kept well supplied for her use, and the male

bird often tore a wing or leg from the animals captured for her eating.”

In Scotland, some years since, a herdsman, on a very sultry day in July, while looking for a missing sheep, observed an eagle posted on a bank that overhung a pool. Presently the bird stooped and seized a salmon, and a violent struggle ensued ; when the herdsman reached the spot, he found the Eagle pulled under water by the strength of the fish ; and the calmness of the day, joined to his drenched plumage, rendered him unable to extricate himself. With a stone the peasant broke the Eagle’s pinion, and actually secured the spoiler and his victim, for he found the salmon dying in his grasp.

From their solitary and domineering habits, Eagles keep all other birds of prey at a distance ; and not only are they general plunderers of all kinds of game, but they have been known to carry off children. In the year 1737, in the parish of Norderhough, in Norway, a boy of two years of age, was running from the house to his parents in the fields at no great distance, when an Eagle pounced on him, and carried him off in the sight of his agonized parents, in spite of their heart-rending shrieks. An-

derson, in his history of Iceland, asserts that in that country children of four or five years have experienced the same cruel fate. Ray mentions that in one of the Orkneys, an infant of a year old was seized in the talons of an eagle, and conveyed about four miles to its nest. The mother, knowing the spot, pursued the ravenous bird, found the child in the nest, and took it home unhurt. In one of the Faroe islands, a far more distressing incident occurred. An Eagle, one day, darted on an infant who was lying at a little distance from its mother, and carried it to its nest, which was placed on a rock, so steep towards the summit, that the boldest bird-hunter had never ventured to climb it. The distracted mother however contrived to ascend it, but she arrived too late, for the child was dead, and its eyes picked out by this formidable bird. The Skua Gull, called by the natives of the Orkney islands Buncie, is cherished by them with the greatest veneration, as it is a formidable enemy to the Eagle. To the Skua Gulls are entrusted, almost entirely, the care and protection of the young lambs during the summer months, at which time they are suffered to wander

unrestrained over the island. These Gulls possess an inveterate hatred to both the eagle and the raven ; for no sooner does the broad and rounded wing of the eagle appear emerging from his rocky dwelling among the cliffs, than the Skua descends upon him from the tops of the mountains, in bodies of three or four, and never fail to force him to a hasty retreat. The natives always reward their services, by casting from their boats the refuse portion of the fresh caught fish, which they seize with greedy avidity ; snatching it almost from the hands of the fishermen.

The independent Tartars have long been accustomed to train Eagles to the chase of hares, foxes, antelopes, and even wolves. The practice is mentioned by Marco Polo, in 1269, “ who contemplated with admiration,” as he remarks, the diversions of the Grand Khan of Tartary, who had several Eagles devoted to this kind of sport. Like other Eagles, the royal bird has but an imperfect smell, hunting principally by its exquisite sight, and requiring care in the training. Some birds are more easily taught than others, from greater tractability of disposition.

In some regions of Persia and India this Eagle is also tutored to the hunting of deer and antelopes, and the Kirgis, a tribe who pitch their tents to the east of the Caspian Sea, are as clever in young Eagles as our jockeys are in horses, and will give the Russian dealers a fine horse or sheep in exchange for an Eagle suited to their purpose, while they will scarcely offer the most contemptible trifle for another that gives no indication of possessing the proper qualities. "Here, then, we have an illustration of an important zoological position, that individuals of the same species widely differ from one another in respect of temper and talents." * Two birds of this species, kept by Mr. Selby, were of the untractable and untameable kind, for their fierceness remained undiminished through years of confinement. They did not even exhibit any partiality for the person who fed and attended to them, but were as ready to attack him as a stranger. There are two Golden Eagles, and four White-tailed Eagles in the gardens of the Zoological Society, and the keepers find the Golden rather more tractable than the others. In the "Na-

* Edinburgh Encyclopædia

turalist," for May, 1837, it is stated, that Captain Green, of Buckden, in Huntingdonshire, had in his possession a Golden Eagle, which he had himself trained to take hares and rabbits. Sir W. Jardine mentions having had one tame, and even playful. At Uxbridge, a Golden Eagle has actually hatched more than one brood of chickens. This is, perhaps, the most extraordinary use to which the king of birds was ever degraded, and we should think must be a solitary instance of domestication, for such purposes.

The Albescent Eagle was first observed by Le Vaillant near the Cape of Good Hope. In colour it is whitish, variegated with yellow brown, the tail is black, barred with white, and the back of the head slightly crested. It is of a more slender shape, and about a third smaller than the Golden Eagle. This Eagle pursues its prey with such agility, that hardly any bird can outstrip it. The Wood Pigeon, whose flight is also extremely swift can rarely escape from its talons. To this bird it is partial, and feeds also on wood partridges and a very diminutive kind of antelope found only in the forests. There, concealed behind the thick branches

of the trees, this Eagle watches his prey, which he seizes by rushing on it with a great noise. As soon as he has secured his victim, all the crows in the neighbourhood flock around him to share in the spoil, as he never eats his game on the ground, but always bears it to some lofty station. The crows are contented to wait under the tree on which he may choose to make his repast and pick up the fallen fragments. This bird carefully picks off all the feathers of his prey before he eats it. "What is very extraordinary," observes Le Vailant, "and seems difficult of belief, in a bird whose ordinary food consists of birds is, that the smallest of them may fly or remain near him with impunity, and even alight on his eyrie ; for he not only does them no harm, but becomes their protector, and defends them against other birds of prey." But he suffers no ravenous bird to approach his domain. When sated with food, and at rest, he repeats for hours together a weak and shrill cry.

The Vociferous Eagle is named from its loud and clamorous call, which resounds continually through the vast solitudes of South Africa ; the favourite food of this bird is a large kind of

lizard, which abounds in some of the African rivers, though they occasionally pounce on an antelope, but never attack birds. The peculiar cry of another Eagle has obtained it the name of Laughing Falcon; this is a native of South America, and, when disturbed, emits a shrill and sudden cry, as if laughing.

The Sea-Eagle (*Falco ossifragus*) is two feet four inches in length, the female two feet ten inches. The spread of the wings is upwards of seven feet. This bird, though it can neither swim nor dive, pounces with great rapidity on fish as they happen to come near the surface of the water, falling down on them like a lump of lead with a loud sousing noise and scream, and carrying them off in its talons. In attempting, however, to catch some overgrown fish, it is sometimes drowned, being dragged forcibly under water, when unable to disengage its talons. This bird is a native of Europe, and also of North America, where it attains a greater size. It is very frequent in Kamtschatka and on the Arctic coasts. The Greenlanders, who kill them with arrows or catch them by snares laid on the snow, eat their flesh, make

under garments or beds of their skins sewed together, and use the beak and claws as amulets in the treatment of various complaints.

At the cataract of Niagara great numbers of the Sea-Eagle (*Haliaeetus*) are continually seen sailing high and majestically over the tremendous waterfall, eagerly watching for the mangled carcasses of the animals that have been hurried over the precipice by the violence of the rapids, and cast up on the rocks below. They are called by the natives Grey Eagles. The Sea-Eagle builds on high trees near lakes, large rivers, or the ocean, but generally prefers the neighbourhood of fresh water. The nests are built of large sticks, some of them several feet in length; within these the birds lay sods of earth, sedge, grass, dry reeds, &c., piled to the height of five or six feet, by about four in breadth. They are well lined with fresh pine tops, and are very slightly hollow. The birds generally choose the top of a fine oak tree, and the large black mass of sticks and brush has a very singular and not unpicturesque effect. Wilson mentions a pine-tree which had been the resort of a pair of Eagles for many years; here they annually built a

nest, and must have been much attached to the spot, for when the tree was cut down by the sons of the owner, in order to procure the two young birds, the Eagles soon after began to build another nest on the nearest tree to the spot they had so long made their home. The Sea-Eagle lives on fish, and occasionally on small quadrupeds. It does not drive its young from the nest, like the Osprey or Fish-Hawk, but continues to feed them long after they leave it. Buffon was a little in error when he stated that the “Eagle, like the Lion, disdains the possession of that property which is not the fruit of his own industry ;” for during the summer months both the Bald and Sea-Eagle are the constant plunderers of the Osprey or Fish-Hawk, by whose industry alone both are usually fed. Buffon also remarks that “the Eagle disdains to feed on carrion :” here, too, he is wrong ; for the Bald Eagle has been seen frequently seated on the carcase of a dead horse or other animal, keeping a flock of Vultures at a respectful distance until he had fully sated his own appetite.

The Bald Eagle has been frequently mistaken for the Sea-Eagle while young ; they are often

seen in company together. From an expression in some old acts of Parliament there is reason to believe that the Bald Buzzard (*Falco haliaetus*), one of the varieties of Eagle, was once trained to fishing in England, where it is now rarely met with, though in the breeding season it is common about the Lakes of Killarney in Ireland. Colonel Montagu once saw a nest belonging to a pair of this species on the top of a ruined chimney in an island in Loch Lomond. It was large and flat, formed of sticks laid across, lined with flags, and resting on the sides of the chimney. Specimens of this bird have been obtained in Sussex, and in almost every county on the north-east coast of England. On the southern coast a specimen was shot in August, 1836, in Christ Church bay, where the bird is called the Mullet Hawk. This specimen is figured in Yarrell's "British Birds" with a mullet in its talons. Mr. Couch says that the Sea-Hawk or Osprey is believed to breed every year on the rocks about the Lizard. Colonel Montagu considers it frequent in Devonshire. In 1837 there was, and we believe still is, in the gardens of the Zoological Society, a fine specimen

of this bird from Chili. When a fish was given it, the Eagle seized it across the body, and, digging in the claws, retained a firm hold of the fish, never moving the talons, but picking out his meal between them with great ease and dexterity. Unlike the Golden and others of its species, the Ospreys live in societies, "and rear their young, close together," says Mr. Yarrell, "as peaceably as so many Rooks." On one island near the eastern extremity of Long Island, New York, three hundred nests were counted. During the time of incubation the males watch near and supply their partners with fish, so that the female seldom leaves her nest. The parent birds not only feed their young until they are able to take care of themselves, but have been seen to supply them with fish, when they had left the nest and were both on the wing together.

These birds, when the lakes are closed by the ice, sometimes follow the hunters to feed on the entrails of the animals killed by them; but their general food is fish, for which they dive in the day-time, like the Fish-Hawk, frequently capturing fish that weigh five or six pounds, to con-

vey as food to their young. They roost generally on the shelves of the rocks, where they build their nests. The male bird measures three feet seven inches in length, and ten feet two inches in extent, weighing about fourteen pounds and a half. The eyes are very fine and expressive, and the plumage various shades of rich coppery brown, fading into yellowish cinnamon on the chest. Audubon was informed that an enormous Eagle had built a nest on the banks of the Green River in Kentucky, and that the old birds might be seen diving and catching fish for their young. "In high expectation," he says, "I seated myself about a hundred yards from the foot of the rock. Two long hours had elapsed before the old bird made his appearance, which was announced to us by the loud hissings of the two young ones, who crawled to the extremity of the hole to receive a fine fish. I had a perfect view of this magnificent bird as he held himself to the edging rock, his tail spread, and his wings partly so, and hanging something like the barn bank or social swallow. In a few minutes the other parent joined her mate, which, from the difference of size, (the female being much

larger,) we knew to be the mother bird. She also had brought a fish; but, more cautious than her mate, ere she alighted, she glanced her quick and piercing eye around, and instantly perceived that her nest had been discovered; she dropped her prey, with a loud shriek communicated the alarm to the male, and, hovering with him over our heads, kept up a growling threatening cry to intimidate us from our suspected design. The young having hid themselves, we went and picked up the fish which the mother had let fall: it was a white perch, weighing about five pounds and a half; the upper part of the head was broken in, and the back torn by the talons of the Eagle. We agreed to return the next morning, being anxious to procure both the old and young birds, but rainy and tempestuous weather prevented our doing so until the third day, when, with guns and men all in readiness, we reached the rock, but passed the entire day without either seeing or hearing an Eagle. The sagacious birds, no doubt, anticipating an invasion, had removed their young to fresh quarters."

The Harpy Eagle of America somewhat re-

sembles the Sea-Eagles, but differs from them in having a crested head, short wings, and short thick legs. The talons are very powerful. It is thus well adapted for preying near the surface of the ground, and can carry off a prey of much greater size than any other of the species. The Harpy is said to be a solitary bird, frequenting the thickest forests, where it lives upon the sloths, fawns, and other young quadrupeds. Jacquin, the French naturalist, attempted to bring a fine specimen of the Harpy Eagle to Europe; but it died on its passage. Its death was probably caused by the sailors, whose monkeys the Eagle had destroyed. When these animals gambolled too near his cage, they were seized by his talons, and devoured with almost all their bones, but the bird invariably stripped off the skin. The Harpy Eagle which was placed in the collection of the Zoological Society was brought to England by Major Sabine. It is said to have destroyed and eaten a King of the Vultures whilst on its passage to England. After its arrival, a cat was put into its cage, and the Eagle, with one blow, broke its back. The Ring-tail Eagle (*Falco fulvus*) is one

of the finest of the species ; and, though a native of America and many parts of Europe, is sometimes found in Scotland. The tail-feathers of this bird are highly prized by the various tribes of American Indians for ornamenting their calumets, or pipes of peace ; and a fine horse has frequently been exchanged for them. The Harpy Eagle has the character of being extremely docile ; but its solitary habits, and the vast inaccessible cliffs to which it usually retires, render a particular knowledge of its habits very difficult to obtain. Its flight is easy, in high circuitous sweeps ; and the broad white tail, tipped with brown, expands like a fan, giving a beautiful appearance to the bird when rising on the wing.

In the “Annual Register” for 1807, there is the following interesting account of an Eagle ; copied from a French paper, published at the same time : —“There has been some time in the Jardin des Plantes, an Eagle, which her majesty the empress sent thither ; and which is as much distinguished by his beauty as by a silver ring which he carries on one of his talons. It was originally domesticated with an English game-cock, which at last

served him for food. It is not known whether the death of the game-cock was provoked by his own fierceness, by some movement of anger, or by the hunger of the Eagle. This Eagle was taken in the forest of Fontainbleau, in a trap set for foxes, and of which the spring broke his claw. Under the care of Doctor Paulet, his cure had been long, and attended with a painful operation. This the Eagle supported with a patience rarely found in man. During the operation the head only was at liberty, and of this he did not avail himself to oppose the dressing of the wound, from which several splinters were taken, nor to the apparatus which the fracture required. Swathed in a napkin, and laid on one side, he passed the whole night upon straw, without the least motion. The next day, when all the bandages were unwrapped, he lodged himself upon a screen, where he passed twelve hours, without resting upon the unsound foot. During all that time he made no attempt to escape, though the windows were open ; and he refused all nourishment. It was not until the thirteenth day that he tried his appetite upon a rabbit, which was offered to him. He seized it

with the claw that was not injured, and killed it with a stroke of his beak between the first vertebra of the neck and the head. After having devoured it, he resumed his place upon the screen, from whence he moved no more till the twenty-first day after his accident. Then he began to try the wounded limb; and without changing in the least the ligature by which it was bound, he regained the use of it by moderate and reasonable exercise. This interesting creature has passed three months in the room of a servant who attended to him. As soon as the fire was lighted he came up to it, and suffered himself to be caressed; at bed-time he mounted his screen, as close as possible to his attendant's bed, and removed to the opposite extremity as soon as the lamp went out. The confidence in his own power appeared to exempt him from every kind of distrust. It is impossible to shew more resignation, more courage, and more instinct, than he did during the continuance of his long illness. We are happy to add, that he does not feel the least weakness from the accident which robbed him of his liberty."

A gentleman, in Scotland, some years ago, took a

wounded Eagle, which was far from becoming tame or reconciled to captivity, and indeed lost its life from disputing the passage of a gate with a stranger. The bird was kept in the front of the house chained by the leg to a tub, and was fed upon rabbits and wild birds. He, however, managed to release himself from his confinement, and flew to a field at some distance. Here he attacked a man, who, in self-defence, struck the royal bird over the crown, and caused almost immediate death by fracturing the skull.

We will now bring our anecdotes of the Eagle to a close, and do so by quoting the following striking scene, witnessed by Sir Humphrey Davy, during a tour in Scotland:—

“ I once saw a very interesting sight above one of the crags of Ben Nevis, as I was going, on the 20th of August, in the pursuit of black game. Two parent Eagles were teaching their offspring, two young birds, the manœuvres of flight. They began by rising from the top of a mountain, in the eye of the sun; it was about mid-day, and bright for this climate. They at first made small circles, and the young birds imitated them. They paused

on their wings, waiting till they had made their first flight, and then took a second and larger gyration, always rising towards the sun, and enlarging their circle of flight, so as to make a gradually extending spiral : the young ones still slowly followed, apparently flying better as they mounted ; and they continued this sublime kind of exercise, always rising, till they became mere points in the air, and the young ones were lost, and afterwards their parents, to our aching sight.

“ What an instructive lesson to Christian parents does this history read ! How powerfully does it excite them to teach their children betimes to look towards Heaven and the Sun of Righteousness, and to elevate their thoughts thither, more and more, on the wings of faith and love ; themselves all the while going before them, and encouraging them by their own example.” *

* Kirby's Bridgewater Treatise.

When the shadowy light of evening falls
On ruin'd tower or mouldering walls,
From the silent heart of a hollow yew
The Owl sails forth, with a loud to-whoo;
Then hovering, white, and still as snow,
He eagerly watches the prey below.

THE OWLS.

Strigidae.

THE Owl is a bird of prey, seeking its food by night, and greatly resembling in many points the Eagle and Falcon. From the bushy appearance of the head, caused by the quantity of thick soft plumage with which it is covered, it might be conjectured that it was very large; but, stripped of the feathers, the skull is but little larger than that of the Hawk. It has, like that bird, a strong curved beak to tear its prey, short, hooked, and, like its claws, evidently intended for the purpose of seizing and tearing to pieces its favourite food: but neither of these are of such great strength as those of the Hawk; the Owl, contenting itself with smaller prey, does not require them. The eyes of the Owl are, like the Hawk's, clear and bright, but, by being larger and more full, are better adapted for the twilight or dark hours preferred by

them for prowling abroad in search of food. They are not moveable in the sockets; but the very extensive power that the bird has, of moving its head on the spine, enables it to see the object in almost any direction; and they are also so constructed, that the Owl is able to discern objects much more clearly in the dusk of the evening than in the broad glare of day. The hearing of this bird is particularly acute. "The outward part of the ear in most animals is termed the trumpet; and it is curious to observe how the direction of this opening is varied, so as to receive sounds from the quarter from which the animal requires information. Thus, we find in all hunting animals, such as the dog and cat tribes, the opening of the trumpet is directed forward; while in those whose safety depends upon flight the same opening is directed backward, as in the hare, the rabbit, the sheep, the deer tribe, and others. To assist their power of hearing, all the timid races of animals are furnished with large outward ears, over which, by means of powerful muscles, they have great controul. In the Owl we find, in addition to the usual contrivances to enable an animal to hear

well, a large circuitous chamber round the internal part of the organ of hearing, enabling it to catch sounds from below with remarkable ease. Thus the bird settles itself on the rafter of a barn, and listens for the movements of a mouse below ; and such is its acuteness of hearing, that it discovers its prey by the slightest movement. The flattened feathers which give such a grotesque appearance to the Owl catch the sounds from below, and, by means of the singular internal formation I have mentioned, convey it to the organs of hearing. The chief peculiarities of the tribe consist in the advantages they possess in their silent mode of flight, and their acuteness of hearing and sight."

The Owl shrinks, indeed, from the full blaze of sunshine, and seeks seclusion and solitude. If driven out, it appears dazzled and distracted. Numberless small birds seem aware of this fact, for they flock around their now harmless enemy, and retaliate on him for his nightly murders, by treating him with the greatest indignity and contempt. The poor Owl sits and suffers all their insults with either real or apparent stupidity. The flight of the Owl is effected with less noise than

that of any other bird, from the extremely downy nature of its feathers and the peculiarly light construction of the bones. Indeed, when it falls, as it were upon its prey, the only sound produced is a dull knock on the ground, caused by the feet as they reach it. The slow, soft, faint strokes of the wings are quite unheard.

Although the Owl is by no means hurtful to mankind,—in fact renders the farmer important service, by ridding him of vermin which might otherwise consume the produce of his fields,—in almost every age and country it has been regarded as a creature of ill omen, and sometimes even as the herald of death. In France, the cry or hoot is considered as a certain forerunner of misfortune to the hearer.

In Tartary the Owl is looked upon in another light, though not valued as it ought to be for its useful destruction of the moles, rats, and mice. The natives pay it great respect, because they attribute to this bird the preservation of the founder of their empire, Genghis Khan. That prince with his army happened to be surprised and put to flight by his enemies, and was forced to conceal

himself in a little coppice. An Owl settled on the bush under which he was hid, and his pursuers did not search there, as they thought it impossible the bird would perch on a place where any man was concealed. From thenceforth they held the Owl to be a sacred bird, and every one wore a plume of its feathers on his head. They also consider it a crime to kill one species of Owl, not from any sense of its usefulness, but because they are considered to be oracles of good or ill fortune as they fly to the right or to the left.

One of the smallest of the Owl tribe utters but one melancholy note now and then. The Indians in North America whistle whenever they chance to hear this solitary note ; and if the bird does not very soon repeat his harmless cry, the speedy death of the superstitious hearer is foreboded : it is hence called the Death-bird.

The voices of all carnivorous birds and beasts are harsh, and at times hideous, and probably, like that of the Owl, which, from the width and capacity of its throat, is in some varieties very powerful, may be intended as an alarm and warning to the birds and animals on which they prey,

to secure themselves from the approach of their stealthy foe.

Owls are divided into two groups or families, one having two tufts of feathers on the head, which have been called ears or horns, and are moveable at pleasure, the other having smooth round heads without tufts. The bills are hooked in both. There are upwards of sixty species of Owls, widely spread over almost every part of the known world : of these we may count not fewer than eight as more or less frequenting this country. The Short-eared Owl visits England between the months of October and April ; emigrating in the spring to the northern islands of Scotland, where it breeds. One of the largest of the Owl tribe is the Eagle Hawk, or Great Horned Owl (*Strix bubo*). The great thickness of its plumage makes it appear nearly as large as the Eagle. Some fine preserved specimens of this noble-looking bird may be seen in the British Museum. In length, from the bill to the tip of the tail, it is about four feet eleven inches : the whole plumage is a mixture of various shades of brown, the upper part of the back and the wings being the dark-

est; and the breast is nearly white. As this bird can bear both heat and cold, it may be found in the north and south of both continents. Though rare in Britain, it has been occasionally shot in Yorkshire, and in the Orkneys it is well known to prey upon the red grouse and rabbits which there abound. Although better able to support the light of the sun than any other Owl, it hunts most successfully in the night, when it preys upon small animals and insects. In the winter, when these fail, it feeds upon ptarmigan. Within the arctic circle, where it abounds, but for its ability to feed by day, it would be incapable of passing the summer in these desolate regions; and from the small size of the head, and its mode of preying during day-light, it takes its name of Eagle or Hawk Owl. At all times an active and enterprising hunter, during the time it is breeding its young it is particularly busy. Leverets, young rabbits, moles, serpents, lizards, toads, frogs, and even bats, fall victims to its powerful talons. After breaking with its hooked beak the head and bones of the small animals, the Owl, like the Falcon tribe, swallows them whole, and in the course of a few hours rejects by the

mouth the hair, bones, skin, or feathers, in the form of pellets or balls, which are called castings. It never feeds on any vegetable substance. The cry of the Eagle Owl is particularly melancholy, and when uttered through pain or fear is exceedingly strong, harsh, and grating. Its nest is nearly three feet in diameter, composed of small branches of dry wood, interwoven with pliant roots, and strewed with leaves. It seldom lays more than two eggs, very rarely four, which are round, large as those of a hen, and mottled like the plumage of the bird. The parents are exceedingly attentive to their young, and so assiduous in providing them with food, that they have been known to fight with the Buzzard, and compel him to give up his spoil for their use. Although their wings are shorter than those of most soaring birds, they can rise to a great height, especially about twilight; at other times they generally fly low, and to short distances. "They have been employed in falconry to allure the notice of the Kite. For this purpose it is customary to tie a fox's tail to the Owl, to enhance the singularity of its appearance. Thus equipped, it skims along the sur-

face of the ground and alights on the plain, without venturing to perch on a tree. The Kite perceives it from a distance, and advancing to examine the curious-looking object, generally hovers about unguardedly, till it is surprised by the sportsman or caught by some of the birds that are flown at it." The breeders of pheasants also frequently keep a Great-eared Owl, which they put into a cage among rushes, in an open place, to attract the crows and ravens. These are thus more speedily despatched with a cross-bow, which does not, like the report of a fowling-piece, scare the young pheasants. In a state of captivity, this species will readily eat raw flesh and bullock's liver; nor does it reject small and middle-sized fish."* It can, like other birds of prey, long dispense with water. When the hunters are shooting grouse, this bird is occasionally attracted by the sound of the gun, and is often bold enough, on a bird being killed, to pounce down upon it, though it may, from its size, be unable to carry off the prey. A specimen of the Eagle Owl was captured in 1837, off Flamborough Head, where it alighted upon the

* Edinburgh Encyclopædia.

mast of a sloop sailing by. It was with difficulty secured, after it had actually pinned down with its powerful talons the cabin-boy, who had gone aloft to seize it.

The Great White Northern or Snowy Owl (*Strix nyctea*) is nearly as large as the Eagle Owl. The whole plumage is of a snowy whiteness, spotted with black; the bill is also black. It sustains throughout the year the utmost rigour of the northern regions, being very common in Hudson's Bay, Norway, and Lapland, and even found in the accumulations of ice in the Greenland sea. It has been shot in Scotland, England, and Ireland. Dr. Richardson states that it frequents, in summer, the most arctic lands that have been visited, but retires with the ptarmigan, on which it feeds, to more sheltered districts in the winter. Like the Eagle Owl, it is mercifully adapted to the climate in which it is placed, and differs from others of its species by being enabled to prey during the day on lemmings, hares, and birds. Mr. Hutchins says it will eat carrion, and Wilson informs us that "it is a very dexterous fisher, grasping its finny prey as it sails along near the

surface of the water." He has also seen it on the wing pursue an American hare, making repeated strokes at the animal with its foot; but that, an Indian interfering, it was driven from its prey. It makes its nest on the ground, and lays three or four white eggs dotted with black, of which two only are commonly hatched. Its flesh is white and delicate; and in winter, when the Owl is fat, the Indians and white residents in the fur countries esteem it to be good eating. The cry has been compared to that of a person in deep distress.

A family at Plymouth, some years since, during the night, were disturbed by most pathetic cries and moans, which indeed resembled those of the human voice so much, that windows were hastily thrown up, and anxious looks directed to the spot from whence they proceeded. In a short time the melancholy sounds died away, and all was still. The next morning a fine specimen of the Snowy Owl was found drowned in a large cistern which adjoined the garden of the house. This poor Owl had made his escape from the collection of a gentleman in the town, who greatly valued him, and the steep sides of the cistern prevented

his efforts at self-preservation. If the night had not been so dark, it might have been easily rescued. The melancholy cries were long remembered, and the cause of them regretted.

Mr. Waterton, who took especial interest in the habits of the Owl, has given an interesting paper on the habits of the Barn Owl (*Strix flammea*); we have selected the following from it. "This pretty ærial wanderer of the night," says the amiable naturalist, "often comes into my room, and, after flitting to and fro, on wing so soft and silent that he is scarcely heard, takes his departure from the same window at which he had entered. I own I have a great liking for this bird; and I have offered it hospitality and protection on account of its persecutions, and for its many services to me; I wish that any little thing I could write or say might cause it to stand better with the world than it has hitherto done."

Mr. Waterton, in 1813, made a dwelling for the reception of the Barn Owl, in the ruin of an old gateway, in the grounds of his residence, Walton Hall,—"a place built with stone and mortar, about four feet square, with a thick oaken stick fixed into it.

Thick masses of ivy now quite cover the retreat. In about a month or so after it was finished, a pair of Barn Owls came and took up their abode.” When he found that the first settlement had succeeded, he formed other establishments, so that in a few years he had quite a little colony of Owls. “We can,” he says, “now, always have a peep at the Owls in their habitations on the old ruined gateway, whenever we choose. Confident of protection, these pretty birds betray no fear when the stranger mounts up to their place of abode. If this useful bird caught its food by day instead of hunting for it by night, mankind would have ocular demonstration of its utility in thinning the country of mice; and it would be protected and encouraged everywhere. When it has young, it will bring a mouse to the nest about every twelve or fifteen minutes. But, in order to have a proper idea of the enormous quantity of mice which this bird destroys, we must examine the pellets which it ejects from its stomach in the place of its retreat. Every pellet contains from four to seven skeletons of mice. In sixteen months from the time that the apartment of the Owl on the old gateway was

cleaned out, there was a deposit of above a bushel of pellets. The Barn Owl sometimes carries off rats. One evening as I was sitting under a shed, I killed a very large rat as it was coming out of a hole about ten yards from where I was watching it. I did not go to take it up, and as it lay there, a Barn Owl pounced upon it and flew away with it." This bird has been also known to catch fish. "As I was standing," continues Mr. Waterton, "on a fine evening in the month of July, long before it was dark, on the middle of the bridge, and minuting the Owl by my watch as she brought mice into her nest, all on a sudden she dropped perpendicularly into the water, and soon rose with a fish in her claws, which she took to her nest." When farmers complain that the Barn Owl destroys the eggs of their pigeons, they are wholly wrong. If it were really an enemy, the pigeons would not treat it with the utter disregard they always do: the rat is the real delinquent.

"Mr. Turner, of Bury St. Edmund's, states that he, one evening, watched a pair of Barn Owls which had built a nest in the Abbey-Gate (formerly the grand inlet to the monastery of St. Edmund).

In the short space of twenty minutes they carried food to their young twelve times. Next morning, with some little difficulty, he climbed to the hole in which their nest was placed. At the entrance of the hole sat Mr. Billy sound asleep, and bolt upright. He appeared to be rather displeased at the visit, as he threw himself into a position of defence, but at last retreated into the hole. The entrance to this was covered several inches deep with pellets, which contained the skeletons of innumerable mice, rats, and birds. Poor Billy met with an undeserved fate, for a gentleman living near, who kept pigeons, and had often had a great number of the young ones destroyed, laid it to the poor Owls, which visited his premises ; and accordingly, one moonlight night, stationed himself, gun in hand, close to the dove-house, for the avowed purpose of destroying the “feathered rascals.” He had not taken his position long, before he espied poor Billy flying from the locker with a load in his claws. “Pop !” went the gun, and down came the Owl ; when, oh, dire to relate, instead of the young pigeon, which the gentleman expected to find, it was an old barn-rat, nearly

dead! ”* In captivity the Barn Owl is sociable with other birds, but will sometimes, like the dog, hide what remains of its food.

A gentleman who had a tame Sparrow-Hawk, which, softened by kindness, actually lived in harmony with a large stock of fancy pigeons, thus describes the mode of defence resorted to by the Owl when attacked. This *tame* Sparrow-Hawk was still a Hawk in spirit, although playful and familiar, and never meddling with his friends the pigeons. “A neighbour,” says this gentleman, “had sent us a very fine specimen of the Smaller Horned Owl (*Strix brachyotus*) which he had winged, while flying in the midst of a covey of partridges; and after having tended the wounded limb, and endeavoured to make a cure, we thought of soothing the prisoner’s captivity by a larger degree of freedom than he had in the hen-coop which he inhabited. No sooner, however, had the Hawk got sight of him, than he fell upon the poor Owl most unmercifully; and from that instant, whenever they came in contact, a series of most skilful and courageous combats took place between

* Magazine of Natural History.

them. The defence of the poor little Owl was admirably conducted: he would throw himself upon his back, and awaiting the attack of his enemy with patience and preparation, by dint of biting and scratching, would frequently win a positive victory. Acquaintanceship, in this case, did not seem likely to ripen into friendship; and when his wing had gained strength, taking advantage of a favourable opportunity, the Owl decamped, leaving the Hawk in possession of his territory. This the Sparrow-Hawk did not long enjoy, for he was shortly after found drowned in a water-butt. From this place of danger he had once or twice been extricated, having summoned a deliverer by his cries of distress, which were now unfortunately unheard."

The *Strix Scops* is a very common Owl in Italy, and is remarkable for the constancy and regularity with which it utters its peculiar note or cry. It does not merely to the "moon complain" occasionally, but keeps repeating its plaintive and monotonous cry of *kew, kew*, (whence its common Florentine name of *chiù*, pronounced almost exactly like the English letter Q,) in the regular

intervals of about two seconds through the whole night; and until a person is used to it, nothing can well be more wearisome. It feeds wholly upon beetles, grasshoppers, and other insects.

Lucien Buonaparte, the brother of Napoleon, lived for many years in North America, and was extremely fond of the study of natural history. He describes a species of Owl, which has a very different way of living and lodging from those we have mentioned. It is called the Burrowing Owl (*Strix cunicularia*), and is common in both North and South America. "It gets its name of Burrowing Owl from the singular retreat it invariably prefers. Other birds of this family resort to solitary recesses in woods and forests, or ruined buildings, but this delights to dwell in open plains, in company with animals remarkable for their social disposition." * Instead of sailing heavily forth in the obscurity of the evening or morning twilight, and then retreating to its abode, this bird enjoys the broadest glare of the noon-day sun, and flying rapidly along, searches for food or pleasure during the cheerful light of the day; and

* Stanley on Birds.

then returns to its underground dwelling, which is in the burrows of the marmot or prairie dog, an animal abounding in the vast plains of the western part of the United States. These burrows are called by the natives marmot villages, and are so numerous and extensive, that they will sometimes spread over the face of the country for miles together. If disturbed, the Owls, which are usually seated near the burrows, either fly off a little way, and settle again, or descend into the holes, from whence it is no easy matter to dislodge them. Sir Francis Head, when galloping over the immense plains in South America, called the Pampas, fell in with them, in company with the Biscachos, animals much resembling the prairie dogs, of very singular appearance, nearly as large as badgers, but with heads not unlike a rabbit, except that they have large bushy whiskers. In the evening they sit outside their holes, looking very serious, as if moralizing, thoughtful, and grave. These holes were guarded in the day time by two of the Burrowing Owls, who were never absent an instant from their post. As strangers gallop by, there the little Owls continue to sit,

looking at them, first full in the face, and then at each other, moving their old-fashioned heads in a manner which was quite ridiculous, when, as the riders pass close to them, fear gets the better of their dignified looks, and they both run into the Biscachos' holes. * Owls are so particularly attached to their offspring as to have been known to visit and feed them long after they have been separated from the nest. Some young ones which had been so far tamed as to take food from the hand, soon lost their familiarity after being hung out at night in their cage, and it was discovered that the parent birds had sought them out, and brought food with as much care and attention as if they had been requiring parental care in the nest.

Another instance in point was witnessed by a Swedish gentleman, who resided several years on a farm, at the foot of a steep mountain, on the summit of which two Eagle Owls had built their nest. One day, in the month of July, a young bird having quitted the nest, was caught by the servants. This bird considering the season of the year, was

* Head's Rough Notes.

well feathered ; but the down appeared between those feathers which had not yet attained their full growth. After it was caught, it was shut up in a large hen-coop, when next morning a fine young partridge was found lying dead before the door of the coop. It was immediately concluded that this provision had been brought there by the old Owls, which had no doubt been making search during the night for their lost young one. And such indeed was the fact : for night after night, for fourteen days, was this same mark of attention repeated. The game which the old ones carried to the young Owl consisted chiefly of young partridges, for the most part newly killed, but sometimes a little spoiled. On one occasion a moor-fowl was brought so fresh, that it was actually warm under the wing, a putrid lamb was at another time deposited. It was supposed that the spoiled flesh had already been some time in the nest of the old Owls, and that they brought it merely because they had no better provision at the time. The gentleman and his servants watched several nights, in order that they might observe through a window, when and how this supply was

brought, but they watched in vain, for it appeared that the quick-sighted Owls had discovered the moment when the window was not watched, as on those very nights food was found to be placed before the coop. In the month of August, the attention on the part of the old birds ceased ; but it should be observed that this was the usual period when all birds of prey abandon their young to their own exertions, and usually drive them off to shift for themselves in distant haunts.* It may readily be concluded that this large species of Owl consumes a vast quantity of game, while rearing its offspring, but it has been acknowledged by sportsmen that this bird does far more benefit than hurt in general, as it destroys so many weasels, stoats, rats, and other vermin, which suck the eggs of the game, and in one night may destroy whole broods of birds. It has been observed, that as Owls have been exterminated, so these noxious animals increase ; convincing the farmer, by woeful experience, that the arrangements of an all-wise and merciful Providence cannot be improved by all the supposed wisdom of human devices. “ The

* Stanley on Birds.

works of God," says Bishop Stanley, "whether in the animal, vegetable, or mineral world, may be likened to

‘ The letting down a golden chain from high ;’

a chain of innumerable, uninterrupted links, visible to us only in the intermediate portions, and each attesting the wisdom and power of its great Contriver.”

“ God hears, and feeds, the feathered families ;
He feeds his sweet musicians ; nor neglects
The invoking ravens in the green wood wide,
And though their throats, coarse rattling, hurt the ear,
They mean it all for music.”

THE RAVEN.

Corvus. Corax.

THE Raven, one of the largest and most powerful of the numerous Crow family, measures two feet in length, and four feet in the stretch of the wings. The tail is finely feathered, and equal in length to half the body. The plumage of this bird, though of a sombre shade, is extremely beautiful. In particular lights, the black feathers are tinted with blue, and thus form the Raven-grey, a well known and admired colour. The bill is strong, and black, as are the feet, and it is furnished with long and vigorous wings. The Raven is an inhabitant of every known country in the world, and is able to endure the greatest extremes both of heat and cold. Like the rest of the Crow family, it possesses great acuteness of sense, and both in its wild and tame state is always prying about and taking especial notice of all that goes on around

it. "No sooner," says Mr. Yarrell, "does an animal betray any signs of weakness but the Raven is there on the watch for an opportunity to satisfy his appetite ; at first he makes his approach with great caution, because," as it has been aptly observed, "though glad to find others carrion, or to make carrion of them if he can do it with impunity, he takes good care that no one shall make carrion of him." If the herdsman is absent, and no other interruption occurs, he makes his first attack upon the eye, afterwards feeds upon his victim at his leisure, retires to a small distance to digest his meal, and then returns to his feast again.

The Raven inhabits high rocks on the sea-coast, extensive woods, mountains, or open plains, where danger may be seen and avoided. His food is small animals, birds and their eggs, reptiles, insects, grain, or carrion ; on the sea-coast it closely searches for dead fish, or any other animal substance thrown up by the tide. Young Rooks form a favourite food, and between the Rooks and the Ravens there is consequently great enmity. The latter are bold enough to attack the nests of the

Rook, and though they often succeed in carrying off the unfledged birds, the warfare is so determined and universal on the part of the inhabitants of the rookery, that they are sometimes completely driven off. The voracity of the Raven is expressed by its name, which when used as a verb signifies to *reave* or tear away, or seize by violence. In lowering and stormy weather this bird is particularly active, braving the inclement season for the prey which he expects to find plentiful at that time. And seldom is he disappointed of his expected feast; for many poor birds, tired of being long on the wing, or young nestlings scarcely able to use their wings, are easily secured while battling with the tempest. In the Esquimaux country, it frequents the most barren spots during intense cold, its movements being frequently directed by those of the herds of rein-deer, musk oxen, and bison, which it follows to profit, by devouring such as are killed by beasts of prey or accident. No sooner has a hunter slaughtered an animal, than these birds are seen coming from various directions to feed on the offal. In fishing stations they shew equal boldness and rapacity. The experienced

native, when he sees from afar a flock of Ravens wheeling in small circles, knows that a party of his countrymen are encamped on the spot, and well provided with venison. In Greenland, they usually frequent the sea-coast, assembling in great numbers during winter round the huts of the natives, plundering the provisions, devouring the offal, or, if driven by hunger, pulling the leathern canoes to pieces. In Kamtschatka they prey in common with the white bear, arctic fox, and the eagle, and greedily seize the eggs of birds or shellfish. With these last they will soar into the air, and drop them on a rock to break the shells. In spite of its great voracity, this bird, like the Eagle, is capable of enduring hunger for a very long time. The wonderful faculty by which the Raven is enabled to discover at a great distance the dead or dying animal on which it intends to feed, is one of which we can have no conception. The senses both of sight and smell are extremely acute, and in times less enlightened than the present it was supposed to have the power of "smelling death," and was thus much dreaded as a bird of ill omen. Many an ignorant villager has trem-

bled at the melancholy croak of the Raven, thinking it to be

“The hateful messenger of evil tidings,
Of death and dolour telling.”

The unexpected sound may also be a cause of startling even those who are not superstitious enough to feel alarmed at the dismal break upon the solitude. No bird, as has been before remarked, advances more stealthily on his prey. “The hop of the Raven suits his purpose well, when he beats the long grass and bushes for eggs, young birds, or leverets. He flings himself into the air with wonderful ease, and when he has cleared the bush he lets himself down with equal softness, so that the feet slide to the ground but do not touch it; and though he does not repeat his hoarse cry till he discovers something stir the vegetation in the act of hiding itself more closely, he comes upon it hopping, before it is aware. He moves from place to place on the wing, and a bold and strong wing it is, less easily hurt by the storm than most other birds; but he does not beat so much when flying. He gains some high point, and there he sits, surveying the whole horizon until something

promising appears. Then away he wings, low and stealthy, and lets himself down softly before he arrives at it. Thence he hops, in a spiral or zig-zag, always as if he were about to pass in an oblique direction, but nearing his object at every hop. One often wonders where he can come from, for you may walk the wild for hours without stirring him ; but if you lie down on your back the Raven will be close upon you in a moment, to examine if you are ready carrion for him, particularly if you do not notice his croak, after uttering which, he generally pauses. If you allow him to come sufficiently near, his first salutation would be a dash at your eye ; but if you have a gun you can make sure of him long before that, only beware of his powerful beak if he is merely winged or slightly wounded. If you take him home, even in this state, feed him well, and heal his wound, he will not only forgive you but become a faithful servant.”* The boldness of the Raven, however, quite equals his caution, both by his methods of attack and defence.

The Puffin, or Sea-Parrot is so formidable a

* Mudie's Feathered Tribes.

bird that few animals will venture to attack it in its retreat, which being burrowed to a considerable distance under ground, very much resembles a rabbit-hole. The raven however, ventures to attack this bird, and if it succeeds in getting hold of the neck, it generally comes off victorious, kills the Puffin and feasts on the eggs or young. But if, on the contrary, the Puffin once catches the Raven by the throat with its strong beak, and sticks its claws into the breast, it keeps fast hold, and shakes the Raven until it screams with pain. Thus, they both frequently fall into the sea, when the Raven is drowned, and the Puffin returns in triumph to its nest. The male raven is extremely courageous also in defence of the female, and of her young, and exerts himself vigorously if any attack from another bird of prey is to be dreaded. He takes wing, and soaring above his antagonist, attacks him violently with his beak. If the bird of prey attempts to gain a higher position, the Raven renews his attempts to keep the advantage he has gained, and they thus gradually elevate themselves until one or the other falls exhausted to the ground. Ravens have sometimes been employed

as ferrets, and, in company with dogs, have warmly entered into the spirit of rat-hunting. Buffon tells us, that the inhabitants of the Bermuda isles were afflicted for five years by swarms of rats, which committed vast devastations. All at once they disappeared, and no other cause could be assigned for it, but that during the last two years a great number of Ravens had been seen on the islands, and had most probably destroyed the rats.

These birds breed very early in the season; their nest is usually placed in a high tree, and is formed on the outside with sticks, and lined within, with wool, straw, or any other convenient material that can be procured. The eggs are from two to five in number, and of a greenish colour, marked with ash-brown. The Raven has been accused of deserting its young, but this is far from being the case; they watch over and feed them with the most assiduous attention while they are in a state of helplessness and unable to shift for themselves. The following anecdote is a proof of this fact. "Once," says the author of the "British Naturalist," "in passing near the bottom of a bold and high cliff, which rises in most places

from a brake, we heard a great deal of hoarse lamentation among the bushes. A friend who was with us, knew that Ravens nested there, and we began to beat the bushes for the nest or nestling. After a little search we found a nestling that had dropped from the cliff rather prematurely, and was quite unable to fly, but was huddled together close by the rock, with one of the parents watching and croaking over it. The old one made some demonstrations of hostility, or rather, perhaps, of reluctance to quit the charge. Our friend, who wished to have a young Raven in his stable-yard, made prize of the young one, which he took home in a handkerchief, with the head out. The bird had received no injury, ate readily as soon as it was out of the handkerchief, grew up very tame, and is, we hope, still alive."

The female is larger in size than the male, and the same pair breed in the same spot for many years in succession. Raven trees, as they are called, exist in many different places. In White's "Natural History of Selborne" one is mentioned, which gives a singular instance of the local attachment of this bird. "In the centre of the grove,"

says Mr. White, “there stood an oak, which, though shapely and tall on the whole, bulged out into a large excrescence about the middle of the stem. On this a pair of Ravens had fixed their residence for such a series of years, that the oak was distinguished by the name of the Raven Tree. Many were the attempts of the neighbouring youth to get at this eyrie: the difficulty whetted their inclination, and each was ambitious of surmounting the arduous task. But when they arrived at the swelling, it jutted out so much in their way, and was so far beyond their grasp, that the most daring lads were awed, and acknowledged the undertaking to be too hazardous. So the Ravens built on, nest after nest, in perfect security, till the fatal day arrived when the tree was to be levelled. It was in the month of February, when these birds usually sit: the saw was applied to the butt, the wedges were inserted in the opening, the woods echoed to the heavy blows of the mallet, and the tree nodded to its fall, but still the mother bird sat on. At last, when it gave way, the bird was flung from her nest, and, though her parental affection deserved a better fate, was

whipped down by the twigs, which brought her dead to the ground.”

In Scotland, where the Raven is perhaps better known than in any other part of Great Britain, its favourite breeding-places are precipitous rocks, or the face of steep cliffs. The same rock often affords an eyrie to the Peregrine Falcon. In the vicinity of Edinburgh there formerly existed one or two eyries, one on the Castle Rock, another on Arthur's Seat. In some of the Scottish deer forests, now mostly let for deer-stalking, we are told that incredible numbers collect soon after the season commences, drawn thither by the wounded animals which have escaped from the hunter, and which have either died, or, from their weak and sickly state, may be attacked without danger.

The age to which the bird attains has never been exactly ascertained, but it is very long lived. When reared from the nest, the Raven becomes extremely familiar, but requires to be closely watched in the process of taming, as it exhibits many mischievous propensities, shews likings and dislikings to particular persons, and

will strike very severe blows with its powerful bill.

It soon becomes reconciled to the circumstances in which it may be placed, and has been known to form strong attachments to individuals by whom it was kindly treated, and many anecdotes have been related of its becoming fond of dogs and other animals which were its companions. In the "Gentleman's Magazine" a Raven is mentioned, which for many years lived at the Red Lion Inn, Hungerford, and was called Ralph. A gentleman lodging at the inn tells the following story. "Coming into the inn-yard," says he, "my chaise ran over and bruised the leg of my Newfoundland dog; and while we were examining the injury, Ralph was evidently a concerned spectator, for the minute the dog was tied up under the manger with my horse, Ralph not only visited him, but brought him bones, and attended on him with particular and marked kindness. I observed this to the ostler, who told me that the bird had been brought up with a dog, and that the affection between them was mutual, and all the neighbourhood had been witnesses of their many reciprocal acts of kindness. Ralph's poor

dog unfortunately broke his leg, and during the long time he was confined, Ralph waited on him constantly, carried him provisions, and scarcely ever left him alone. One night, by accident, the stable-door had been shut, and Ralph had been deprived of the company of his friend during the whole night; but the ostler found in the morning the door so pecked away, that, had it not been opened, in another hour Ralph would have effected his own entrance."

A singular instance of strong attachment formed between a dog and Raven is mentioned in Bishop Stanley's *Work on Birds*. "The Raven had been taken when young, and reared in a stable-yard where the dog was kept chained up. A friendship soon commenced, which, increasing from little to more, in time ripened into a most extraordinary degree of intimacy. At first the bird was satisfied with hopping about in the vicinity of the kennel, and occasionally pecking a hasty morsel from the dog's feeding-pan, when the latter had finished his meal: finding, however, no interruption on the part of his friend, the Raven soon became a constant attendant at meal-times, and, taking up his position on

the edge of the dish, acted the part of a regular guest and partaker of the dog's dinner, which consisted usually of meal and milk, with occasional scraps of offal meat, a piece of which the bird would often snatch up almost from the very mouth of the dog, and hasten beyond the reach of his chain, as if to tantalise his four-footed friend, and then, hopping towards him, would play about and hang it close to his nose, and then as speedily, at the moment the dog was prepared to snap it up, would dart off beyond the reach of the chain. At other times he would hide the piece of meat under a stone, and then coming back with a cunning look, would perch upon the dog's head. It was observed, however, that he always ended his pranks by either sharing or giving up the whole piece to his friend the dog. The intimacy continued for a length of time, and terminated only with the death of the poor Raven, which was killed by a boy throwing a stone at it, for which he was very properly dismissed from the service of his master. Very different from the character of the idle and heedless boy who killed this poor bird, was the conduct of a dog, by whom its life had been a

short time before preserved. By some accident the Raven had fallen into a tub of water, and either weakened by struggling, or unable to get out owing to its feathers being soaked with water, it was nearly drowned. The dog, chained at a short distance, saw the poor bird's danger, and, dragging his heavy kennel towards it, reached over the sides of the tub, and, taking the drowning Raven in his mouth, laid him gently on the ground, where he soon recovered, to die by the hand of the boy, who, though he might have known by heart, had never learned to feel *in* his heart, the golden precept of 'doing to others as we would be done by.' ”

A writer in the “Naturalist's Magazine” mentions a singular bird of this species. “On a post near the Elephant and Castle Inn, at which a great number of stage-coaches then stopped, is placed an inscription on ‘Ralph,’ a Raven of great celebrity, who had been in his day a distinguished member of the establishment. Those who recollected him related several instances of his sagacity, amongst others that of his knowledge of, and intimacy with, several of the coachmen. With his

particular favourites and friends he would frequently take short jaunts out on the coach-top, until he met some other coach, whose driver he also knew, passing in a homeward direction, when he would immediately change places and return."

In spite, however, of the strong attachment they shew to dogs or men, they are very ready to cheat each other if their interest stand in the way. "At the Zoological Gardens in the Regent's Park two Ravens were kept in one large cage or pen: a visitor threw them two pieces of bread, when one of them immediately jumped from his perch, and, before his companion could reach either of them, he had secured both in his beak, and had regained his former position on the perch, holding them until he saw his companion at the further end of the cage; he then flew down, buried one of the pieces, which he carefully covered with gravel, and jumping back to the perch with the other piece, devoured it. He then hopped down for the hidden piece, and, regaining his perch a second time, consumed that, to the great annoyance of his companion, whom he thus artfully contrived to outwit." *

* Stanley on Birds.

Numberless stories have been told of the hoarding propensity of Ravens: they are indeed so cunning and mischievous, that it is quite necessary for those who have them in a domesticated state to keep a strict watch on their motions. A gentleman's butler having missed a great many silver spoons and other articles, without any suspicion as to who might be the thief, at last observed a tame Raven with a spoon in his mouth, and tracing him to his hiding-place, discovered more than a dozen silver spoons. They appear to have a singular propensity for catching up any glittering object, and have been frequently known to hide money if it comes in their way. A gentleman in Devonshire, who kept a Raven, more for his own gratification than that of his neighbours, might relate many anecdotes of the singular propensities possessed by this bird. His pet would not only abstract the cambric pocket-handkerchiefs from the line where they were hung to dry, but carefully hide the papers placed as marks where seeds had been sown. The skewers of the butcher were a great temptation, and a large heap was once discovered by the cook, who could never exactly know what

became of these useful articles, until, a plated one having disappeared from a round of beef, on a close search she accidentally discovered the hidden treasures of the Raven. His master having one day left a gold watch in the summer-house, Corbie, as he was called, directly took possession of the shining treasure, and retreating to one of his hiding-places, he soon picked it to pieces with his powerful beak. The fragments were found a long time after, when a laurel tree was transplanted. Several bits of tin, a small brass chain, two or three patty-pans, and a silver thimble were also discovered at the same time. Corbie sat gravely looking on at this disturbance of his treasures, and, like a cunning bird, appeared to be perfectly ignorant of his delinquencies.

Like most other animals, Ravens differ in disposition: some are exceedingly vindictive, and generally ill-natured; while others possess the most affectionate qualities, though, as we have before remarked, they all persist in capricious dislikes. A Raven belonging to a neighbour of ours was far from being amiable, and consequently made few friends. His attachment to his mistress was cer-

tainly very strong, and on one occasion during an illness of hers he actually refused food. To every other person in the house he manifested a most decided aversion. The servant generally armed herself with a broom when she went into the court-yard, to defend herself from his attacks: the girl was not partial to animals, which perhaps may account for the dislike shewn by Jack. This bird was, at the least, sixty-five years old, and was a remarkably fine specimen of the Raven. His ill-natured propensities had been the cause of a serious injury, for a thoughtless school-boy, angry at a bite received when offering Jack a bit of meat, threw a stick at him and broke his leg. The sagacious bird instantly contrived to hop on one leg to the pantry, where his mistress happened to be, and appealed to her, according to her own account, in a most energetic manner. His leg was bound up, and, though Jack never regained the entire use of it, he managed to hop along with great ease by the side of any visitors to the yard, occasionally giving them either a bite or a pull by the clothes. The old lady to whom he belonged valued him greatly, as she declared his mode of imitating the voice and

cough of her late husband was quite affecting. He pronounced many phrases in a most startling manner, and "Get along!" and "Go out!" has often driven a frightened beggar from the gate. The early education of this bird had been far from good, and he occasionally uttered some most improper expressions; and then, perhaps fearing the punishment his mistress had frequently inflicted on him for like offences, he would exclaim, "Poor Jack! Don't hurt poor Jack. Scratch his poll." Our dog sometimes paid the next yard a visit, to discover Jack's hoards of bones and liver. We have frequently seen him grub up a bone, and then quietly pick it, while Jack has been hopping round and round the neighbour who was dining at his expense. His allowance of liver was cut into portions to last during each day of the week, and these he invariably carried to some secure spot to eat. Jack was once ill, and suffering from a blow on the head he had received by a stone thrown from no kindly hand. He, however, still took his allowance at the pantry-door, and, though he fasted for a week, stored it away. This was

observed from an upper window, Jack never allowing his private cupboard to be known if aware of it.

There is a bird at Chatham, which has made as great proficiency in speaking as the one I have mentioned that came under my own observation. Living near the guard-house, it has more than once turned out the guard, who thought they were called by the sentinel on duty. One belonging to Mr. Henslow speaks so distinctly, that an eminent naturalist who heard it for the first time was actually deceived into thinking it a human voice. Many others could be enumerated, which have been taught to ask for their food and make other requests.

At the seat of the Earl of Aylesbury, in Wiltshire, a tame Raven that had been taught to speak, used to ramble about in the park; there he was commonly attended and beset with crows, rooks, and others of the inquisitive tribe. When a considerable number of these were collected round him, he would lift up his head, and with a hoarse and hollow voice shout out the word "holloa!" This would instantly put them to

flight, and the Raven seemed to enjoy the fright he had occasioned his sable brethren.

These birds are certainly interesting, from their being so easily tamed and becoming quite fearless. Captain Back mentions a pair of Ravens, which, during his arctic expedition, appeared as very early visitors. He thought they were the announcers of spring, and would not suffer them to be disturbed. In a very few days they became so tame, as scarcely to move ten paces when any one passed them. "They were," said Captain Back, "the only things that held communion with our party, and it was a pleasure to see them gambol in their glossy plumage on the white snow." The inhabitants of the northern regions have a superstitious fear of, and value for, the Raven; the Icelanders destroy them, yet give them credit for foretelling good or evil fortune. The priests of the North American Indians wear, as a distinguishing mark of their sacred profession, two or three Raven skins fixed to the girdle behind their backs, in such a manner that the tails stick out horizontally from the body. They also wear a split Raven-skin on the head, fastened so that the

beak projects from the forehead. The frequent appearance of the Raven on any occasion of slaughter and bloodshed may have induced many unenlightened people to believe that they were birds of ill omen, while, in fact, like other birds of prey, they were only filling the useful place in creation they were formed to occupy. The remarkable quality which this bird and others of the family possesses, of being easily taught to imitate the human voice, has not only caused them to be much prized, but has led to an idle piece of cruelty, for, owing to a belief that they will speak more plainly if their tongues are slit, they are often put to the annoyance and pain of having this operation performed. Had the persons who commit this useless act of cruelty any knowledge of the peculiar structure of birds, they would be aware that the tongue has nothing to do in the production or modulation of sounds, and that the organ of voice is at the lower end of the windpipe; and whatever of articulation they are able to give, is produced there.

The flesh of the Raven is eaten, we believe, only by the Greenlanders, whose accommodating appe-

tites are well adapted for any diet that comes in their way. The skin, with the feathers on, they form into warm under-garments, while the beak and claws are used as amulets or charms against sickness and danger. The large quills of the Raven, cut to a point, were formerly used for the jacks of the harpsichord to strike the wires in playing.

“ The extending of cultivation and the greater attention that is now paid to the condition of stock, both of cattle and sheep, during the winter, have diminished the Raven in its old haunts in Great Britain. In the olden time, cattle were oftentimes so sickly and weak, that part of the early morning’s occupation was for people to go round and lift such as had lain down or become entangled in any uneven pass from which healthy stock could easily have extricated themselves. These were days of plenty for the Raven, who, while the poor sheep or cattle were stuck fast in a helpless condition, would peck out their eyes ; and though the animals were found, the skin only was useful to man. The Ravens then soon came and claimed the carcass. In the immediate destruction of that the Raven was of service, because no

browsing animal will feed near the carrion of its own species. Indeed, the havoc committed by an animal of prey will always be found, if duly studied, to cure some evil produced by the prey. In those hilly districts where Ravens are still to be found, animals are subject to more casualties than they are on the open plains and moors, so that Ravens still have their use there; and the wanton destruction of these or any other animals of prey is a matter that at least deserves to be well considered before it is attempted.” *

* Mudie's Feathered Tribes.

“ Wood minstrels, which the livelong day
Fill with harmonious melody,
Now silent, sleep on slender sprays ;
But nature knows no pause in praise,
And Philomel’s night symphony
Is heard when cease the songs of day.”

THE NIGHTINGALE.

Philomela Luscinia.

THE most celebrated, perhaps, of all birds, both in ancient and modern times, is the king of songsters, the Nightingale. Its song, for the variety, length, and sweetness of the notes, has been the theme of writers in all ages. It was called *Philomela* (lover of song), from its habit of singing late in the evening, and during the early hours of morning, when other birds are at roost; and *Nightingale*, from “night,” and the Saxon word *galan*, to sing.

The song of this bird is composed of sixteen different burdens, which it can continue for twenty seconds, its voice filling, it is said, the compass of a mile in diameter. It warbles even in its dreaming sleep, and never repeats its notes like other birds. The female’s voice is weaker, but exactly resembles the male’s. In calm weather, in the fine

nights of spring, when the voice of the Nightingale is heard alone, “when the busy tribes of life are hushed in repose, this unrivalled songster keeps up the vigil in the temple of nature, charming the listening shades, and teaching the night His praise.”*

The full-grown Nightingale is a bird of elegant proportions, but of unattractive plumage. It is a little larger than the Robin; the head, back, and wings of a yellowish-brown; the tail of a richer brown. All the under surface of the body dull greyish-white; the chin and lower part of the breast are of a lighter tint. Its eyes are remarkably large and piercing, and the muscles of the throat are stronger than in any other bird of the same size. The female differs but little from the male; the head is rounder, the eyes are rather smaller, and the breast is not so white. The Nightingale inhabits Europe, from Italy and Spain in the south, to Sweden in the north. It is also found in Siberia, and has been seen in some parts of Asia and Africa. It is a migratory bird, leaving the temperate countries of Europe as winter

* Sadler.

approaches, and retiring into warmer regions. So powerful is the instinct of migration, that in a state of captivity Nightingales usually shew much uneasiness and agitation, especially during the night, at the periods when the species migrate. The departure and return of these birds is owing not only to the change of season, but to the abundance or scarcity of their favourite food.

The Nightingale makes its appearance in England about the latter end of April or beginning of May, according to the mildness of the season, and the males arrive ten or fourteen days before the female. The bird-catchers instantly seek after these, well knowing that the males which are taken after they have paired seldom survive the loss of their mate. The birds taken in the county of Surrey are considered to possess the finest quality of song. The London bird-catchers catch them in net-traps, (somewhat larger than cabbage-nets,) the bottoms of which are surrounded with an iron ring. These are baited with meal-worms from the bakers' shops; and ten or a dozen birds have sometimes been taken in a day by this means. The places frequented by the Nightingale are

woods, having thick undergrowth, low coppices, plantations, and hedge-rows. It shuns rocky, open country, though it frequents low damp meadows near streams of water. The places it frequents are generally those in which the insects, grubs, and caterpillars on which it feeds may be found; but still the food is not the only attraction, for there are certain places and spots which are more frequently sought out than others, and these are commonly where the air is most soft and balmy, and the whole vegetation moist and luxuriant. The charm of its song has been said to vary much with the locality. In England its choice of favourite resort is unaccountable. It is found in Sussex, Hampshire, Dorsetshire, and the eastern part only of Devonshire, along the line of our south coast. It has been heard about Teignmouth and Exmouth, but no further west in that direction. It has also been heard in North Devon, but not in Cornwall. In Ireland, Scotland, and Wales the bird is unknown.

Nightingales are said to attach themselves to the place which gave them birth, and to return to it every year. From this circumstance it was be-

lieved, that, if any of these could be bred beyond the usual limits of the spots in England they have chosen, they would return in the following season to their birth-place. Sir John Sinclair, desirous of trying the experiment in Scotland, caused some eggs to be placed in the nests of several Robins, where they could be deposited and hatched in security. These eggs were all sat upon, hatched in due time, and the young carefully brought up by the foster-parents. The songsters flew when fully fledged, and were observed for some time afterwards near the places where they were hatched. In September, the usual period of migration, they disappeared, but never returned to the place of their birth.

The neighbourhood of some purling stream is generally selected as a breeding-place by the Nightingale. The nest is usually commenced about the beginning of May, and is placed on the ground at the foot of a hedge or of a row of young hornbeams, or on the lower branch of some tufted shrub: it is formed of coarse dry weeds and dead oak or hornbeam leaves on the outside, and a little cow-hair on the inside, and is so slightly

constructed, that, on attempting to move it, the whole structure crumbles to pieces. From the situation of the nest, the eggs, the young, and sometimes the mother, are known to fall victims to dogs, foxes, pole-cats, weazels, &c. The eggs are four or five in number, of a brownish-olive colour. In this country there is seldom more than one brood in a year, in France two, or even more if the mother be deprived of her eggs. The female, though a close sitter, is said to be sometimes relieved by the male. From the moment that the young are hatched both parents attend them with great assiduity: indeed, the attention of the male to his mate is most devoted during the period of incubation. He chooses two or three favourite trees, not too close to the nest for fear of its being discovered. On one or the other he sits and sings constantly, never allowing one of his own species to approach the nest. The young are fledged in about a fortnight, and quit the nest before they are capable of flight, hopping after their parents from twig to twig. But from the moment that they can use their wings the male alone takes charge of them, and the female prepares for a

second incubation. The male ceases his song as soon as the young appear from the shell, and seldom resumes it during the second breeding, unless his mate be killed, when he is again musical, and will continue to sing very late in the summer, or until he finds another mate.

In spite, however, of the harmony of his strains, the Nightingale is of an extremely jealous disposition. Not even the Robin is more quarrelsomely disposed to others of his kind. The Hon. and Rev. W. Herbert mentions that “a Nightingale, which had lived two years in a cage full of birds, and even suffered the common Wrens to jump and rest themselves on his back, instantly attacked in the most violent manner another Nightingale which was placed in his cage.”

This bird expresses his different emotions by suitable and particular tones. The most unmeaning cry when he is alone appears to be a simple whistle. In anger, jealousy, rivalry, or any extraordinary event, he can utter a very hoarse disagreeable sound, somewhat like a Jay or cat. The strength of his vocal organ is indeed wonderful; but it is less the strength than the compass, flexi-

bility, prodigious variety, and harmony of his voice, which make it so admired by all lovers of the beautiful in sound. Sometimes dwelling for minutes on a strain composed of only two or three melancholy tones, he begins in an under voice, and swelling it gradually to the highest point of strength, he ends it by a dying cadence. Some birds attain a greater excellence in singing than others; these are generally birds of the first brood, which, having been hatched in a district well peopled with Nightingales, appropriate what is most striking in the song of each. It is a matter of regret, that the time for the singing of this delightful bird should be so short. It lasts barely three months, and during this time is not maintained with equal power. At its first arrival it is the most beautiful; when the young are hatched it becomes more rare, the attention which they require occupying considerable time. After midsummer it is at an end, nothing is heard but the warbling of the young. The Nightingale sings much longer in confinement. Birds which are caught full grown sometimes sing from Easter to November; those which are bred from the nest sing

much longer, sometimes as long as seven months ; but, in order that they may sing well, they must be put under the instruction of an old Nightingale who is a good singer, otherwise they will be only stammerers, mutilating their natural song, and inserting in a confused manner tones and passages which they have caught from other birds. If, however, they have a good instructor and a good memory, they imitate perfectly, and often add to their instructor's song some beauties of their own, as is usual with young birds. A German of the name of Bechstein has written a very pretty book on the management of "Cage Birds." It is translated into English with many improvements. One of the chapters is devoted to the Nightingale, and contains a minute description of its song. The author considers it so articulate, that it may be very well written. He accordingly gives twenty-four different strains, taken from a Nightingale in his neighbourhood who was considered a first-rate songster, adding, "that there is great difference in the points of perfection to be observed in the song, some Nightingales excelling in one point and some in another." Those of

Persia, Karamania, and Greece, are said to sing better than those of Italy ; the Italian birds, again, are valued above those of France, and the French above the English. Whether this be anything more than a fanciful theory, we have no good means of judging; but the following anecdote, related by Mr. Symes, seems to contradict the conjecture, that situation has much influence on the song of the bird. “In 1802,” says the relator, “I was at the residence of a friend near Geneva, in a quiet and sequestered spot, within hearing of the murmur of the Rhone. The air was soft and balmy, the windows of the house were open, and the twilight checquered by trees. We heard two Nightingales sing most delightfully, but not more so than one we heard down a stair, in a dark cellar in the High Street, Edinburgh : no window, and no light admitted but what came from the open door ; and the atmosphere was charged with the fumes of tobacco and spirits ; it was a place where carriers lodged or put up, and the heads of the porters nearly came in contact with the cage, which was hung at the foot of the staircase ; yet, even here, did this bird sing in as

mellow, as sweet, and as sprightly a manner as did those of Geneva."

Some naturalists affirm that there is a part of the night in which Nightingales seldom sing; others say that they are silent only on dark windy nights, but at other times, having once commenced their song, they continue it without intermission during the whole night. "This I know" (says Neville Wood) "from actual observation, having more than once remained out of doors nearly the whole night, purposely to discover whether the bird or the naturalist would be first wearied. If on a dark and windy night it does not sing, it may generally be roused by imitating its strains; if this be done on a favourable night, it will commence instantly; but on a cold and chilly night it is sometimes very difficult to rouse. The shutting of an adjoining gate, the striking of a church clock, the passing of a cart or coach, if near a road, or even the hearing passengers walking along the hard turnpike-road, will frequently cause it to commence singing: the very incidents which one might have supposed would disturb so shy a bird."

Nightingales are frequently attracted by the soft music of a German flute, and have been known to actually imitate the strains that caught their attention. M. Gerardin was sauntering in the Jardin des Plantes at Paris, one fine evening in spring, when his ear was regaled with the melodious accents of two Nightingales. He instantly returned the compliment by playing some plaintive airs on a flute. The feathered musicians approached him at first in silence, but, after listening for a time, they sang in unison to his instrument, and soon surpassed its powers. On raising his key by degrees a whole octave, they shrank not from the challenge, and completely, as M. Gerardin confessed, gained the palm of victory.

Sir William Jones mentions an intelligent Persian, who declared he had more than once been present when a celebrated lutanist, surnamed *Bulbul* (the Nightingale), was playing to a large company in a grove near Schiraz, where he distinctly saw the Nightingales trying to vie with the musician, sometimes warbling on the trees, sometimes fluttering from branch to branch as if they

wished to approach the instrument, and at length dropping on the ground in a kind of ecstasy, from which they were soon raised by a change in the music. They have been known in captivity to acquire the stiff airs of a Nightingale pipe, or to endeavour to out-sing a rival of another kind. They may even be taught to sing alternately with a chorus, and to repeat their couplet at the proper time.

In domesticating the Nightingale, great care must be taken, and the utmost tenderness be employed. If taken at their full growth, they become, under proper precautions, reconciled to confinement, and begin to sing in about a week. Their cage should be of osiers; and as they always like to bathe after singing, they should be daily provided with fresh water. The food of the Nightingale in a state of nature, as we have mentioned, consists of insects, either in the caterpillar or grub state; towards the end of the season it also eats elder-berries and currants. The bird is naturally voracious, and will accommodate itself in captivity to almost any kind of food, provided it be mixed with meat; but it is necessary to be

very careful in the diet, in order to preserve health. Ants' eggs (improperly so called, as they are the pupæ in their cocoons) form the best summer food, with a few meal-worms in addition. The bird dislikes change of position during captivity, and has been observed to cease singing, and to remain obstinately silent on the removal of the cage from its accustomed spot. Some birds prefer a cheerful light situation, others appear more lively in a shaded retired corner.

The Nightingale, in addition to his charms as a vocalist, possesses a quality which procures him in confinement many friends. He is capable after a time of forming an attachment. When once he has made acquaintance with the person who takes care of him, he distinguishes his step before he sees him ; he welcomes him by a cry of joy ; and during the moulting season he is seen making vain efforts to sing, and supplying by the gaiety of his movements, and the expression of his looks, the symptoms of joy his throat refuses to utter. When he loses his benefactor, he sometimes pines to death ; if he survives, it is long before he is accustomed to another. One that was presented

to a gentleman, no longer seeing the lady who used to feed him, became sullen, refused to eat, and was soon reduced to such a state of weakness that he could no longer support himself on his perch ; but on being restored to his former mistress he quickly revived, ate, drank, returned to his perch, and was well in twenty-four hours. Buffon makes particular mention of a Nightingale, which, by feeding on a prepared paste, lived to the age of seventeen years ; and, though hoary, was happy and gay, warbling as in early youth, and caressing to the last the hand which fed it.

In spite of the pleasure afforded by the caged songster, it is far from our wish to recommend or to encourage the keeping the Nightingale in confinement. The delightful strains poured forth from many a grove and copse during the early part of summer may indeed afford the purest delight. But where the habits of the bird are so entirely opposed to domestication, and where the slightest inattention as to its peculiar food may cause it a miserable and untimely death, there is every reason to be contented with the free and happy song of the bird at liberty, and to

refrain from subjecting to imprisonment this charming and poetical songster. “When every object” (says Wilson) “around conveys the sensation of joy, and Heaven’s abundance is, as it were, showering around us, the grateful heart beats in unison with the varying elevated strains of the Nightingale. We listen to its notes in a kind of ecstasy, as a hymn to the great and most adorable Creator of all. Abject must that heart be, callous those feelings, and depraved that taste, which neither the charms of nature, the melody of innocence, nor the voice of gratitude or devotion can reach.”

Like vivid blossoms glowing from afar,
Thick swarm the brighter birds ; for Nature's hand
That with a sportive vanity has deck'd
The plumed nations, there her gayest hues
Profusely pours. But if she bids them shine,
Array'd in all the beauteous beams of day,
Yet, frugal still, she humbles them in song.

THE PARROT TRIBE.

Psittacidæ.

THE splendid family of Parrots includes about one hundred and sixty species, and, though peculiar to the warmer regions of the world, are better known in England than any other foreign bird. From the beauty of their plumage, the great docility of their manners, and the singular faculty they possess of imitating the human voice, they are general favourites, both in the drawingroom of the wealthy, and the cottage of humble life. The various species differ greatly in size, as well as in appearance and colour; some, as the Macaws, are larger than the domestic fowl, and some of the Parrakeets, being not larger than a Blackbird, or even a Sparrow. All possess thick, hard, solid, and hooked bills, the base of which is surrounded by a membrane in which the nostrils are pierced. The tongue of the Parrot is soft,

thick, fleshy, and black, and the singularly constructed throat enables it to imitate articulate sounds, and more particularly the human voice. In the shape and length of the body there is a great variety in this tribe. Some are stout and short, while others are taper and elegant in their form, the breasts of all being well rounded. The eyes of Parrots are rather small, and they have the power of contracting the pupil at will, when under the influence of fear or anger. It has been remarked that the colour of the eye deepens as the bird increases in age. In the Macaws the cheeks are bare of feathers, and have the appearance of being powdered with white flour. This kind of powder covers the whole skin in many species, and when the bird shakes its plumage, may be seen in great quantities. The Macaws have larger heads than the rest, and these are ornamented with a crest of feathers which they can raise or depress at pleasure. From the general conformation of the Parrots, as well as the strength and arrangement of their toes, they climb very easily, assisting themselves greatly with their hooked bill, but walk rather awkwardly on the ground, from the short-

ness and wide separation of their legs. They live in pairs during the breeding season, but at other periods associate in vast flocks, and, like the monkey race, are great pillagers, both of the wild and cultivated country in which they dwell. Their roosting stations are usually in the woods of small islands, situated in rivers flowing through extensive forests, or in wild and uncultivated plains, difficult of access. They dislike strangers, but live in great harmony with each other; mutually scratching polls and necks, and roosting as closely together as is possible: sometimes as many as forty or fifty roost in the hollow of the same tree, clinging to the sides by their claws and bills, and sleeping in a perpendicular position. Parrots are fond of sleep, and retire into their holes several times during the day, as if to enjoy a regular siesta.

The bill of the Parrot is moveable in both mandibles, the upper being joined to the skull by a membrane which acts like a hinge, while in other birds the upper beak forms part of the skull. By this curious contrivance they can open their bills widely, which the hooked form of the upper

beak would not otherwise allow them to do. The structure of the wings varies considerably in the different species; in general they are short, and, as their bodies are usually bulky, they consequently cannot rise to any great height without difficulty; but when they once gain a certain distance they fly easily, and some of them with rapidity. Many species confine their flight from tree to tree, unless disturbed. The number of feathers in the tail is always twelve, and these, both in length and form, are very varied in the different species, some being arrow or spear-shaped, others straight or square. In plumage, as is well known, the Parrot is unrivalled, and every tint of the rainbow is sometimes to be found in the same specimen. The Splendid Parrot (*Psittacus gloriosus*) takes its name from the splendour and elegant contrast of its colours. The Ceram Lory (*P. garrulus*) is also a gorgeous bird, the plumage being a combination of red, blue, yellow, green, and lilac.

The Violet-blue Parrakeet, a native of the island of Tahiti, although of two colours only, a violet-blue, with a white breast, is perhaps one of the most elegantly formed of its tribe.

In eating, Parrots make great use of their feet, which they employ like hands, holding the food firmly with the claws of one, while they support themselves on the other. From the hooked shape of their bills, they find it more convenient to turn their food in an outward direction, instead of, like monkeys and other animals, turning it towards their mouths. They can break the shells of the hardest nuts with their bills, and are particularly fond of the kernels. They drink frequently, but in very small quantities, raising their heads less than any other birds. In a domesticated state they have been taught to drink wine, and to eat bread soaked in it. The whole tribe are fond of water, washing and bathing themselves many times during the day in streams and marshy places, and having shaken the water from their plumage, they seem greatly to enjoy spreading their beautiful wings to dry in the sun. In a captive state they are equally fond of bathing, though they do not frequently have opportunities afforded for the indulgence.

The Parrot appears to have been almost unknown to the ancients, with the exception of one

species, which was imported by Alexander the Great, and is known at the present day as the Alexandrine Parrakeet (*P. Alexandrii*). These became the favourites of princes and other distinguished men, and were held by them and the people in religious veneration, were bought at high prices, and kept in cages formed of ivory, tortoise-shell, and silver. Cato is said to have reproached his countrymen for their indulgence in the childish amusement of playing with Parrots; they still, however, continued to be held in high estimation, both as an amusement and a delicacy for the table. These birds are now known commonly, and their variety is very great; they have been divided into Cockatoos, Parrots, Lories, Parrakeets, Macaws, Amazons, Crikes, and Popinjays. They abound in Africa, Asia, the islands of the Indian and Pacific oceans, and constituted the first article of commerce between the Old and New World, for in America every forest swarms with them, and the Rook is not better known in Europe than these splendid birds in the East and West Indies. It is said that each species confines itself within its own particular district of the forest, without encroaching on

the territory of any other ; that each troop has its sentinel ; and all are very clamorous before they go to roost, and when they awake in the morning, but when engaged in pillaging their chattering ceases. Whether in a natural or captive state they are very destructive, and seem to have the greatest pleasure in laying waste everything within their reach. This is particularly the case with the larger species. Wherever they settle in flocks, they leave sad marks of their mischievous propensities. The bark of trees, young branches, leaves, are torn to pieces, and fruits which they could not consume lie scattered on the ground, those that remain hanging, being pecked by their destructive bills. The same propensities may be observed in a state of captivity ; the perches of their cages, if made of soft wood, seldom last for more than a few days, and even the wires are twisted and bent unless they happen to be very strong. The natural note of the Parrot is generally a harsh discordant scream, and almost every species utters a different one ; but they are, as is well known, endowed with the faculty of imitating articulate sounds, and this to a much higher degree than any other animal.

We must not, however, consider this as a proof of superior intelligence, or at all an approach to human intellect, for all they utter is not from reflection but imitation, and it is quite certain that they do not understand the meaning of the words and sentences which they chatter, though sometimes a whimsical or even startling reply to a question may occur when put to a well-educated bird. The following story is a proof of this.

A tradesman who lived in the Old Bailey had two Parrots, a Green and a Grey; these were taught, the one to exclaim, "Who's there?" the other, "Go to the gate," when there was a knock at the door, and when the bell rung. The house in which they lived had an old projecting front, so that the first floor could not be seen on the same side of the way. One day when the Parrots were alone on the premises, a man knocked at the street door. "Who's there?" said the Green Parrot. "The man with the leather."—"Oh, ho!" said the bird, using his further stock of knowledge. Presently the knock was repeated, and the Parrot again cried "Who's there?"—"Why don't you come down

and open the door?" said the man, very angrily ; when the Parrot again exclaiming " Oh, ho !" he rang the bell furiously. The Grey Parrot now called in a new voice, " Go to the gate."—" What gate?" cried the man, seeing no such convenience, and imagining that the servants were bantering him. " What gate?" he cried, going out into the middle of the road, that he might see his adviser. " New-gate," cried the Grey Parrot, just at the moment his species was discovered.

Some years since, a Parrot in Boston, America, had been taught to whistle in the manner of calling a dog. A large dog one day happened to pass the shop where the bird hung in its cage, and imagining he heard the call of his master, turned suddenly round and ran into the shop. At this very moment the bird exclaimed " Get out, you brute !" and the astonished dog hastily retreated. We took lodgings once in the country, opposite to an old lady who had a fine Grey Parrot ; he soon learnt the name of our dog, and would call, " Muff, Muff," in a very inviting tone. As soon as the dog ran across the road, he was greeted with a chuckling laugh from the Parrot ; and

finding nothing further followed, he ran back, until another summons reached him, when he again went to encounter another disappointment. Muff, however, soon got aware of this practice upon his good-nature, and after the third or fourth time took not the slightest notice of his opposite neighbour's call. Of his own accord he sometimes paid a visit, to pick up the chicken-bones that Poll had dropped in her stand. She would look at the dog with her head turned on one side, as if blind of one eye, while he abstracted the bones; but one day hearing him coming, she espied a bone with a little more meat on it than usual, and hastily hopped down from the perch, and when Muff arrived he found the Parrot with the bone secured in her claw, and was greeted with the usual chuckling laugh. Willughby mentions a Parrot, which, when a person said to it, "Laugh, Poll, laugh!" it immediately obeyed, and then screamed out "What a fool to make me laugh!"

The Amazon Parrot (*P. æstivus*) and the Grey Parrot (*P. erythricus*) are more easily taught than any others. They can articulate more distinctly, and imitate more naturally the cries of animals.

They have been taught both to whistle and sing airs consisting of several bars very perfectly : besides this faculty, they have also been known to mimic gestures and actions. Scaliger saw one that performed the dance of the Savoyards, at the same time that it repeated their song. They have been instructed to lie down on their backs at the word of command, and continue as if dead until ordered to rise. Clusius tells us that, a certain Brazilian woman had a Parrot which was the wonder of the place where she resided. It seemed to be able to comprehend whatever she said to it. As we sometimes had to pass that woman's house, she used to call to us to stop, promising, if we gave her a comb or a looking-glass, that she would make her Parrot sing and dance to entertain us. If we agreed to her request, as soon as she had pronounced some words to the bird, it began not only to leap and skip on the perch on which it stood, but also to talk and to whistle, and imitate the shoutings and exclamations of the Brazilians when they prepare for battle. If, contrary to our promise, we refused to give the woman the little present agreed on, the Parrot was silent

and immoveable, not to be provoked either to move foot or tongue.

Parrots are instructed to articulate sounds by constantly repeating to them the words which it is intended they should acquire. Various modes are adopted for securing obedience. Some of these consist in punishments, the most effectual in rewards ; of the latter, sugar, sweet wine, and stone fruit form important temptations. Scratching the poll is another powerful stimulant. Like all the feathered creation, nothing makes them more tame and familiar. Sudden immersion in water, and puffing at them with tobacco-smoke, may be considered as punishments. Parrots are also soon taught to obey by using loud and authoritative tones to them, and they are extremely susceptible of impressions from mild and affectionate terms. Some words and phrases appear to be much more easily acquired than others, and many are learnt from the habit of imitation, without any teaching at all. A gentleman once borrowed a Green Parrot for the purpose of studying its habits ; and the first time it heard the name of “ Emily ” called out pretty loudly from the hall, it instantly imi-

tated the word as distinctly and nearly in the same tone. It never attempted to imitate any other sound, though tried with a variety of words. A Parrot that was brought from Africa, one day startled the ship's crew by calling out "Man overboard!" It seemed that late in the previous day a man had fallen into the sea, and the cry had been uttered in all directions; the Parrot caught it, and thus caused a false alarm.

The whole of the Parrot tribe when taken old are very fierce in disposition, and difficult to tame; the savages, however, have the art of subduing them more speedily than other people. One of their methods is with the smoke of tobacco, as before noticed. This produces in them a kind of intoxication and faintness. When the effects of the smoke have subsided, the birds subjected to its influence may be handled with less danger of being bitten. If, on the contrary, they are still unruly, the operation is repeated again and again till it is effectual. The Brazilians seek after young Parrots with great avidity, that they may possess them before they acquire the harsh and wild notes peculiar to their

species; but such is the demand for young ones, that frequently a sufficient number cannot be obtained, and consequently the old birds are taken, which they shoot in the woods, by means of heavy arrows headed with cotton: these knock down the birds without killing them.

M. D. Azara says “ that the natives of Paraguay capture Parrots in the following singular way. To the trees frequented by Parrots two pieces of wood are attached; some pieces of stick are laid across from the pieces of wood as far as the tree, and a kind of cabin is constructed with palm-leaves, of sufficient dimensions to conceal an individual who carries with him a tame Parrot, which by its cries attracts the wild ones, who come to its aid. The bird-catcher being provided with a long wand, to which is affixed a running knot of string, as soon as the wild birds alight near the tame one, quickly passes the noose round their necks and captures them. Several of these wands are used at a time, and, as he is himself in ambush, he seldom fails to take a bird with each. The savages of South America capture Parrots for the purpose of food, as well as for dis-

posing of them. The feathers of these birds, as well as their bodies, are an article of traffic among the Caribs. They claim a certain number of trees on which the Parrots make their nests. This is a kind of property from which they derive an income by selling the birds and bartering their feathers. The possession of these trees descends from father to son, and they are often their richest inheritance. The mode of catching the Parrot adopted by these savages is, to carry after dark some lighted coal, and place it under the trees where they are at roost; they then sprinkle gums and green pimento on the fire, and the birds, stupified by the smoke, fall to the ground.

The larger species are said to be tough and ill-tasted, but some of the smaller kinds are considered to have a very delicate flavour. Their flesh partakes of the flavour of their particular diet, and becomes good or ill-tasted according to the quality of it. When the guava is ripe they are fat and tender; if they feed upon the seed of the acajou, their flesh contracts a not unpleasant flavour of garlic; if their food is the seed of spicy trees, their flesh then tastes of cloves or cinnamon, while

on the contrary, it is unsupportably bitter if the berries they feed on are of that quality. A Parrot in captivity, if fed much on hemp-seed, will acquire an unpleasant smell, and no doubt the flavour would be found in the flesh, if the bird so feeding were to be killed.

The Carolina Parrakeet is passionately fond of the cockle-bur. "To one of these birds," says Wilson, "I offered apples, which it always rejected; but burs and beech-nuts never." This plant grows so abundantly along the shores of the Ohio and Mississippi as to render the wool of sheep where it abounds scarcely worth the trouble of cleaning, from its becoming so completely matted with burs. The bur is not only a great annoyance to the sheep, but also to horses, from lodging in their manes and tails. Indeed, they stick so closely to the clothes, that people cannot walk with comfort where they abound. In feeding, the Parrakeet alights upon the plant, plucks the bur from the stem with his bill, takes out the fruit, and allows the shell to drop. In this manner a flock having discovered a field thickly filled with these plants, will eat and pluck off all their

seeds, returning to the spot day after day, until few are left. The troublesome plant might be thus extirpated if the farmers had time to pluck up the stragglers; but it happens that the few enemies remaining are sufficient to keep up the supply, the plant re-producing itself. The depredations of this Parrakeet are not confined to the cockle-bur, its ravages in orchards are very great. They not only consume the fruit in great quantities, but twist it off, scattering it in all directions, and never descending to pick up any as food. The stacks of grain in the fields are great objects of attraction, they cling round them in such vast numbers as to resemble a beautiful carpet spread for protection, rather than injury. During these depredations, when they pull out as much grain as they destroy, the farmers kill them by dozens, —eight, ten, or twenty are destroyed by one discharge of the gun. But the living birds swarm as thickly as ever over the dead bodies of their companions, screaming, and, though startled for the moment, returning to be again aimed at and destroyed. The Carolina Parrakeet, from the statement of Vaillant, must indeed abound in great

numbers. He declares that he saw a package containing above six thousand skins, which had been sent to a feather-dresser in Paris for the formation of ornamental dresses. Mr. Audubon, however, informs us that their numbers are rapidly diminishing. They are fond of sand, and on that account are frequently seen to alight in flocks along the gravelly banks about creeks and bays, or in the ravines of old fields in the plantations, where they scratch with bill and claws, flutter and roll themselves in the sand, and pick up and swallow a certain quantity of it. They are also fond of saline earth, for which they frequent the salt streams in America. A portion of sand should always be kept in the stand of the domesticated bird.

In a domesticated condition, the whole family of Parrots will eat almost any kind of food; bread, biscuit, and potatoes are much relished. They will also take animal food, and even get very fond of it. Instances have been known where they rejected all other nutriment. This predilection has been supposed in some instances to account for the relish Parrots have appeared to have for their own feathers, plucking them out so that they

might suck the blood from the stems. Some have been so much addicted to this practice, that they have stripped their whole bodies, not even excepting the down, the larger feathers of the wing and tail alone remaining, these being left in consequence of the pain which would be caused by plucking them out. Latreille, the celebrated entomologist, had a Parrot which so completely denuded itself, that Desmarest said "it resembled a pullet ready plucked for roasting." It is not, however, unlikely that the unnatural diet causes an irritation on the skin, which may induce the poor Parrot thus to unclothe himself, particularly as his diet, as we have before remarked, has a singular effect on the flesh. Parrots are subject not only to the diseases of other birds, but have one or two peculiar to their own kind. They are sometimes struck by a kind of apoplectic fit, and fall from their perches insensible. Bleeding in the foot is recommended as a remedy for this illness. Macaws appear to suffer the most frequently from this complaint; they are also liable to a kind of gout, and if allowed to perch on *metal* suffer from cramp. They should always have a wooden perch, as the

metal abstracts the heat from the feet and legs, and thus produces the malady. Highly polished beech or mahogany would, we should think, defy even the bill of a Macaw ; and when we consider that the whole life of our pet is spent, by night as well as day, resting on its feet, we surely should pay a little attention to its accommodation in this respect.

Nature has amply provided for the comfort of the feathered tribes, by the beautiful construction of their feet and legs. “ There are,” says Stanley, “ many contrivances in the limbs of birds, which well deserve our admiration. Look, for instance, at a bird fast asleep with its head under its wing, resting usually on one leg, and that again resting upon a perch not thicker than one’s finger. How apparently difficult and uneasy is such a position ; and yet it is all made easy and safe to the bird by an admirable piece of internal mechanism, which may be briefly thus explained. Connected with the thigh-bone and leg, a set of muscles run down to the very extremity of the toes, so contrived and placed, that, when by pressure downwards the limb bends, these fine muscles are pulled in and therefore contract the toes, thus making them grasp more firmly what-

ever the bird is resting upon ; just as if a set of fine strings ran over pulleys to certain hooks, and were acted upon at the other end by a weight or pressure, and thereby made to draw in the hooks. But there are some birds, and very large ones too, such as Herons, Cranes, and other wading birds, which sleep standing on one foot, the leg being kept perfectly straight ; and in these birds, as the foot rests upon the ground, any grasping power acting upon the toes, would be useless. In this case, therefore, what is required is, some contrivance to keep the leg firm, that it may not give way in consequence of any swinging or balancing motion of the body, which would infallibly overset the sleeper. Accordingly, the upper part of what we shall call the heel-bone is fitted in a very curious manner into the lower part of the leg-bone above it, and precisely answers the purpose required of the bird, affording a sufficient degree of resistance by the bending of the leg, to counteract the effect of any overbalancing of the body. The bird, moreover, has a power over this well-contrived prop, and thus bends its leg or keeps it perfectly stiff as best suits its convenience."

All the numerous family of Parrots form their nests in holes in the trunks of trees, or in crevices of rocks, laying a foundation of rotten wood in the former situation or dried leaves in the latter. They only lay three or four eggs at a time, but hatch several broods during the year. The young, when hatched, are quite naked, and the head so large in proportion to the body that in many cases they scarcely have the power of lifting it. Their first covering is down, which in the course of two or three weeks is succeeded by feathers. It was long supposed that Parrots would not breed in captivity, but, provided with a nesting-place suited to their habits, many instances have been known where young birds have been hatched.

The Collared Parrakeet (*Psittacus torquatus*) has been most successfully reared at Paris. Places fitted for building were scooped out in large blocks of wood, into which the parent birds fixed their nests. They are very careful of their young, and protect and feed them until they have undergone the first moult.

The Blue-bellied Parrakeet (*P. cyanogaster*) abounds in the Molucca islands. Vaillant, during

his residence at the Cape, had the opportunity of studying the habits of a pair of this species which had been brought from Amboyna. They bred during their confinement in the menageries of M. Van Bletenberg, then governor at the Cape. The female stripped her beautiful breast of the plumes, and after having collected the feathers in a heap, deposited two white round eggs, on which she sat most assiduously, the male feeding her at intervals by disinterestedly disgorging what he had swallowed, and presenting the same to his spouse. The young were produced at the end of nineteen days, and in the space of a few more, became covered with a grey down, which was by degrees succeeded by green feathers on the body, and blue on the head. At the end of three weeks they left the nest and perched upon the neighbouring sticks, where the male and female fed them from their own craws, in the manner of pigeons. The parent birds continued to attend them in this manner for six months, and often afforded a most interesting scene. The young were frequently seated beyond the female, and, the male not being able to reach them, first presented the food to his mate, who

immediately delivered it to her young. These, though of different sexes, were perfectly alike until the first moulting, at which time red feathers bordered with green began to appear upon the breast, and the male became distinguished by the blue patch from which it takes its name.

Another pair of Blue Parrakeets (*P. guianensis*), natives of the Antilles, were induced to breed a young family ; and we owe to M. Gabriac the following interesting account of the circumstance. "Two cages were placed for their reception in the month of April. They were close together, but communicated only by a small door : the one enjoyed the light of the day, but the other was kept covered, so that no light could enter but by the common door. The latter also contained a quantity of saw-dust. The birds were placed in the open apartment, which was the larger of the two, and they long declined to enter the darkened dwelling, although the female, more than once put in her head, withdrew it again, advanced part of her body, then returned tail foremost ; but finally, after some days' hesitation, she entered the mysterious chamber. When there, she expressed her

satisfaction by little kindly cheerful cries, and often called in the male, who exhibited every proof of affection. She soon began to scrape about and arrange a kind of nest, and in July a young brood was hatched. These were cherished with the utmost solicitude by both parents, who on the approach of danger defended them with the greatest courage. It was in truth a curious sight to see two creatures, before so kind and tenderly affectionate to those around them, so grateful for their food and so susceptible of human kindness, become, under the influence of parental feeling, so intractable as no longer to attend to friendly hands or gentle voices. This natural wildness shewed itself also strongly in the young ones, who recognised their parents alone, and bit and scratched at all the world beside."

They also become much attached to each other if sharing the same place of confinement. M. Bonnet gives, in his "*Contemplations de la Nature*," a very interesting anecdote in proof of this. "A pair of Parrakeets were kept in a square cage, such as is usually appropriated to that species of bird. The cup which contained their food was

placed at the bottom of the cage. The male was almost constantly on the perch with the female; they sat close together, and eyed each other from time to time with evident tenderness. If they separated it was but for a few minutes. They commonly eat together, and then retired to the highest perch of the cage. They often appeared to engage in a kind of conversation, which was continued for some time, and they seemed to answer each other, varying the sounds and raising and lowering their voices. This happy pair thus passed four years in a climate greatly different from that in which they had before lived. At the end of that period the female fell into a state of languor, which had all the appearance of old age. Her legs swelled and grew knotty. It was no longer possible for her to move to take her food; but the male, ever attentive and alert in whatever concerned his mate, brought it in his bill and emptied it into hers. He was in this way her vigilant purveyor during the space of four months. At length she became unequal to sitting on the perch, and remained crouched at the bottom of the cage, from time to time making ineffectual efforts to regain

the lowest perch. The male seconded her feeble efforts, sometimes seizing with his beak the upper part of her wing by way of drawing her to him, or taking her by the bill endeavoured to raise her up. But the scene became quite affecting, when the female was on the point of expiring, the unhappy male went round and round his dying mate without ceasing, redoubling his assiduous cares. He tried to open her bill with the design of giving her nourishment, uttering the most plaintive cries. His faithful consort at length expired. From that moment he himself languished, and survived her but a few months."

Mr. Jennings, of Great Wakering, in Essex, had a Parrot which for many years manifested the strongest attachment to him. When in the house the bird was constantly perched on his shoulder, and, if compelled to move, never went further than the back of his master's chair. During the illness which preceded the death of Mr. Jennings, the faithful bird displayed the greatest distress and uneasiness; and when at length death deprived him of his kind protector, the bird declined all sustenance, and on the day of the funeral sank

down and died, a victim to as faithful an attachment as ever could have subsisted even between human beings.

A Parrot which had grown old with his master shared with him the infirmities of age. Being accustomed to hear scarcely anything but the words "I am sick," when a person asked him "How do you do, Poll?"—"I am sick!" he replied with a doleful tone, stretching himself along, "I am sick!"

In October, 1822, the following announcement appeared in the London papers:—"A few days ago died, in Half-moon Street, Piccadilly, the celebrated Parrot of Colonel O'Kelly. This singular bird sang a number of songs in perfect time and tune. She could express her wants articulately, and give her orders in a manner approaching to rationality. Her age was not known. It was, however, more than thirty years; for previous to that period Colonel O'Kelly bought her for one hundred guineas at Bristol. The Colonel was repeatedly offered five hundred pounds a-year for the bird, by persons who wished to make a public exhibition of her; but this, out of tenderness to the favourite, he constantly refused."

This bird was the common Grey Parrot, which is a very long-lived species. Le Vaillant mentions one that he saw, which had been domesticated ninety-three years; it was, indeed, then in a state of decrepitude, and both sight and memory were gone. The common duration of their lives is about forty years. The Parrakeets are shorter lived.

Parrots possess many amiable qualities, which endear them to those who make them a peculiar pet. Most of the species are affectionate and docile, sensible of attention, and grateful for it expressing by their voices the regard they feel, tenderly caressing the hand which feeds them. We must add, however, that they frequently shew strong and capricious dislikes to many who apparently treat them kindly, and these are not to be overcome either by caresses or correction.

Around the woodbines set with glittering dews
The flower-fed Humming-Bird his path pursues,
Sips with inserted tube the honey'd blooms,
And chirps his gratitude, as round he roams ;
While richest roses, though in crimson drest,
Shrink from the splendour of his gorgeous breast.
What heavenly tints in mighty radiance fly !
Each rapid movement gives a different dye.
Like scales of burnished gold they dazzling shew,
Now sink to shade, now like a furnace glow.

WILSON.

THE HUMMING-BIRD.

Trochilus colubris.

THE Humming-Bird lives upon the sweets of flowers, and the insects which it finds in their tubes. Its flight is so rapid, that the honey-sucking Bee seems a mere loiterer in comparison. It scarcely ever alights, but flutters over the plant, thrusting in its long slender tongue in search of food, making at the same time a humming noise, from which it derives its name. The vibration of the wing is so rapid, that the eye cannot follow it; and its flight is like the glance of lightning. Humming-Birds vary in size from that of a wren to an humble bee, and are divided into two families; those with crooked bills, and those with straight ones. These birds have, from the brilliant beauty of their plumage, been called the “gems of the feathered world!” “Where is the person,” says Audu-

bon, "who, on observing this glittering fragment of the rainbow, would not pause to admire such wonders of the Creator's hand, and to reverence Him who formed it." This beautiful genus of birds comprises upwards of one hundred and sixty species, all of which, with a few exceptions, are natives of America and the adjacent islands. Here they inhabit those mighty forests, where the huge trunks of the trees are adorned with a rich drapery of parasitical plants, gay blossoms of which only yield in beauty to the sparkling tints of their airy tenants. When cultivation encroaches upon these vast wilds, they still remain to gladden the scene, and will fearlessly hover on one side of a shrub, while the flowers and fruit are plucked from the other. "To enumerate all the flowers of which this little creature is fond, would be," says Wilson, "to repeat the names of half our American Flora. From the blossoms of the towering tulip-tree, through a thousand intermediate flowers, to those of the humble larkspur, he ranges at will, and almost incessantly. Every period of the season produces a fresh multitude of new favourites."

Towards the month of September, a yellow flower* blooms in great luxuriance along the sides of creeks and rivers, and in low and moist situations. It grows to the height of two or three feet, and the flower, which is about the size of a single one of the foxglove, hangs above a luxuriant growth of green leaves. In some places where these abound, ten or twelve Humming-Birds may be seen at one time, darting about, and fighting with and pursuing each other. About the end of September the birds generally retire to a warmer climate.

“ Oh, happy little Humming-Bird,
No winter round thee lowers ;
Thou never sawest a leafless tree,
Nor land without sweet flowers.”

The smallest kinds of Humming-Birds appear more like splendid shining insects than birds. “ Never was I more excited to wonder,” says Sir Francis Head, “ than by these little creatures. It was on a fine day at the commencement of an American summer, on the banks of Lake Huron, that I first beheld them. Beautiful birds were

* *Balsamina noli me tangere.*

drinking and splashing themselves in the water; and gaudy butterflies, of a very large size, were fanning the air with their yellow and black wings. At this moment a little blazing meteor shot like a glowing coal of fire across the glen; and I saw, for the first time, with admiration, delight, and astonishment, what in a moment I recognized to be that resplendent living gem, the Humming-Bird, buzzing like a humble bee, which it exactly resembled in its flight and sound; like it, it sprang through the air by a series of simultaneous impulses, tracing angle after angle with the velocity of lightning, till poised above its favourite flower, all motion seemed lost in its very intensity, and the humming sound alone certified to the ear the rapid vibration of the wing by which it supported its airy little form."

The flight of this bird is by Mr. Swainson considered to be more like that of the dragon-fly than anything else, but is much more buoyant; it does not resemble the flight of any other bird; it has a character peculiarly its own. When most birds fly, an evident effort may be seen; constant exertion is more or less necessary to support them in

the air, their tendency appears to be, to sink, and this has to be constantly resisted by muscular effort. The swallows, and some other tribes of swifter and powerful flight, appear to skim at will through the atmosphere without any tendency either to rise or sink; but the Humming-Bird seems just like a cork drawn under water, all *buoyancy*, as if his natural place were above the clouds, and he had to struggle to keep himself in the lower air. He brings himself down to suck the flowers, then shoots away with a springy lightness like an unencumbered balloon when the cords are cut.

Mr. Gosse remarks, that "he has often been struck with the strong resemblance which their manners bear to those of the great hawk moth, borne out also by the loud hum which each makes in the swift vibration of the wings." One of this species of moth has been named the English Humming-Bird, from its mode both of flight and feeding. The tongue of the Humming-Bird is forked at the tip, and bears a resemblance to the antennæ of the sphinx. Audubon says, "that the double-tubed tongue of the Humming-Bird is covered

with a glutinous saliva, so that the insect adheres to it when touched; hence the bird has only to dart its tongue at its prey and retract it into its mouth."

When performing a lengthened flight, as during migration, they pass through the air in long undulations, raising themselves for some distance, and then falling in a curve. Delicate and tender as these minute creatures are, seeming indeed as if they "could not exist for a moment beyond the limits of a sun-beam," it excites our wonder, when we find that they sometimes make their way over extensive regions of lakes and forests, and among many enemies, all superior in size and strength. But their minuteness and rapidity of flight, which almost eludes the eye, joined to instinct and daring courage, enables them to travel in safety. Some of these "winged gems" are in fact extremely hardy; they have been seen in the desolate regions of the South, near Cape Horn; hovering over the fuchsia blossoms at Port Famine; and even flying about in a snow-storm. They have been also found in the more dreary climate of the North; and what is still more extraordinary, on the snowy heights of

the Orizaba mountains, which are three times the height of Snowdon above the level of the sea. Captain Fitzroy mentions some which he saw at Port San Antonio, sporting about during the fall of a snow-shower.

When Goldsmith wrote his description of the Humming-Bird, but six or seven species were known. The study of Natural History has since that period added a vast number to this limited enumeration. In 1842, it is stated in the Penny Cyclopædia, "that Mr. Loddiges, the eminent nurseryman at Hackney, possessed no less than one hundred and ninety-six distinct species of this brilliant little creature. From so large a family we can but select a few, and among these the ruby-breasted Humming-Bird (*T. colubris*) will prove the most interesting, as its habits have been peculiarly studied. This Humming-Bird is three inches and a half in length, and four and a quarter in extent; the plumage on the back and parts under the wings, is a rich golden green; the tail is forked and, as well as the wings, of a deep brownish purple, excepting the two middle feathers, which are green. The bill is straight and black,

the legs and feet are also black, and both extremely small. The feet in all the species are generally of a dark colour, and among those which live high up in the mountainous regions, the legs are protected with white plumelets, so that the birds look as if they had downy muffs on their legs. What constitutes the chief ornament of this little bird is the splendour of the throat feathers, which, seen in a proper position, glow with all the brilliancy of the ruby. These feathers are of singular strength and texture, lying close together like scales, and vary in colour when moved before the eye, from a deep black to a fiery crimson and burning orange. The female is destitute of this ornament, though differing but little in other appearance from the male."

Humming-Birds are of a very lively, active disposition, almost constantly on the wing, and performing all their motions with great rapidity. "A person," says Audubon, "standing in a garden, by the side of a common althea in bloom, will be as surprised to hear the humming of their wings, and then see the little creatures themselves within a few feet of him, as he will be astonished

at the rapidity with which the birds rise into the air, and are out of sight in a moment. They do not alight on the ground, but settle easily on twigs and branches, where they move sideways in prettily measured steps, frequently opening and closing their wings, pluming, shaking, and arranging the whole of their apparel with neatness and activity. They are particularly fond of spreading one wing at a time, and passing each of the quill-feathers through their bill in its whole length, when, if the sun is shining, the wing thus plumed appears extremely transparent and light. They leave the twig without the least difficulty in an instant, and are extremely quick-sighted, making directly towards a martin or blue-cap, when fifty to sixty yards from them, and reaching them before they are the least aware of their approach. No bird seems to resist their attacks, but they are sometimes chased by the larger kinds of humble bees, of which they seldom take the least notice, as their superiority of flight is sufficient to enable them to leave these slowly moving insects, far behind in the short space of a minute."

The Humming-Bird does not shun mankind so

much as birds generally do. It frequently approaches flowers in the windows, or even enters rooms when the windows are kept open in the extremely hot weather, takes a turn round, as the flies do with us, and then suddenly regains the open air. One of these birds is said to have regularly resorted at night during a whole season to the hot-house of a gentleman in the West Indies, leaving it at sunrise. But an instance of still further boldness is related, where the bird suffered the window of the room to be shut after it had entered; attracted by some flowers, and honied liquor being placed in a bell-shaped flower, and held in a person's hand, the Humming-Bird not at all alarmed came and fed from the flower. The Humming-Bird has been generally supposed to subsist altogether upon honey, or liquid sweets, which it extracts from flowers, but this is not the case, insects form the greater part of its food, and the honey takes the place of water in the refreshment of the bird. They not only secure the insects which abound in the large bell-flowers which they are so fond of frequenting, but Wilson says that they will hunt in the air and dart at the

little groups of insects that dance there on a fine summer evening.

Mr. Coffey, of Virginia, a gentleman who has paid great attention to the manners and peculiarities of the native birds of America, kept two Humming-Birds for some months in a cage; supplying them with honey dissolved in water, on which they readily fed. As the sweetness of the liquid frequently brought gnats and flies about the cage and cup, the birds amused themselves by snapping them on wing, and swallowing them with eagerness; these insects indeed formed no inconsiderable part of their food. Another American gentleman, Mr. Peale, raised two young birds from the nest. They used to fly about the room, and would frequently perch on Mr. Peale's shoulder to be fed. When the sun shone strongly into the chamber, he has observed them darting after the motes that floated in the light, as fly-catchers would after flies.

Mr. Bullock has frequently seen one in the act of preying upon insects. "The house I resided in at Xalappa, for several weeks, on my return to Vera Cruz, was," says that enterprising naturalist,

“ only one story high, inclosing, like most Spanish houses, a small garden in the centre, the roof projecting six or seven feet from the walls, covering a walk all round, and leaving a small space only between the tiles and the trees which grew in the centre. From the edge of the tiles to the branches of the trees in the garden, the spiders had spread their innumerable webs so closely and compactly that they resembled a net. I have frequently watched with much amusement the cautious proceedings of the Humming-Bird, who, advancing beneath the web, entered the various labyrinths and cells in search of entangled flies, but as the larger spiders did not tamely surrender their booty, the invader was often compelled to retreat ; being within a few feet I could observe all their evolutions with great precision. The active little bird generally passed once or twice round the court as if to reconnoitre his ground, and commenced his attack by going carefully under the nets of the wily insects, and seizing by surprise the smallest entangled flies, or those that were most feeble. In ascending the angular traps of the spider, great care and skill was required ; some-

times he had hardly room for his little wings to perform their office, and the least deviation would have entangled him in the complex machinery of the web, and involved him in ruin. It was only the works of the smaller spiders that he dared to attack, as the largest, rose to the defence of their citadels, when the besieger would shoot off like a sun-beam, and could only be traced by the luminous glow of his refulgent colours. The bird generally spent about ten minutes in this predatory excursion, and then alighted on an *avocata* to rest and refresh himself, placing to the sun his crimson star-like breast, which then presented all the glowing fire of the ruby.

In captivity they have been known to live on sweets alone. Mr. Bullock, when in Mexico, had upwards of sixty in cages, which with attention and care lived for some time. The accounts of their being so fierce and untameable as to beat themselves to death when confined are, he says, not true ; no bird is more easily reconciled to its situation. They are, it is true, he observes, seldom off the wing, but never beat themselves against a cage, nor the glass of a window. Mr. Bullock speaks

of them when caged as remaining as it were suspended in the air, in a space barely sufficient for them to move their wings, and observes that the humming noise proceeds entirely from the velocity with which they perform that motion, by which they will keep their bodies in the air apparently motionless for hours together. Wilson says that when they are thus poised or suspended their wings become invisible or only like a mist. General Davis, by practising a curious expedient, managed to preserve some of these birds alive during three or four months of cold weather.

Having made an exact representation, in coloured paper, of some of the favourite tubular flowers of the Humming-Bird, he fastened them round tobacco pipes, the bowls of which he filled with sugar and water, and placed them in the cages where the birds were confined. In this way they soon became familiar, and took their food in the same manner as when roaming at large. A friend of Mr. Dupratz was less fortunate in preserving a specimen which he captured in a curious way. Having observed it enter the bell of a large convolvulus, he ran instantly to the spot, dexterously

shut the flower, cut it from the stalk, and carried off his little captive. He could not, however, prevail on it to taste food, and it died in the course of two or three days. It is probable that these interesting little creatures would have lived much longer in captivity if provided with the more nourishing food of insects in addition to the liquid sweets. Don Pedro, governor of Paraguay, kept a full-grown bird for many months in his house, where it was allowed to fly about at pleasure, and of course could supply itself with other food than honeyed water. This little flutterer became attached to its master, and would kiss him playfully, appearing to importune for a little syrup or a flower. In the absence of the governor it, however, greatly to his regret, perished from the negligence of servants. Audubon says that he has seen many Humming-Birds in a partial state of confinement; and that when fed with honey or syrup exclusively, they soon died in a state of emaciation, but that when duly supplied with fresh flowers (abounding with insects), and surrounded with gauze netting, through which insects could enter, they lived in health, and were very active.

Indeed, he mentions an instance in which several were thus kept for the space of twelve months, when they were restored to liberty, the person who attended to them, having a long voyage to perform. In the summer of 1803, a nest of young Humming-Birds was brought to Wilson; they were nearly capable of full flight, one of them actually flew out by the window the same evening, but fell against a wall and was killed. The other refused food, and on the next day appeared scarcely to have life. A lady in the house undertook to be its nurse, placed it in her bosom, and as it began to revive, dissolved a little sugar in her mouth, into which she thrust its bill, and it sucked it with great avidity. In this manner it was brought up, until fit for the cage. It was kept for upwards of three months, supplied with loaf-sugar and water, which it preferred to honey and water; fresh flowers were given it every morning sprinkled with the liquid, and the space in which it was kept was surrounded with gauze, that it might not injure itself. It was gay and active, full of spirit, hovering from flower to flower as if in its native wilds, and always expressed, by its

motions and chirping, great pleasure at seeing fresh flowers introduced to its cage. Many people visited it from curiosity, and every precaution was taken to preserve it during the winter, but unfortunately by some means it got at large, and flying about the room, was so injured that it soon after died. To these instances of domestication we may add the following from the "Habits of Birds" in the "Library of Entertaining Knowledge," where it is quoted from "Labat's Voyage to the Islands of America." "I shewed," says this author, "a nest of Humming-Birds to Father Montdidier, which was placed on a shed near the house. He carried it off with the young when they were about fifteen days old, and put them in a cage at his room window, where the parent cock and hen continued to feed them, and grew so tame that they scarcely ever left the room, and though not shut up in the cage or subjected to any restraint, they used to eat and sleep with their brood. I have often seen all the four sitting on Father Montdidier's fingers singing as if they had been perched on a branch. He fed them with very fine and almost limpid paste made of biscuit, Spanish

wine, and sugar. They dipped their tongues in it, and when their appetite was satisfied, fluttered and chirped. I never saw anything more lovely than these four pretty little birds, which flew about the house and attended to the call of their foster-father. He preserved them in this way for six months, and we hoped soon to see them breed, when Father Montdidier having forgotten one night to tie the cage in which they were roosted, by a cord that hung from the ceiling to keep them from the rats, had the vexation in the morning to find that they had disappeared; they had been devoured !”

A female Humming-Bird was brought to England some years since, with its nest and eggs. The mother did not long survive, but the young ones lived about two months after their arrival in this country, and were so tame as to sip honey from the lips of their owner. The nest of the Humming-Bird is a beautiful specimen of bird architecture; it varies in form and structure with different species, but in all, the soft and delicate materials are so put together as to furnish as much warmth as possible, an object of great impor-

tance, when the body of the bird, generally speaking, is so small, and the quantity of animal heat given out must be in proportion. Cotton, thistle-down, delicate fibres, a fungus-like substance, and other soft materials are woven into a compact mass, carefully enclosed in flat lichens; the whole is secured by webs of the spider and caterpillar, or the fine filaments of plants; these are hitched to the points of the lichens, which are never turned the wrong way. Mr. Kirk, a resident at Tobago, thus

NEST OF THE HUMMING-BIRD.

describes the mode in which the Ruby-throated Humming-Bird constructs her nest: "Burying

a pile of small grass in a lichen, she commenced upon a little twig about a quarter of an inch in diameter, immediately below a large leaf, which entirely covered and concealed the nest from above, the height from the ground being about three feet. After the nest had received two or three of these soft grasses, she set herself in the centre, and putting her long, slender beak over the outer edge, seemed to use it and her throat much in the same way as a mason does his trowel for the purpose of smoothing, rubbing to and fro, and sweeping quite round. Each visit to the nest seemed to occupy only a couple of seconds, and her absence from it was never more than as many minutes. In a few hours after, I saw the nest, which had all the appearance of a finished one." Some species suspend their nest on the branches of trees or reed-like plants. The Doctor Humming-Bird, as it is called in the country, hangs its nest with the entrance somewhat downward. Captain Lyon gives an interesting description of the ingenious way in which a Humming-Bird, with a sagacity almost beyond instinct, protected her young. "I am," says he, in a letter to a friend, "too closely con-

finer here, and too constantly occupied to attend to anything but the mines, but it may interest you to have an account of some young Humming-Birds, whose hatching and education I studiously attended, as the nest was made in a little orange bush by the side of a frequented walk in my garden. It was composed of the silky down of a plant, and covered with small flat pieces of yellow lichen. The first egg was laid January the 26th, the second on the 28th, and two little creatures, like bees, made their appearance on February 14th. As the young increased in size, the mother built her nest higher. She sat very close during a continuance of heavy rain for several days and nights. The young remained in the nest a fortnight, and flew on March 7th, without previous practice, as swiftly as the mother, taking their first dart from the nest to a tree about twenty yards distant." The parents are most valiant in defence of their young, and will attack indiscriminately any bird that approaches the nest. Their motions, when under the influence of anger or fear, are very violent. They attack the eyes of the larger birds, and their sharp needle-like bill is a

truly formidable weapon in this kind of warfare. Nothing can exceed their fierceness when one of their own species invades their territory during the breeding season. Under the influence of jealousy they become perfect furies; their throats swell, their crests, tail, and wings expand, they fight in the air (uttering a shrill sound,) till one falls exhausted to the ground. "I witnessed," says Mr. Bullock, "a combat of this kind near Otumba, during a heavy fall of rain, every separate drop of which I supposed sufficient to have beaten the puny warriors to the earth." Although, like the robin and other birds of Europe, in a state of nature they are thus tenacious of any intrusion of their own species on their dominions, in captivity they do not appear at all disposed to quarrel. Those kept by Mr. Bullock took great liberties with each other; for instance, when the perch was occupied by the great Blue-throated one, the diminutive Mexican Star settled on the long bill of the former, and remained perched on it some minutes, without its offering to resent the insult.

"The Humming-Bird," says Wilson, "usually arrives in Pennsylvania about the 25th of April,

and early in May begins to build its nest. This is generally fixed on the upper side of a horizontal branch, not among the twigs, but on the body of the branch itself. I have known some instances where it was attached by the side to an old moss-grown trunk, and others where it was fastened on a strong rank stalk or weed in the garden; but these cases are rare. In the woods, it often chooses a white oak sapling to build on; and in the orchard or garden selects a pear-tree for the same purpose; the branch chosen, is seldom more than ten feet from the ground. The nest is about an inch in diameter, and as much in depth. The base of the nest is continued round the stem of the branch, and when viewed from below, appears a mossy knot or accidental protuberance. The eggs are two in number, pure white, and of equal size at both ends. On a person's approaching their nest, the little proprietors dart round with a humming sound, passing frequently within a few inches of one's head, and should the young be newly hatched, the female will resume her place on the nest even while you stand within a yard or two of the spot." The young are fed by the parents in the manner

of pigeons and some other birds. Mr. Darwin observed a great number of the large species (*T. gigas*) in the neighbourhood of Valparaiso, and describes it as coming from the parched deserts of the north, probably for the purpose of breeding in Chili, and says that when on the wing its appearance is very singular, for, though like others of its genus, it moves from place to place with extreme rapidity, while hovering over a flower it flaps its wings with a very slow and powerful movement, totally different from that vibratory one common to most of the species; he declares that he never saw any other bird where the force of the wings appeared so powerful in proportion to the weight of its body. When hovering by a flower its tail is constantly spread and shut like a fan, the body being kept in nearly a vertical position. This action appears to support the bird between the slow movements of its wings; its note is extremely shrill.

The Double-crested Humming-Bird (*T. cornutus*) is among the most beautiful of this brilliant race of birds. It has two fan-shaped crests, each composed of six small feathers. The brilliancy of

these crests glistening as they do with the hues of polished gold, and red copper, changing into the tints of the ruby and emerald, it is impossible to describe, they must be seen in the living specimen to be fully appreciated. Europeans who know the Humming-Bird only by the stuffed remains of these little "feathered gems," cannot fail of being charmed with their appearance, but those who have examined them whilst living, and whilst displaying in the sun their moving crests, throats, and tails, can plainly see they are but the shadow of what they were in life. The reason is obvious, for the sides of the fibres of each feather being of a different hue from the surface, the colour changes with every movement of the bird. Thus the one from Nootka Sound changes its expanded throat from the most vivid fire-colour to light green; the Topaz-throated does the same, and the Mexican Star changes from bright crimson to blue. The sexes vary greatly in the plumage, indeed it is difficult to recognize them; in the last-named species the male and female have been only known from being frequently seen together, or from dissection. Many of the Humming-Birds are peculiar from

having frills, or ruffs, round the neck; others are remarkable for length or singular formation of the tail. The bills too vary greatly, being more or less curved, quite straight, short or long.

Gould's Humming-Bird has a beautiful appendage in the form of a fan. The feathers which compose it, spring from the neck; they are very long, and of a pure white, and tipped at the end with a spot much resembling the eye of the peacock's train.

The least Humming-Bird (*T. minimus*) is the most diminutive bird known, being surpassed both in weight and dimensions by more than one species of bee. That acute observer, Mr. Bullock, procured some of these species while in Jamaica. "They are," he remarks, "considerably less than some of the bees. The first I saw alive of these minute creatures was in the yard of the house of Mr. Miller, in Kingston, Jamaica. He had taken his station on the twig of a large tamarind tree, which was close to the house, and overspread part of the yard; there, perfectly indifferent to the number of persons constantly passing within a few yards, he spent most of the

day. There were few blossoms on the tree, and it was not the breeding-season, yet he most pertinaciously kept absolute possession of his dominion, for the moment any other bird, though ten times larger than himself, approached near his tree, he attacked it most furiously, and drove it off, always returning to the same twig he had before occupied, which he had worn quite bare of leaves for three or four inches, by constantly perching on it. I often approached within a few feet with pleasure, observing his tiny operation of dressing and pluming, and listening to his weak, simple, and often repeated note. I could easily have caught him, but was unwilling to destroy so interesting a little visitant, who had afforded me so much pleasure. In my excursions round Kingston I procured many of the same species, as well as the long-tailed Black Humming-Bird, and especially the one I have mentioned as the smallest yet described, but which has the finest voice of any. I spent some agreeable hours in the place that had been the Botanical Garden of Jamaica, and on the various trees, now growing to a luxuriant size, met with many curious birds, among which this specimen

was perched on the highest branch of the bread-fruit or cabbage-tree. He poured forth his slight querulous note among a most curious assemblage of the valuable indigenous and exotic plants and trees of the island, on a spot, once the pride of Jamaica, but now a deserted wilderness." From the transcendent beauty and splendour of this tiny bird the ladies of the country convert them into ear-drops. When captured, the delicately-organized little creature immediately expires.

The smaller species are extremely susceptible of cold, and if long deprived of the animating influence of the sun-beam, droop and die. Mr. Wilson mentions one that was brought to him, and which, after placing it in a cage, he put in a retired and shaded part of the room. After fluttering about some time, the weather being uncommonly cool, it clung by the wires, and hung in a seemingly torpid state for a whole forenoon. No motion whatever of the lungs could be perceived on the closest inspection; though at other times this is remarkably observable, the eyes were shut, and when touched by the finger it gave no signs of life or motion. He carried it to the open air,

and placed it in a sheltered position, directly in the rays of the sun. In a few moments respiration became very apparent, the bird breathed faster and faster, opened its eyes, and began to look about with as much seeming vivacity as ever. After it had completely recovered, he restored it to liberty and it flew off to the withered top of a pear-tree, where it sat for some time dressing its disordered plumage, and then shot off like a meteor. The Humming-Bird is captured by blowing either sand or water, which brings it stunned to the ground. Goldsmith says that the Indian children take them in the fields upon rings smeared with birdlime ; they are then killed, the insides removed, and are hung up to dry. The Indians, who give these birds the name of sun-beams, formerly made great use of the plumage in adorning their belts and head-dress. By the ancient Mexicans they were greatly esteemed. In the time of Montezuma, the radiant mantles worn by the natives glittered with the feathers of these beautiful birds. They were also employed in the composition of those embroidered pictures which Cortés has so highly praised.

The great perfection to which the art of preserving birds is now brought, enables the lover of the beautiful to add to the wonders of art in the splendidly furnished rooms of the present day, the far-excelling ones of nature. The costly cases containing the Humming-Birds and others of the feathered creation, by their dazzling and life-like appearance, form a brilliant and interesting addition to the luxurious apartment. The most perfect collection in Europe of these beautiful little creatures is to be seen at Mr. Loddige's. It is a collection to which we have before alluded, and affords all the materials for a complete history of the family of Humming-Birds; for not only is it rich in species and varieties, but in examples of their different states of plumage according to sex or age, including many nests with their eggs. A great number are set up by the ingenious possessor in the most life-like manner, and in a style peculiarly his own. He has studied the subject deeply, and no one is so competent as he is, to present zoologists with a satisfactory arrangement. Here may be seen every form of bill, curved, recurved, very long, and subrecurved, straight, very short, sharp;

and also every variety of ear-appendages, frills, ruffs, crests, tails, and feathered boots. However, we must still, with Bishop Stanley, regret “that none but those who cross the seas, and can visit the Humming-Birds in their native haunts, will ever be fortunate enough to behold in perfection the glorious robes with which nature can invest even the smallest of her works.” Truly may it be said of those lovely birds as of the lilies of the field, “that Solomon in all his glory was not arrayed like one of these.”

The welcome guest of settled Spring,
The Swallow now is come at last ;
Just at sun-set, when thrushes sing,
I saw her dash with rapid wing,
And hail'd her as she past.

CHARLOTTE SMITH.

THE SWALLOW.

Hirundo.

“THE Swallow,” says Sir Humphrey Davy, “is one of my favourite birds, and a rival of the Nightingale; for he cheers my sense of seeing as much as the other does my sense of hearing. He is the glad prophet of the year—the harbinger of the best season; he lives a life of enjoyment amongst the loveliest forms of nature; winter is unknown to him, and he leaves the green meadows of England in autumn, for the myrtle and orange groves of Italy, and for the palms of Africa.” This, Mr. Yarrell tells us, “is a brief but a perfect sketch of the history of that universal favourite, the Swallow.” He comes to us when nature is putting on her most smiling aspect, and he stays with us through the months of sunshine and gladness. The European species of this family are the Swift, the great Gibraltar Swift, the Rock Mar-

tin, the Chimney Swallow, the Rufous Swallow, the Martin, and the Sand Martin. Of these the first, and last three, are British summer visitors. Swallows abound in every quarter of the world, and in each, the species vary. Some feed upon insects on the wing, others upon vegetable juices, which they extract with the tongue. The feet and legs in some species are much stronger than in others, and the tail acts more or less as a support. In the Swifts, the hind toe is so placed that it can be brought nearly forward, and all four toes are furnished with very strong, crooked claws, giving to the bird such a firm grasp, that it can sustain itself by the side of perpendicular rocks or buildings, with the greatest facility. Those with less robust feet are compensated for the deficiency by having a stiff and pointed tail, which serves as an additional support, when resting in such situations. The bills also differ in length, and those with short ones have a greater gape of mouth; these receive the insect prey in full flight into their wide-spread mouth, in which a clammy kind of moisture assists in securing it. The longer billed families catch their food by their bills. All the

families of the tribe build their nests in a strikingly similar manner, and periodically migrate. They all prefer situations near water, and where insects most abound ; and when not occupied in sitting or sleeping, are almost incessantly on the wing. The power of flight possessed by this interesting family enable them to remain for hours on the wing, without any apparent fatigue.

The Swift, perhaps, passes over more space than any other living creature, and evinces powers both of eye and wing, which are probably greater than those of the eagle. The flights of the eagle are powerful, but they are only occasional ; and strong as the bird is, it seems exhausted ; but the little Swift continues on the wing for perhaps sixteen hours every day, and moves with a velocity both rapid and graceful. The sight of this bird is also wonderful ; for it has been ascertained that it can easily discern at more than a hundred yards' distance an object not half an inch in size. Though gifted with great powers of flight, it walks, or rather crawls, with difficulty on the ground. In passing through holes and crevices, it is, however, remarkably expert, for its claws are of the form

we have already described as being so well calculated for holding. The Swift is the largest of our swallows, but the weight is most disproportionably small when compared to the extent of wing, the former being scarcely one ounce, the latter eighteen inches. It is eight inches in length, and is entirely of a glossy, dark, sooty colour, the chin only having a white spot. It builds under the eaves of houses, in steeples and other lofty buildings, and beneath the arches of bridges. The materials of the nest are very diversified. Grass, moss, bits of thread, feathers, (which they sometimes pull very dexterously from other birds,) in short, any light substance, animal or vegetable, that can be soaked and cemented to the mass of the nest, by that sticky substance secreted in the throat and bill of the bird. The female sits very patiently upon her eggs, which are pure white, and from two to four in number. She never leaves them during the day, as then they would be exposed to depredators, but dashes forth at dusk, hunts for her supper with great rapidity, and then returns to her charge. The young birds remain in the nest five or six weeks, during which time both parents become

quite thin from their constant attention in feeding them, and their glossy plumage changes into a shabby brown. The Swifts do not appear able to endure the greatest intensity of the summer heat, for on very warm days their huntings are chiefly confined to the mornings and evenings, during which, in places abounding in insects, they may be seen darting about in all directions. Like the Swallows, they drink on the wing, sipping the surface of pools and brooks, and the dew-drops on plants. They have different hunting-times, and capture all descriptions of insects. In the morning, their chief prey consists of day-flies; in the evening they pursue the moths; and during those hot gleams at midday, when the dragon-flies are skimming about in the sun-beams, the Swifts may be occasionally seen coursing and capturing them with rapidity equal to their own. Mr. Yarrell remarks, "that in windy days the bird will remain for hours in its retreat, and motionless in the dark." It is in sultry lowering weather that the Swifts are most on the alert. Just before they repair to their respective holes, which they do at a much later hour than any other bird, they assemble in large

groups, high in the air, screaming and shooting about with surprising swiftness, sometimes describing a thousand circles, at a great height, now defiling along a street, or wheeling round a large building. Its acuteness of sight does not always protect it from accidents : “a Swift on eager wing, was seen on its flight to be carried against a wall ; it was picked up stunned, and died almost immediately in the hand of the observer.”

Previous to migration they begin to assemble early in July, when their numbers daily increase, and large bodies of them appear together. They then soar higher in the air, utter shriller cries, and fly in a peculiar manner. These meetings continue till they finally depart for more genial climates.

“ When Nature wore her summer vest,
It came to weave its simple nest ;
And now, when chilling autumn lowers,
Again it seeks the genial bowers
Of Memphis, or the shores of Nile,
Where sunny hours of verdure smile.”

The well-known species, the common Chimney or House Swallow (*H. rustica*) is the earliest visitor to our shores ; great interest has been always

felt about the time of its appearance, and more records are preserved of the dates than of that of any other bird. The average time of its arrival seems to be about the middle of April, and it commonly remains six months. In misty weather, the birds seem to have a difficulty in reaching the land near the sea, and have been frequently known to alight on the boats of the fishermen in a completely exhausted state. In fine weather, they have been seen to drop flat on the water with the wings expanded, and presently after, fly off again quite refreshed.

“ The extraordinary confidence,” says Mr. Couch, “ which these birds repose in man, in placing their nests among his dwellings, is worthy of notice, and explains a circumstance that is singular in the feathered race ; I allude to the fact of their singing while on their nests, which can only take place where there is no desire of concealment.”

When the Swallow first arrives, it flies but slowly and heavily along, but as the weather grows warmer, and insects consequently abound, it soon recovers from its long journey and gathers greater

strength and rapidity. During a cold and wet season, which destroys its food, the poor Swallow may be seen slowly skimming along the surface of the ground, and often resting after a flight of a few minutes. If it should happen that the northeasterly wind prevails for any length of time, it so benumbs the insects, that great numbers of the Swallows perish for want of food ; in this time of scarcity they snatch flies from the spiders' webs, and even devour the spiders themselves. In general, however, the Swallow contrives to find ample food in the small beetles, caterpillars, and flies of every description, which it so usefully destroys. Swallows may often be seen to settle on dry ground or paths for gravel, which assists them in digesting their food. On wide downs they frequently closely attend the horseman, playing in small flights before and behind him, and sweeping round to collect all the insects that are roused by the trampling of the horses' feet.

“By the myriads of insects,” says a writer in the Gentleman's Magazine, “which every single brood of Swallows destroys in the course of a summer, we are defended in a great measure from the

personal and domestic annoyance of flies and gnats ; and what is of infinitely more consequence, they keep down the number of our minute enemies, which, either in the grub or winged states, would otherwise prey upon the labours of the husbandman. We more frequently hear of unproductive harvests on the Continent than in this country ; and it is well known that Swallows are caught and sold as food in the markets of Spain, France, and Italy. When this practice has been very general and successful, I have little doubt but that it has contributed to a scarcity of corn. Swallows should be protected by the same popular veneration which in Egypt defends the ibis, and in Holland the stork.” No apology can be made for their wanton destruction under the idle pretence of improving the skill in shooting ; besides the cruelty of killing the parent bird, and thus starving whole broods of young, those who follow this cruel diversion would do well to reflect, that by every Swallow they kill, they promote the increase of those minute insects which injure the corn, and thus cause a scarcity of bread.

The quantity of insects devoured by Swallows

is indeed far greater than most people imagine. On picking up a Swift that had been shot during the breeding-time, a number of minute flies and beetles, some mutilated and others scarcely injured, were observed crawling out of the bird's mouth; the throat and pouch seemed absolutely stuffed with them, and as many were collected as, when pressed close, would have filled the bowl of an ordinary table-spoon. It appears singular, that the mouth of a bird collecting its food on the wing, should be sometimes found to contain spiders, but the Swift, which flies higher than any insect-feeding bird, preys continually on small spiders. The fact is, that the air is abundantly tenanted by spiders, even to a very great height, the perfect carpeting of webs which are occasionally seen on an autumnal morning, sparkling with moisture, are the webs of the gossamer spider, which, rendered heavy by the dew collecting on their slender threads, fall to the ground and cover whole acres.

Great swarms of flies abound at the Abattoir at Monfaucon in France, a place where horses are killed and flayed. These attract the Swallows, who come in vast multitudes, and this circumstance

makes the neighbourhood a favourite shooting-ground of the Parisian sportsman.

The Chimney Swallow, does not confine its building to chimneys, but often forms its nest against the rafters of out-houses and barns. In Sweden and many other countries it is called the Barn Swallow. In the warmer parts of Europe, where chimneys are scarce, it constructs its nest in porches and gateways, galleries, open halls, or any other convenient spot. In England the bird selects the chimney, and loves to haunt the stack where a continual fire is kept up, not that it can subsist in a chimney where there is a fire, but prefers one adjoining to that of the kitchen, where it disregards the perpetual smoke in a very surprising manner. About five or six feet down the chimney the bird begins to form its nest, which is in the form of a tea-cup, and composed like the Martin's, of dirt or mud, mixed with short pieces of straw to make it durable. The nest is lined with fine soft grasses and downy feathers. "Wonderful," says Gilbert White, "is the address which this adroit bird shews all day long, in ascending and descending with security through so narrow a pass. When

hovering over the mouth of the funnel, the vibrations of her wings acting on the confined air, occasion a rumbling like thunder. It is not improbable that the bird submits to this inconvenient situation so low in the shaft in order to secure her broods from rapacious birds, and particularly from owls, which frequently fall down chimneys, perhaps in attempting to get at these nestlings. The Swallow lays from four to six white eggs dotted with red specks. The progressive method by which she introduces her young into the world is very amusing. At first they emerge from the chimney with difficulty enough, often falling into the rooms below; for a day or so they are fed on the chimney top, and are then conducted to the dead, leafless bough of some tree, where, sitting in a row, they are attended with great assiduity, and may be called perchers. In a day or two more they become flyers, but are still unable to take their own food; therefore they play about near the place where the dams are hawking for flies, and when a mouthful is collected, at a certain signal given, the dam and the nestlings advance, rising towards each other, and meeting at an angle,

the young one uttering all the time such a little quick note of gratitude and complacency, that a person must have paid little regard to the wonders of nature that has not often remarked this feat. All the summer long is the Swallow a most instructive pattern of unwearied industry and affection, for, from morning to night, while there is a family to be supported, she spends the whole day in hunting for insects."

The note of the adult House Swallow is a soft and sweet warble. Friesch informs us "that this species has a cry more approaching to a song than any of the family, though it consists but of three tones, terminated by a finale which rises to a fourth, and it is little varied." Besides these inflexions of voice, however, it has its note of invitation, of pleasure, of fear, of resentment, and that by which the mother warns the young of danger. It also warns the House Martin and other small birds of the approach of birds of prey; for as soon as a hawk or owl appears, the Swallow calls with a shrill alarming voice all his companions and the Martins about him, which pursue in a body, and strike and buffet their adversary until they have

driven him from the place, darting down on his back and rising in a perpendicular line with the greatest boldness and security. It will also sound the alarm, and strike at cats, when they climb on the roofs of houses, or otherwise approach the nest. Timid as Swallows appear to be, when occasion requires exertion and courage, they can not only fight a stout battle, but manifest a good deal of ingenuity. A pair of Martins, one of which, from a remarkable white feather in one of its wings, was known to be one of the same pair of birds which had built there before, constructed a nest in the corner of a window. They had no sooner finished their nest, than a strange Sparrow conceived the plan of taking possession of the property, and once or twice actually succeeded in driving the owners out. For a week there was constant battling. At length the two rightful owners were observed to be very busily engaged in lessening the entrance into the nest, which in a short time was so reduced that it was with difficulty they could force themselves into it singly. When they had accomplished their object, one or other of them always remained within, with its bill sticking out ready to

receive any sudden attack. The enemy, after persevering for a week, and finding his prospects hopeless, left the pair to enjoy the fruits of their forethought. A more bold and sagacious measure was adopted by a pair of Swallows, which, on arriving at their old nest, found it occupied by a sparrow, who kept the poor birds at a distance by pecking at them with its strong beak whenever they attempted to dislodge it. Wearied and hopeless of regaining possession of their own property, they at last hit upon a plan which effectually prevented the intruder from enjoying the premises he had chosen. One morning they appeared with a few more Swallows, their mouths distended with a supply of tempered clay, and by joint labour in a short time actually plastered up the entrance hole, thus punishing the sparrow with imprisonment and death by starvation. Bishop Stanley relates this anecdote, and adds, that "this instance of apparent reasoning occurred at a rectory-house in Lancashire; and that a similar story is on record near London, of a pair of Swallows calling in the assistance of their neighbours for the very same purpose."

Many birds choose sometimes to build their nests in very odd places, but none perhaps have selected more curious ones than the Swallow. Some of these, afford ample proof of the constant return of the bird to its chosen breeding place. In one instance a bit of silk was fastened round the leg of the female whilst sitting upon her eggs, and on the following spring she was found in the same situation. At a nobleman's house in Scotland the kitchen was in a building separated from the main part of the house by an open court, but connected with it by a covered passage supported by posts, and open to the south. In the corner of the passage close to the kitchen-door, a bracket was placed for holding a lamp, which was taken down every day to be trimmed, and was lighted every evening. On that bracket a Swallow, and it is believed the same Swallow, built her nest for three or four years, quite regardless of the removal or light of the lamp, and the constant passing and repassing of the servants. On the opposite side of the same open court, the great house-bell was hung under a wooden cover fastened to the north wall of the house. It was a large bell, and was rung

several times a-day to call the servants to their meals. Under the wooden cover of this bell the same Swallow, it is believed, which formerly built on the bracket for the lamp, built a nest for several years, and never was in the least disturbed by the ringing of the bell or the rattling of the rope. One of the chimneys in a house at Blois, in France, was surmounted by an old moving iron chimney-pot, placed there to prevent it from smoking; the fire-place with which it communicated having been bricked up, it became a safe place for building in. Accordingly, as such, it was pitched on by a couple of Swallows, and in it, moved as it was by every wind, and making at every motion a dismal creaking noise, for two successive years did they build their nest; and often were they seen for minutes together, when the wind was high, trying in vain to get into it, its constant motion rendering entrance an affair of some difficulty. An instance came under the personal observation of Bishop Stanley, of a pair of Swallows returning to build for three years in a small closet in a school-house, which they entered by a broken pane in the casement, and formed their nest in a

corner above the window. As they were never disturbed, the female would remain sitting, and the male fly in and out in his presence. But though several broods were hatched, the old birds allowed no intruders, and not a single young bird was ever seen to return to the place of its birth after it had quitted it. Another instance is quoted by the bishop, where still greater confidence was placed in man by these familiar little birds. A pair of Swallows built their nest upon the top bar of a clothes-screen which was hung up against the wall in a porter's-lodge. The young ones were hatched and flew away. Upon the first appearance of Swallows the year after, a male bird again entered the apartment and took a survey of the premises. Having satisfied himself, he went off, but soon returned with a companion, which at first appeared shy and timid, but in a short time acquired as much assurance as its mate. They both forthwith set about building a new nest on a small ledge which had been prepared for them as near as possible to the place where that on the clothes-screen had been built, and which had been destroyed, as, whilst it remained, the screen was of course use-

less to the family. In this nest their broods were reared as before, notwithstanding the almost constant presence of the porter and his wife, who lived and slept in the room. In the spring of the third year the male again made its appearance with another mate, evidently much younger than its predecessor. The old nest, in the ledge was examined, but for some reasons the birds were not satisfied with its situation, and as the clothes-screen was hanging in the same situation it had occupied the first year, after a couple of days' hesitation they constructed a nest on it, and the business of hatching and rearing the young ones went regularly on. The male bird, indeed, seemed to have acquired increased confidence, never manifesting alarm at the number of visitors which so curious a circumstance attracted to the lodge; whereas the female continued very shy, and was on the alert and ready to take wing when anybody approached too near. It was remarked in this as in the preceding case, that no young birds, from the moment of their taking wing, ever returned to the house, either for the purpose of forming nests of their own in so safe and comfortable an asylum,

or disputing with the old ones for the tenement in which they were born and bred. A Swallow once chose to build a nest on the wings and body of an owl that happened to hang dead and dry from the rafter of a barn, and which was so loose as to be moved by every gust of wind. This owl, with the nest on its wings, was taken as a curiosity to the museum of Sir Ashton Lever. That gentleman, struck with the singularity of the sight, furnished the person with a large shell, desiring him to fix it just where the owl had hung. The man did so, and in the following year a pair of Swallows, probably the same, built their nest in the shell, and laid eggs.

Mr. Weir of Boghead, in Scotland, communicated to Audubon some equally singular spots which were chosen by the Swallow as breeding places. A pair of them for fourteen successive years resided in the same nest, which they built in the inside of a large wooden vane of a mill in Berwickshire. For several seasons, their young were suffocated by the smoke of the fire, which was occasionally kindled for the purpose of drying wheat and barley. After the destruction of the

fourteenth brood, they deserted their abode, but erected another upon the side of the wall at no great distance from it.

A pair for three successive years took possession of the same nest, which was built upon the wooden lintel of a cart-house in America. It was within six feet of a large Newfoundland dog: although during the day the dog was in continual motion, and very often barked, they brought up two broods each summer; the rats having, however, destroyed the last eggs, the sagacious birds forsook their old residence. Another pair selected the corner of a coal-house, within six yards of the kitchen window. Although the servants passed and repassed within a few inches of the nest almost every hour of the day, and often during night carried a candle, they appeared not the least alarmed, and there bred two broods a-season for many years. An attempt, however, being made to catch them, they forsook the nest. In the inside of a skylight another pair having flown in through a broken pane of glass, built a habitation. When the young were reared they had a great deal of trouble in inducing them to make their

entrance into the world through the hole, but at length succeeded by holding flies in their bills, outside the glass. From this snug retreat they, for eight or nine days, flew out every morning, and returned in the evening to roost. Captain Carmichael, while stationed at the Cape of Good Hope, witnessed the following instance of sagacity in a pair of Martins. Soon after their arrival, they built their nest on the outside of his house, fixing it against the angle formed by the wall with the board which supported the eaves. The whole of this nest was covered in, and it was furnished with a long neck or passage, through which the birds entered and came out. This nest having fallen down after the young birds had quitted it, the same pair, as he is disposed to believe, built again on the old foundation the following year; but he remarked on this occasion a singular improvement in the construction. In building the first, the birds were satisfied with a single opening, but this one was furnished with an opening on each side. One object obtained by this improvement was saving themselves the trouble of turning in the nest, and thus avoiding any derangement of the interior

economy. But the chief object appeared to be to facilitate their escape from the attacks of serpents, which harbour in the roofs of thatched houses or crawl up the walls, and not unfrequently devour both mother and young.

The swallow has been domesticated, though from the habits of the bird such instances are extremely rare. This feathered favourite, indeed, almost more than any other winged creature, appears to enjoy the freedom God has given to it, and irksome as restraint must be to any of the free denizens of air, to the Swallow and other migratory birds it must be peculiarly oppressive; unless, indeed, when taken very young. Bingley relates an interesting anecdote where this was the case.

“On the 19th of July 1806, three young Swallows fell down the chimney of a young lady’s bed-chamber in Suffolk, and being fond of birds, she determined if possible to rear them. Two of them died in the course of a week, but the third, by feeding it with boiled egg, mixed occasionally with bread, she succeeded in rearing. It grew fast and continued in excellent health. As flies were its most natural food, she supplied it with these as fre-

quently as possible. It drank plentifully of water, and seemed to derive great pleasure from regularly washing. This bird became so tame, that it would come to its mistress whenever she held her finger for it to alight on, and thus perched, would catch every fly within its reach. Its eagerness in the act, and its manner of catching these insects, the snap of its beak in so doing, and its general docility, rendered it a very amusing and interesting object.

Frequently after dinner the lady would bring it upon her finger into the dining-room, a large and lofty apartment, where it flew about with great freedom, and when tired returned to rest upon its mistress. It did not appear to notice a small parrot which was loose in the same room, and upon the perches of whose stand it was fond of alighting. If, however, the parrot attempted to attack it, the Swallow always opened its mouth in a threatening manner, as if resolved to defend itself from insult. When the usual time for the migration of its tribe approached, this bird became uneasy; and as it was occasionally hung in a cage on the outside of the house, the other Swallows

came about it, and appeared to invite it to go with them. When these visits ceased, it became tolerably tranquil. The lady was extremely anxious to preserve it through the winter, and though aware of the difficulty she should have in feeding it through the season, resolved to make the attempt. On the 9th of October, however, after she had fed it as usual, and had left it in apparent health and vigour, she had the mortification on her return to find it dead. The cause of its death she was unable to ascertain, but she imagined that the bird might have been inadvertently struck by the servant, whilst employed in cleaning the room.

Mr. Bennett speaks of several of these birds having alighted in an exhausted condition on the rigging and deck of the ship in which he was voyaging from Manilla to Singapore, through the China sea. For several days a number of them were flying about the ship, and he was led to suppose that they fed on the flies which infested the ship, as soon afterwards but few of those insects remained. In the evening they would roost on the rigging, and some even took refuge for the night in the chief officer's cabin which opened upon deck, and

were again set at liberty in the morning. They became after a few days exhausted, several were found dead, and others became so tame from fatigue and hunger, as to be easily caught, and would afterwards remain perched on the hand without making any effort to regain their liberty.

Both Audubon and Wilson give very interesting accounts of the habits of the Chimney Swallow, in the United States of America. As the country becomes inhabited, they gradually forsake their natural breeding places in the hollows of old trees, and take possession of chimneys which during the summer season emit no smoke. The nests, when a hollow tree is chosen, are placed thickly within the decayed shell. A fine sycamore, nearly destitute of branches, sixty or seventy feet high, and seven to eight feet in diameter at the base, was seen thus occupied by Audubon in Kentucky. It formed the roosting place for a vast number of Swallows. In the middle of the stem was a broken hollow branch, which served the birds for a door to enter and come out. "On closely examining the tree," says Audubon, "I found it hard, but hollow near the roots. The evening was

beautiful, thousands of Swallows were flying closely above me, and three or four at a time were pitching into the hole, like bees hurrying into a hive. I remained, my head leaning against the tree, listening to the roaring noise produced by the wings of the birds as they settled in their places. I did not pretend to count them, for the number was too great, and the birds rushed to the entrance so thick, as to baffle the attempt. I had scarcely returned to Louisville when a violent thunder-storm came on, and its sudden appearance made me think that the hurry of the Swallows to enter the tree was caused by their anxiety to avoid it." The next morning, before daylight, the enterprising naturalist was at the tree, eager to watch the out-pouring of the birds; he placed his head against the tree, but all was still; suddenly he thought it was about to give way and fall upon him, and instinctively sprang from it. On looking up, the Swallows were pouring out in a black continued stream. On listening to the noise within the tree, he could only compare it to the sound of a large wheel revolving under a powerful stream; they occupied about half an hour in getting out, and

dispersed in every direction with the quickness of thought.

A hole was cut at the bottom of this tree on the next night, and a view of the interior thus obtained; the birds were so thickly clustered as to cover the whole surface of the hollow tree; and from calculations made by Audubon, about nine thousand Swallows roosted in this single tree. In September he again took a view of the interior, but not a bird was visible, all had migrated. These roosting-places are called Swallow-trees.

Mr. Williams, in his History of Vermont, mentions a large hollow elm, which it was customary for people to visit to observe the motion of the birds. If the tree was struck violently with an axe, the Swallows would rush out by hundreds with a great noise. Wilson confirms these extraordinary accounts.

House Martins are the least active of the species; their wings and tail are short, and they are therefore not capable of such surprising turns and quick evolutions in the air; they seldom mount to any great height, preferring the middle region of air. They do not skim the water, or the surface

of the ground, and are distinguished from others of its family by having a warm covering round the legs. The Martin appears in England a little later than the Swallows, and like them, after spending a few days in refreshment to recover from its fatigue, it commences providing a mansion for its future family. It chooses very often a perpendicular wall, under the eaves of a window, and after carefully placing a foundation of mud, in the shape of a bracket, builds a most compact nest of dirt and plaster, wrought together with bits of straw to render it firm. It commences its work before four in the morning, and in raising the foundation for its nest, the bird not only clings with its claws, but partly supports itself by strongly inclining the tail against the wall, and thus steadied, it works and plasters the materials into the face of the brick or stone wall, with the chin, moving the head quickly. That the work may not while soft give way from its own weight, the provident architect does not advance the work too fast, but by building only in the morning, gives it sufficient time to dry and harden. About half an inch seems to be a sufficient layer for one day's work. In about

ten or twelve days a nest is constructed, of a round form, with a small aperture towards the top. Although the nest appears to be strong, compact, and being lined with soft grasses and feathers, perfectly fitted for all the purposes intended, it is common for the house-sparrow to seize upon it, turn out the owner, and line it after its own fashion with warmer materials. This nest often serves the Martin for several years, when it is built in a sheltered situation. Here the female lays from three to five white eggs. Like the young of small birds, they soon arrive at the full growth, they become impatient of confinement, and sit all day with their bills outside the opening, and the parent birds, by clinging to the nest, supply them with insect food, from morning till night. When they first leave the nest they are fed by the parents for a little time on wing, but this is performed so adroitly, that few but very careful observers can be aware of the fact.

As soon as the young can shift for themselves, the parents prepare for a second brood, and the first flights of nestlings may then be seen clustering and hovering, on sunny mornings, round towers

and steeples, and on the roofs of churches and houses.

The Sand Martin (*H. riparia*) is the smallest of the Swallows visiting England, and takes its name from the spot it chooses for its nest, which is burrowed in sandy places on the banks of rivers. It has a peculiar flight, not unlike that of the butterfly. Audubon speaks of having seen vast quantities of these birds in Florida; they passed close to the vessel in which he was, in long and close flocks of many thousands in number, and they are equally common about the rivers of South America. They bore holes to the depth of three or four feet; the bottom of these is enlarged in the form of an oven for the reception of the nest, of feathers, and grass, and the accommodation of the parents and their brood.

“On the bluffs of the Ohio and Mississippi,” says Audubon, “there are very many extensive breeding-places. While engaged in digging a sand-bank on the shores of the Ohio at Hudson, for the purpose of erecting a steam-mill, I was both amused and vexed, by the pertinacity with which the little winged labourers continued to bore holes day after day, whilst the pick-axes and shovels demolished

them in succession." The young, as soon as they are able to move, crawl to the entrance of these holes to wait the return of the parents with food, and frequently fall victims to the smaller hawks and the common crows, which seize and devour them in spite of the clamour of the old birds.

The purple Martin (*H. purpurea*) is a general inhabitant of the United States, and is not only the handsomest of the Swallow family, but a particular favourite wherever he takes up his abode. "I never met," says Wilson, "but with one man who disliked the Martins, and would not permit them to settle about his house; this was a penurious close-fisted German, who hated them because, as he said, 'they eat his peas.' I told him he must certainly be mistaken, for I never knew an instance of a Martin eating *peas*; but he replied, with great coolness, 'that he had many times seen them himself, blaying near the hife, and going schnip, schnap,'—by which I understood it was his bees that had been the sufferers, and the charge could not be denied."

The summer residence of this bird is universally among the dwellings of man, who, having no inter-

est in his destruction, and finding both pleasure and advantage in his society, is generally his friend and protector. Wherever he comes, he finds some hospitable retreat fitted up for his accommodation, and that of his young, either in the projecting wooden cornice, on the top of the roof, or sign-post, in the box appropriated to the blue-bird; or, if all these be wanting, in the dove-house among the pigeons. In this last case, he sometimes takes possession of one quarter or tier of the premises, in which not a pigeon dares for a moment to set its foot. Some people have large conveniences formed for the Martins, with many apartments, which are usually fully tenanted and occupied regularly every spring, and in such places particular individuals have been noted to return to the same box for several successive years. Even the solitary Indian seems to have a particular respect for this bird. The Chactaws and Chicksaws cut off all the top branches from a sapling near their cabins, leaving the prongs a foot or two in length, on each of which they hang a calabash, properly hollowed out for their convenience.

On the banks of the Mississippi the negroes

stick up long canes with the same species of apartment fixed to their tops, in which the Martins regularly breed.

The purple Martin is thus esteemed, because he is the terror of crows, hawks, and even eagles. These he attacks whenever they make their appearance, and with such vigour and rapidity, that they instantly have recourse to flight. So well known is this to the lesser birds and to the domestic poultry, that as soon as they hear the Martin's voice engaged in flight, all is alarm and consternation, "To observe with what spirit and audacity this bird dives and sweeps round upon the hawk or the eagle is astonishing. This bird is considerably larger than the European Martin, being eight inches in length, and sixteen inches in the extent of wing. It is of a rich and deep purplish blue, with a strong violet reflection, the wings and tail are blackish brown. It selects as food, wasps, bees, large beetles, of which, a particular kind, called by the natives "Goldsmiths," seem his favourite game.

Wilson took four of these large beetles from the stomach of a purple Martin, each of which seemed entire and unbruised.

The note peuo, peuo, peou, is usually loud and musical; during the breeding times it becomes peculiarly soft and tender.

We must not omit to notice the Indian species of Swallow (*H. esculenta*), which makes the edible nests that form a considerable article of Chinese commerce. The Esculent Swallow is somewhat smaller than the wren, it has a thick bill, the upper parts of the body are brown, the under parts white, the tail is forked, and each wing-feather is tipped with white; the legs are brown. This bird forms its nest of a particular kind of sea-weed, which it macerates and bruises before it employs the material in layers, so as to form the whitish gelatinous nests so much esteemed by the Chinese. The nest generally weighs about half an ounce, and is shaped in the form of a small teacup, with the side flattened, which adheres to the rock on which it is built. The best sort of nests, somewhat resembling isinglass, are much prized by the epicures of Asia, and are sold at the rate of nine shillings the ounce. Coarse or dirty nests are used for glue. The best sort of nests, which are perfectly free

from dirt, are dissolved in broth, in order to thicken it, and are said to give it an exquisite flavour; or they are softened by soaking in water, then pulled to pieces, and put into the body of a fowl, and stewed in a pot with a small quantity of water, and left on the stove all night. Mr. Earl tells us, that he has frequently eaten them at the tables of the rich Chinese, but could detect no exquisite flavour, indeed he thought them remarkably insipid. Many others who have tasted this costly delicacy are of the same opinion. These nests are found in vast numbers in the caverns of several islands in the Soolo Archipelago. Sir George Staunton found two caverns in the Cap (a small island near Sumatra), running horizontally into the side of the rock, and these were thickly lined with the nests of this bird. They adhered to each other mostly in rows. The birds were flying about in considerable numbers; but were so small, and their flight was so quick, that they escaped the shots fired at them. Their most dreaded enemy appears to be the kite, who lays wait for them.

An Esculent Swallow, apparently of another

species, is also found in great abundance in deep caverns at the foot of the highest mountains in the interior of Java, at a great distance from the sea. This bird is said to feed on insects, which it finds hovering over stagnant water between the mountains. The colour and value of the nests depend on the quantity and quality of the insects caught ; and perhaps also on the situation in which they are built. Their value is chiefly ascertained by the uniform whiteness and delicacy of their texture, the best often selling for their weight in silver. They are a considerable object of traffic among the Javanese, many of whom are employed from their infancy in procuring them. The birds, after having spent nearly two months in the formation of their nests, lay each two eggs, which are hatched in about a fortnight. When the young birds become fledged is the time to take the nests, and this is done regularly three times a year. By means of ladders made of bamboo and reeds the people descend into the caverns ; but when these are very deep, rope-ladders are preferred. This operation is attended with much danger. The inhabitants of the mountains, who

obtain a livelihood by collecting the nests, before they commence the undertaking sacrifice a buffalo ; they also pronounce certain prayers, anoint themselves with sweet oil, and smoke the entrance of the cavern with gum-benjamin. Near some of the caverns a tutelary goddess is worshiped, whose priest burns incense, and lays his protecting hands on every person about to descend. A flambeau is at the same time carefully prepared with a gum which exudes from a tree growing in the vicinity, and which is not easily extinguished by fixed air or subterranean vapours.

O wandering birds ! say where your hid retreats
When the frost rages and the tempest beats ;
Whence your return, by such wise instinct led,
When spring's sweet season lifts her blooming head ?
Such baffled searches mock man's curious pride,—
The God of nature is your secret guide.

GILBERT WHITE.

THE PIGEON.

Columba.

“THE Pigeons,” says Mr. Gosse, “are found in every part of the globe, except in the Polar regions; they are most abundant in the rich islands of the East Indies and the adjacent archipelagoes. Here they multiply prodigiously, and many of the species are marked by an elegance of form and beauty of colouring unknown to ours. Green is the predominant tint, varied, however, and enlivened with yellow, azure, orange, and purple. Our own northern kinds are marked with soft hues, which, though more sober, have a chasteness and delicacy that are scarcely less pleasing. The tender melancholy character of the voice, termed ‘cooing,’ the peculiarly meek and melting expression of the eye, their parental solicitude, and their conjugal affection, have in all ages marked them out as emblems of peace, and love, and tenderness.”

The Pigeon tribe comprises the Pigeons, Doves, and Turtles. The Rock-Dove (*Columba livia*) is the true Stock-Dove, from which the numerous domestic breeds are descended. These birds choose high cliffs for their breeding-places, the steepness of which may protect them from their enemies: they nestle in the holes of these cliffs, sit on the points and little ledges of the rocks, and never perch on trees. "If a pigeon-house," says Mr. Mudie, "is built in a district where pigeon-houses are numerous, or near the native locality of the Rock-Dove, it is soon stocked without any exertion on the part of the owner; and if it be whitewashed, it is stocked the sooner. Hence the proverb, 'Whiten the pigeon-house, and the pigeons will come,' which is applied metaphorically, in order to shew that, by neatness and regularity, friends will be most certainly procured. In the case of the Pigeons, it is the beauty, not the utility of the whitened house, that is the attraction. The females never hatch less than three broods in the year, and sometimes as many as twelve. The shells of so many eggs require a great deal of carbonate of lime: the lime on the whitened pigeon-

house attracts the females, and, as the Rock-Doves are constantly paired, the males of course accompany them. So decided is that attraction to them, that a whitened pigeon-house will entice the stock from those that are neglected, thus making the proverb a literal fact." It is probably a similar instinct which leads the Pigeons to cliffs on the sea-shore, in preference to inland ones, the shells on the beach affording them an abundant supply of lime. No doubt the comparative mildness of the temperature may also be a reason for this preference. The cliffs and caves of the Hebrides are so closely peopled with the Rock-Pigeon, that these haunts have been called "Nature's Pigeon-house." In the rocky islands of the Mediterranean and the north of Africa the Pigeon is equally abundant; and in the island of Teneriffe it is met with in incredible numbers.

The plumage of this bird is of a deep bluish ash-colour, the breast dashed with a changing green and purple, and the sides of the neck are of a rich copper-colour. The wings are marked with two black bars, one on the wing-coverts and the other on the quill feathers. The wings, when closed,

reach nearly to the end of the tail. The legs and toes are pale purplish-red.

It is from this species that most of our curious varieties of domestic Pigeons have arisen, of which there are upwards of twenty, highly prized by pigeon-fanciers. There are also many other varieties, from crosses with other species.

The Stock-Dove (*Columba ænas*) is distinguished from the former by its habits of building in the holes of trees, and roosting in tall ones. In Germany and in some parts of France they migrate at regular periods. The feathers are shorter and more distinct than in the Rock-Dove, and the legs and feet are of a bright cochineal red.

The Ring-Dove (*Columba palumbus*) is the largest of the European species: it is about eighteen inches in length, and in weight about twenty ounces. It is a very handsome bird, with a beautifully shaded plumage, somewhat resembling that of the Rock-Dove, but much darker. The bill is orange-colour; the head, cheeks, and neck of a peculiarly changeable grey. Two spots of white are on each side of the lower part of the neck, almost meeting behind, forming a collar or ring, from which

the bird takes its name. The breast and belly are purplish-red. The hues of the whole plumage pass so beautifully into each other, that few birds are more difficult to describe by colours: these can only be seen to advantage when the living bird moves in the sunshine. In England the Ring-Dove is not migratory; and, although it may be rendered very tame in confinement, no attempt to domesticate them like the Rock-Pigeon has yet been successful, for when they are set at liberty they immediately return to their native woods, and come back no more.

Colonel Montague took great pains in endeavouring to domesticate the Ring-Dove, but without success. He placed some eggs under the common Pigeon in the dove-house; but as soon as the young ones could fly, they always escaped to their proper haunts. Although he so far tamed them within doors as to have them become exceedingly troublesome, yet they never paired. Two that were brought up with a male Pigeon were rendered so tame as to eat bread out of the hand; but, as they shewed no signs of breeding in the spring, they were suffered to fly away, the win-

dow of the room in which they were confined being left open. It was supposed that the Pigeon might induce them to return to their usual place of abode, either for food or to roost ; but from that moment they assumed their natural habits, and nothing more was seen of them, though the Pigeon remained. This gentleman bred up a curious assemblage of birds, which lived together in perfect amity. It consisted of a Common Pigeon, a Ring-Dove, a White Owl, and a Sparrow-Hawk ; and the Ring-Dove was master of the whole.

At a farm-house in the country, a house Pigeon once formed a strange friendship with a cat. The Pigeon had made her nest in a loft much infested with rats, which had more than once destroyed her eggs, or devoured her young ones. Her repeated losses at length induced her to rebuild her nest in another part of the loft, where a cat was rearing three kittens, with whom she contrived to form a strong intimacy. They fed from the same dish, and when the cat went out into the field the Pigeon was often observed to be fluttering near her. The Pigeon, aware of the value of her protection, had placed her nest close to the straw bed

of the cat, and there in safety reared two broods of young ones ; and, in return for the protection she experienced from the cat, she became a defender of the young kittens, and would often attack with beak and wings any person approaching too near.

Although the food of the Pigeon is principally grain, yet when their usual means of subsistence fail they can live upon the leaves of vegetables ; indeed, it probably contributes to their health, for we may observe that Turkeys, though corn-fed, delight in eating a variety of vegetables, such as lettuce, cabbage, &c. Poultry are fond of grass, and Geese live for months together on commons by grazing only.

The Turtle-Dove (*Columba turtur*) is a bird of passage, generally spread over the old continent, being found in Europe, Asia, and some parts of Africa. It is a spring visitor to our shores, “when flowers appear, and the time for the singing of birds is come.” In September it leaves for a warmer climate. In colour, habits, and size it differs from the Pigeon. The Turtle-Dove is a light and slender bird compared with the other species. It is only about two inches shorter, and

two inches narrower in the wings, than the Rock-Dove; and yet it is but half the weight, being from five to six ounces, while the Rock-Dove is from ten to twelve. The head, neck, breast, and back are a delicate wood-brown, tinged with pearl-grey: on each side of the neck is a patch of black feathers tipped with white. The head of the female is of a deeper brown. This bird builds in the thickest woods, forming a shallow nest of small twigs, and (as is the case with nearly all the genus) laying but two eggs of an oval shape, white, and almost half the size of those of the common Pigeon. In England this bird is found most plentifully in Kent, where it is sometimes seen in flocks of twenty or more, frequenting the pea-fields as soon as the produce begins to ripen. It feeds, like the rest of the Pigeons, upon all sorts of grain and seeds, and drinks frequently, and in a continued draught like a quadruped, and not at intervals like other birds.

This bird consumes a great quantity of food; as an instance of this, it is stated that a Ring-Dove was taken from the nest, and kept with the hope that it would breed with other Pigeons at a farm

near Chichester. When eight years old, it was proved to have consumed as many peas as would have brought ten pounds in the market, and was accordingly killed.

The note is a soft and mournful "coo," often uttered when the bird is near to the ground; and, from its soothing accents to its mate, the Turtle has been made the type of attachment and constancy.

Pigeons are particularly attentive to their young, and both male and female assist in feeding their offspring. This they do at first, by means of a milky curd that is secreted in the crop, and which may be compared to milk in quadrupeds. The young Pigeons are fed for a little while with this substance only: about the third day some of the common food of the bird, such as barley, peas, grain, is found mixed with it. As the Pigeons grow older, the curd ceases in the crops of the old ones. In a state of nature Pigeons increase in a prodigious manner; and in a state of domestication it has been calculated, that, at the end of four years, the produce and descendants of a single pair may amount to nearly fifteen thousand.

The Passenger Pigeon (*P. migratoria*) of North

America is perhaps one of the most remarkable of its genus in this way. It belongs to the division called Turtle. It is not so large as our common Pigeon, and of a more slender form. It has a long and pointed tail, the feathers of which diminish from the middle to the edges. These birds assemble in countless numbers in their migrations; and these are undertaken, not to seek a more genial climate, but to obtain food, and they are made at uncertain intervals of time. In this country, where Pigeons are, generally speaking, a domestic bird, few persons have any idea of their immense increase and abundance when left to themselves, roaming over wide tracts, and following almost without interruption their natural habits.

Wilson gives an animated description of these prolific birds. "The beech-nut," he says, "constitutes the favourite food of the Wild Pigeon. In seasons when this nut is abundant, a corresponding number of Pigeons may be expected. It sometimes happens, that, having consumed the whole produce of the beech-trees in an extensive district, they discover another, at the distance perhaps of sixty or eighty miles, to which they regularly re-

pair every morning, and return as regularly in the course of the day or in the evening to their roosting-place. These roosting-places are always in the woods, and sometimes occupy a large extent of forest. When they have frequented one of these places for any length of time, the appearance it exhibits is surprising. The ground is covered to the depth of several inches with their dung; all the tender grass and underwood is destroyed, the surface strewn with large limbs of trees, broken down by the weight of the birds clustering one above another, and the trees themselves, for hundreds of acres, are killed as completely as if girdled with an axe. The marks of this desolation remain for years on the spot; and numerous places could be pointed out where, for several years afterwards, scarcely a single vegetable made its appearance. When these roosts are first discovered, the inhabitants from considerable distances visit them in the night with guns, clubs, long poles, pots of sulphur, and various other engines of destruction. In a few hours they fill many sacks, and load their horses with Pigeons."

It is a wise and merciful dispensation of Provi-

dence, that these birds possess such great rapidity of flight, and the disposition to range over vast uncultivated tracts of land; they must otherwise perish by the famine of their own creation, or devour up all the labour of the farmer. During their migrations the sight they present is almost too wonderful to be credited. They fly at a height beyond gun-shot, in masses so thick that they can only be compared to an enormous cloud, of from ten to a hundred miles in extent. Wilson calculated that one he saw, by no means an unusually large one, must have been a mile in breadth, and, from the time occupied in passing (four hours), more than two hundred miles in length. This prodigious procession must indeed have been a sight of wonder. He also describes their breeding-places as being several miles in breadth and length. One in Kentucky was said to be upwards of forty miles in extent. “In this tract almost every tree was furnished with nests, wherever the branches could contain them. As soon as the young were fully grown, and before they left the nests, numerous parties of the inhabitants from all parts of the adjacent country came with waggons, axes, beds,

cookery utensils, many of them accompanied by the greater part of their families, and encamped for several days at this immense nursery. Several of them informed me that the noise in the woods was so great as to terrify their horses, and that it was difficult for one person to hear another speak without bawling in his ear. The ground was strewn with broken limbs of trees, eggs, and young squab Pigeons, which had been precipitated from above, and on which herds of hogs were feeding. Hawks, Buzzards, and Eagles were sailing about in great numbers, and seizing the squabs from their nests at pleasure; while from twenty feet upwards to the tops of the trees, the view through the woods presented a perpetual tumult of crowding and fluttering multitudes of Pigeons, their wings roaring like thunder, mingled with the frequent crash of fallen timber; for now the axe-men were at work cutting down those trees that seemed to be most crowded with nests, and contrived to fell them in such a manner that in their descent they might bring down several others, by which means the falling of one large tree sometimes produced two hundred squabs, little

inferior in size to the old ones, and almost one mass of fat. On some single trees upwards of a hundred nests were found, each containing one young bird only. It was dangerous to walk under these flying and fluttering millions, from the frequent fall of large branches broken down by the weight of the multitudes above, and which in their descent often destroyed numbers of the birds themselves. The young, when beginning to fly, confine themselves to the under part of the tall woods, where there is no brush, and where nuts and acorns are abundant, searching among the leaves for mast, and appearing like a prodigious torrent rolling along through the woods, every one striving to be in front. A person once rode furiously into one of these rolling multitudes, and picked up thirteen Pigeons, which had been trampled under his horse's feet."

Although the breeding-places present at all times a scene of apparent bustle and confusion, yet there reigns notwithstanding the greatest order and regularity. The old ones take their turn in carefully feeding their young, and when any of them are killed upon their nests, others

immediately supply their places. They breed at least six or seven times during the year; the eggs are about three weeks in hatching, and the young when a week old are completely feathered. At the time of migration they continue their course towards the north, and in December return from thence in the same thick mass. The northern districts must furnish them with an ample supply of food, for at this time they are remarkably fat.

The Passenger Pigeon is well adapted in shape for a speedy flight, having a light active body and long wings, in which the first quill feather is equal in length to the rest, a sure indication of that power of rapid and long-continued flight which they are known to possess.

“The Passenger Pigeon has bred in England. In the year 1832, a pair began a nest on the 26th of April, in the Zoological Gardens, after having been occupied three or four days in selecting a place, which at length they chose in a fir-tree in their enclosure. The female was the architect; but the most laborious office was performed by the male, in collecting and bringing all the materials, principally sticks and straw.

On his arrival with each fresh supply, he carefully alighted on the back of the female, so as not to derange any part of her work. The task was completed in one day; and on the next morning a single egg was laid, and the female immediately commenced sitting, in which she was relieved at intervals by her mate. At about the same time another pair bred in the menagerie of the Earl of Derby, at Knowsley."

The Indians often watch the roosting-places of these birds, and, knocking them on the head, secure thousands during a night. They preserve the oil or fat, which they use instead of butter. There were formerly few Indian towns in the interior of Carolina where a hundred gallons of this oil might not at any time be purchased. By the colonists they are generally caught in nets extended on the ground, to which they are allured by tame Pigeons of their own species, that are blinded and fastened to a long string. The short flights and repeated calls of the shackled birds never fail to excite the curiosity of the wild ones, or bring some of them down to attempt their relief, when they are immediately enclosed. Every farmer has

a tamed Pigeon at his door all the year round, to be ready against the season of their flight.

“I think,” says Mr. Blackburne, in a letter to Mr. Pennant, “that these are as remarkable birds as any in America. They are in vast numbers in all parts, and have at times been of great service to our garrisons, in supplying them with fresh meat, especially at the outposts. A friend told me, that, in the year in which Quebec was taken, the whole army was supplied with this subsistence.” The soldiers, it appears, used to knock down as many as they wanted with clubs, the Pigeons being seen in flights such as we have described for a week at a time. The inhabitants caught vast numbers in nets, and brought them to the market at New York for sale by sackfulls. In the Atlantic states, though they never appear in such unparalleled multitudes, they are sometimes very numerous, and great havoc is made among them with the gun, the clap-net, and various other implements of destruction. As soon as it is ascertained in a town that the Pigeons are flying numerously in the neighbourhood, the gunners are soon at hand; the clap-nets are spread out in

suitable situations, and some live Pigeons being made to flutter on a stick as birds just alighted, numbers of the passing flock are induced to alight and feed on the corn, buck-wheat, &c. which they find strewed about, and, while thus engaged, the pulling of a cord covers them with the net; sometimes ten to thirty dozen are taken at one sweep. Meanwhile the air is darkened with large bodies of them moving in various directions; the woods also swarm with them in search of acorns: they form themselves into a perpendicular column, and fly round the boughs of trees from top to bottom, beating down the acorns with their wings; and they then in succession alight on the ground and begin to eat. The thundering of musketry is heard on all sides from morning to night, and waggon-loads of Pigeons are poured into the market, where they sell at from fifty to twenty-five, and even for twelve cents, per dozen; and Pigeons are universally found at breakfast, dinner, and supper, until the very name becomes sickening. When they have been kept and fattened for some time on corn or buck-wheat, their flesh is much improved.

The Carrier Pigeons are a particular breed of the Passenger Pigeons, and can be so trained, that, when carried to great distances from the place of their usual abode, and turned out, they will find their way back. Some years ago, fifty-six of these birds were brought over from a part of Holland where they are much attended to, and turned out from London about half-past four in the morning: they all reached their dove-cots at home by noon; but one favourite Pigeon, called Napoleon, arrived about a quarter after ten o'clock, having performed the distance of three hundred miles at the rate of about fifty miles an hour, supposing he lost not a moment and proceeded in a straight line; but, as they usually wheel about in the air for some time before they start off, and then probably deviate more or less from the direct course, this first bird must have flown most likely at a quicker rate. A curious way of guessing at the speed of a Pigeon's flight has been noticed in America, birds having been shot which, on opening them, were found to have fed on coffee-berries, so fresh that they could not have been in the stomach more than four or five hours; but, as the nearest part of

the country known to produce coffee was some hundreds of miles distant, it was calculated that they must have flown at the rate of sixty or seventy miles an hour. Few people, however, are aware of the very great rapidity with which birds fly: even the slowest in flight can most of them make their way at the rate of thirty miles an hour. "The flight of the common Swallow has been computed at ninety miles; but that of the Swift has been conjectured to be nearly one hundred and ninety miles per hour."*

The faculty possessed by the Carrier Pigeon of returning without deviation or delay from places whence it had been removed, was from very early days turned to useful purposes. Diodorus Siculus mentions, that, above two thousand years ago, they were used as conveyors of intelligence; and about five hundred years ago, relays of Carrier Pigeons formed part of a telegraphic system adopted by the Turks. Regular chains of posts were established, consisting of high towers, between thirty and forty miles asunder, provided with Pigeons; and sentinels stood there, con-

* Stanley on Birds.

stantly on the watch, to secure the intelligence communicated by the birds as they arrived, and to pass it on by means of others. The note was written on a thin slip of paper, enclosed in a very small gold box, almost as thin as the paper itself, suspended to the neck of the bird. The hour of arrival and departure was marked at each successive tower, and, for greater security, a duplicate was always despatched two hours after the first. The despatches were not always enclosed in gold, but merely in paper, in which case, to prevent the letters being defaced by damp, the legs of the Pigeons were first bathed in vinegar, with a view both to keep them cool, and that they might not settle to drink or wash themselves on the way, which in that hot climate they were often in the habit of doing. When, during the crusades, Acre was besieged by the Christian forces, Saladin kept open a correspondence for some time with the besieged by means of these winged messengers; but one having been accidentally brought to the ground by an arrow before it reached the city, the stratagem was discovered, and the communication, which would have animated the courage of the

besieged by the announcement of speedy succour, being thus betrayed to the Christians, such measures were taken as compelled the surrender of the place before Saladin could arrive to relieve it.

Russell, in his "History of Aleppo," says that the Pigeon was in former times employed in the English factory to convey intelligence from Scanderoon to Aleppo of the company's ships at that port. The name of the ship, the hour of her arrival, and whatever else could be comprised in a small compass, was written on a slip of paper and secured under the Pigeon's wing, so as not to obstruct its flight. The feet were bathed in vinegar to keep them cool, and (as we have before stated) to prevent the bird from being tempted to alight by the sight of water. The Pigeons have been known to perform this journey in two hours and a half, the distance being between sixty and seventy miles in a straight line. When let fly from Scanderoon, they mounted up perpendicularly till out of sight, as if at once to surmount all obstacles intercepting their view of the place of destination.

In the course of a lecture on sensation, delivered at the Royal Institution by Mr. Mayo, when

speaking of instinct, he gave the following account of the Carrier Pigeon. He stated that the Dutch variety was the most valuable, a pair of the best kind being worth from five to eight pounds. This bird is lighter than the English Carrier Pigeon, and flies nearly as fast again. It proceeds at the rate of sixty miles an hour—a mile a minute!—and has been known to complete a journey of eight hundred miles; but, during this, it is presumed it must take occasional rest. When the bird is about eight or ten weeks old, the trainer says it begins to run; that is, it flies away for four or five hours: then its education begins. It is taken about a mile from its place and tossed in the air; it returns: and this manœuvre is repeated every day for a week, and then the distance is doubled. After a time it is carried three, four, eight, twelve, and twenty-four miles, until it is perfect in its exercises. The bird learns but one lesson; it may carry from Antwerp to London, or any other place, but it will only pass between the two places. It travels by sight. When tossed, it circles, then rises spirally, observes its route, and darts off. It will not fly at night; and should the

day prove foggy, its arrival will be much delayed, or the bird may be completely lost. A pair of these Pigeons were sent from Antwerp to Sir John Sebright, at Beechwood: they were confined for two years in a room in which they could not see the horizon, and produced several young ones. The male died, and the female was then put into a place with other Pigeons, from which she disappeared, and Sir John received a letter from Antwerp to say that she had returned there.

The Crowned Pigeon (*Columba coronata*) is remarkable both for its size and the beauty of the crest, from which it takes its name. The bird is as large as a common Turkey, and its head is adorned with a most superb circular crest of feathers, standing erect, composed of loose unconnected webs, of a beautiful tint of grey. The eyes are surrounded by a black rim. The upper part of the back is of a dark reddish-purple, and the wings are of the same shade, relieved by a brilliant scarlet and white. All the rest of the plumage is of the same colour as the crest. The wings are each armed with a horny excrescence, with which the bird can strike a very severe blow. They have

all the habits of the common Pigeons,—billing, inflating their breasts, and cooing. The noise of this cooing is, however, far from having the gentle property of the Dove's complainings, for it is so loud sometimes as more to resemble a bellowing. Some sailors are said to have been greatly alarmed at hearing this noise for the first time in the wild and unfrequented spots in some of the islands on which they landed, fearing it proceeded from a far more formidable creature than this harmless and beautiful bird. This Pigeon is easily tamed, and in the East Indies is kept in court-yards with the poultry: the flesh then becomes very delicate eating. They have frequently been brought to Europe, and are justly considered as amongst the greatest ornaments of the menagerie. .

The Crested Pigeon (*Columba lophotes*), which is an inhabitant of Australia, has a crest of feathers exactly resembling that of the Peewit. The Bronze-winged Ground Pigeon (*C. chaleoptera*), also a native of Australia, usually rests on the ground, where it frequently builds. It is commonly seen with its mate; and their retreat is readily discovered by the loud and sonorous coo-

ing, which at a distance resembles the lowings of a cow. The Ground Pigeon of Brazil (*Columba Talpicoti*) is the smallest of the Pigeon family, measuring but six inches in length. Another American species, the Tambourine Pigeon (*C. tympanistria*), takes its name from the loud cooings of the male, which at a certain distance resembles the sound of that instrument of music.

The feeling in favour of Doves and Pigeons is very general among the natives of other countries besides our own. The Turks will not allow them to be killed, as one of the race is reported to have taken shelter in the sleeve of their prophet Mahomet. The Pigeon is also sacred in Russia, and to kill and eat them is considered an act of profanation, from the circumstance of the Holy Spirit having assumed that form. A writer in the "Naturalist" says that he once shot six Pigeons near St. Petersburg, and took them, for the purpose of being put in a pie, into the kitchen. When he threw them on the table, a Russian servant who was standing near, after several ejaculations against his cruelty and impiety, snatched up one of the dead birds, and commenced kissing and

fondling it, as if to shew that he had no share in so profane an act as he considered killing a Pigeon to be.

Two species of Doves are seen in great numbers about the habitations of the Javanese, one being small, and the other of a delicate-cream colour with a narrow black semicircular mark about the neck. The small species (which is the most esteemed) is called "Perkutut" by the Javanese, and the larger one "Puter." "Conversing with a Javanese," says Mr. Bennett, "he appeared delighted to give me some account of his pets. Seeing them attended with so much care, I inquired the reason of their being such favourites, in preference to birds of far more beautiful plumage, so abundant on this magnificent and fertile island. In reply, he informed me, that, 'when these birds are kept about the house, it will not be destroyed by fire, or be liable to the depredations of thieves.' As an instance of their having this power, should I be sceptical on the subject, he gravely assured me, that, during the heavy rains, in February, 1832, when most of the houses were inundated, one was preserved from the flood by this bird being in it; the water flowed

round the habitation, but did not enter ! When the birds are kept in a state of confinement, it is said by the Javanese that they pass small green stones, sometimes one every week, and continuing to do so for a year or two : these stones are much esteemed, valued as high as thirty or forty rupees each, and are set in rings, &c. The stones, according to native information, are always found on a Friday, which is the Javanese Sunday. The birds are valued at from fifty to a hundred rupees each ; the natives never eat them. A European at one time gave some he had shot to his Javanese servant to eat, but he would not touch them. Every Friday they take the birds out of their cages, wash them in rice water, administering at the same time some small pills, (composed of such a multiplicity of ingredients, that my Javanese informant said it would take too long a time to give me the names of the whole,) otherwise the birds would not live ; for that, if they were not washed, and did not take the physic, they would have small white worms in the corners of their eyes and nostrils, which would soon destroy them. ‘ Yesterday,’ (Friday) said my amusing Malay informant,

pointing to a Dove, ‘I washed this bird, and gave him his physic!’ He was so highly pleased at my taking an interest in his birds, that he presented me with a pair of cream-coloured Doves, which, he observed, ‘would speak like a clock every hour.’ The smaller species was the one possessed of the preserving qualities against fire and flood. He apologised for not making me a present of it, and gave, in my opinion, the best of reasons that a married man could, which was, ‘His wife would not let him part with it.’ My Doves, when on board, *cooed*, or, as the Malay said, *talked*, when the bells were struck, but as frequently *cooed* or spoke out of the regular time; so they did not answer the purpose of a clock.”

THE DODO.

Dido ineptus.

WHEN the Mauritius, or Isle of France, was first discovered, a great bird, incapable of flying, was found to be an inhabitant of the island. From its unwieldy size, and difficulty of escaping pursuit, it appears to have been most greedily seized upon by the settlers as an article of food, and was pronounced by them to be “extremely good eating.” After a time, however, “the Turkies,” as they were called, lost their flavour; and we find from the old traveller Lawson, that, “although a good appetite was never wanting, still, that the fat turkies began to be loathsome, and a continuance of the diet made them weary, so that they preferred ‘turtle doves,’ and that even two polecats were esteemed before this rich and enormous bird.”

This so-called Turkey afterwards known by the

name of Dodo, has now ceased to exist in the Mauritius, and all that we now possess, belonging to the bird, is a head and foot deposited in the Ashmolean Museum at Oxford, and a foot, which is in the British Museum. In the latter place, there is also a figure of the whole bird, painted in oil, supposed to represent the living animal.

The specimen from which the painting was made, is said to have been brought from the East Indies. Professor Owen, during a visit to the Hague, saw there a picture, painted soon after the Dutch became possessed of the Mauritius, in a corner of which was a figure of the Dodo, extremely small, but so elaborately finished as to enable the Zoologist to characterise the species.

Various opinions have been entertained as to the family to which the Dodo belongs. It has been considered to belong to the vultures, the ostriches, and the swans. One of our very old naturalists considered it decidedly to belong to the latter named family ; and it is rather singular that the Dutch gave the name of Swan Island to the Mauritius, perhaps from the great number of these birds which were found there. The Dodo, al-

though fully equal to the swan in size, differed greatly in form, and for many years was popularly supposed to belong to the ostrich family. From recent researches, it has been decided by Mr. Strictland, that it is closely allied to the pigeon family; and he supposed that the Dodo fed upon the cocoa-nuts, mangoes, and other fruits, which, in tropical forests, fall from the trees at all seasons of the year.

The figure in the accompanying cut, taken from the painting in the British Museum will, perhaps, give a better idea of this curious bird than any lengthened description. The representations of the Dodo in early printed books, are evidently not copied from each other, but they all agree in depicting the sort of hood on the head, the eye placed in a bare skin, extending to the beak, the curved and swelling neck, the short, heavy body, the small wings, stumpy and scaly legs, and diverted claws, and the tuft of rump feathers. In Herbert's Travels, published in 1634, a quaint and curious description is given of the Dodo, accompanied by a plate. The bird is there said to be "round, and extremely fat, her slow pace begetting this corpu-

lency, few weighing less than sixty pounds, the flesh better to the eye than the stomach, the wings too so small as to be unable to hoist her from the ground, her plumage shades of grey and yellow, soft as that of a gosling, the train consisting of three or four short feathers, her eyes round and bright as diamonds." In Willoughby's Ornithology, published about the end of the seventeenth century, a drawing is also to be found, taken from a work on the East Indies, by Jacob Bontius. The great naturalist Ray, says "that he saw the Dodo dried, or stuffed, in the cabinet of John Tradescant.

Tradescant was a person who had a very curious museum at Lambeth, and in his printed catalogue we find the following item: "*Whole* birds, Dodar from the Island Mauritius, it is not able to fly, being so big." This specimen unfortunately became decayed, and was destroyed by an order of the visitors in 1755. The beak and leg only are preserved in the Ashmolean Museum. It is much to be regretted that the skin was not also kept. Of the former existence, as we have before mentioned, of the Dodo, there can be no doubt;

and if it has become wholly extinct in the Mauritius and Bourbon islands, from its value as an article of food, and its incapability of escaping pursuit, yet, in some other part of the still unexplored world it may, we hope, one day, again come under the notice of man. Professor Owen lately read a communication to the Royal Institution of London, on the Wingless Birds of New Zealand, and from bones that have been received in England at different times, stated his belief that the Dodo, or bird greatly resembling it, had been an inhabitant of that country. He also referred to the recently discovered foot-prints of a bird similar to this gigantic wingless bird of New Zealand (to which he has given the name *Dinornis*) in the sandstone of Connecticut. The country from which these bones have been received, appears to abound with ferns, whose roots are rich in farinaceous substance, well calculated for the support of the Dodo.

When it is remembered that the only animal found in New Zealand, at the time of its discovery by the Europeans, was a small species of rat, it seems extremely probable that this vast bird hav-

ing inhabited these islands before they were occupied by man, was destroyed by the first settlers, who then, as may be conjectured, having acquired a taste for animal food, and finding no other, took to eating one another. Mr. Owen illustrated his discourse by a conjectural drawing of the figure of the *Dinornis*. Its height, which he supposes to be 14 or 15 feet from head to foot, was contrasted with that of the birds most nearly resembling it, the cassowary and the ostrich.*

“ The agency of man, in limiting the increase of the inferior animals, and in entirely extirpating certain races, was perhaps never more strikingly exemplified than in the case of the Dodo. That so remarkable a species should have apparently become extinct within little more than two centuries, so that even the fact of its existence at all has been doubted, is a circumstance which may well excite our surprise, and turn our thoughts to similar changes which have been and still are gradually going on in our own country. The bear, the wolf, the beaver once inhabited Great Britain: these, with the wild boar, are now never heard of. The

* Edinburgh New. Phil. Jour. Vol. 36.

wild cat and the badger, though once so common, are now become extremely rare. The eagle is scarcely to be seen, except in the wildest fastnesses of Scotland; and the crane, the egret, and the stork, have fled before the approaches of civilization. A single bustard is now rarely found, and these birds were formerly common on our moors and downs in flocks of forty and fifty. In Scotland and Ireland the wood grouse is entirely destroyed.

“ How rich the Peacock, what bright glories run
From plume to plume, and vary in the sun,
He proudly spreads them to the golden ray,
Gives all his colours, and adorns the day ;
With conscious state, his spreading train displays,
And slowly moves amid the waving blaze.”

THE PEACOCK.

Pavo.

THE order Gallinacea, or Poultry, in ornithology, to which the Peacock belongs, is one of the most useful and valuable to man, but this beautiful specimen of the family, so elegant in its form and magnificent in its plumage, is generally kept more as an ornament for the lawn and garden than as a profitable and useful inhabitant of the poultry-yard. There are but two species known; both inhabit Asia. The Peacock, common in this country, is the crested or common Peacock (*Pavo cristatus*,) and as there can be but few who are not familiar with the brilliant colours and matchless plumage of the bird, which combine every thing that can charm the eye, a minute description of its splendid attire would be, perhaps, unnecessary. Indeed it is scarcely possible to give a just idea of the dazzling changes which the reflec-

tion of light produces. From the remotest period the Peacock has, from this cause, attracted attention. The earliest notice of it will be found in the Bible ; the mariners of king Solomon, among many other productions, having carried Peacocks to their royal master. Alexander the Great, when he entered India, found them flying wild on the banks of the Hyarotis, and was so much struck with their beauty, that he decreed a severe punishment on all who should kill or molest them ; but towards the close of his reign they had been brought to Greece, and had there so much increased, that Aristotle speaks of them as birds well known to his countrymen. They were introduced into Rome, and the epicures of that luxurious city soon made the flesh a favourite dish, and the price given for them was exorbitant. One of the Roman emperors took a pride in collecting large dishes of the heads or brains of Peacocks, which seem to have had nothing to recommend them but the enormous expense at which they were procured for the indulgence of his epicurean taste. At an early period of English history, scarcely any noble feast was without the Peacock, which was

stuffed with spices and sweet herbs, roasted and served up whole, being covered after dressing, with the skin and feathers. This was also the custom on the Continent, and at wedding entertainments the beak was sometimes filled with cotton and camphor, which was set on fire for the amusement of the guests. Pope Leo X. is said to have been particularly partial to white sauces, in which the Peacock's flesh was an ingredient. The young birds only are now considered fit for the table, the flesh of the old being both hard and dry. The eggs have a rather strong flavour. The brilliant train of the Peacock is not, as is generally supposed the tail, the long feathers grow from the back, and are supported by a range of short brown stiff feathers, fixed upon the rump, which is the real tail, and serves as a support to the train. When the train is elevated, nothing of the bird appears in front except its head and neck, which would not be the case if these feathers were not fixed on the back. The ordinary length of the Peacock, from the tip of the bill to that of the tail, is about four feet. The head is surmounted by a crest of four-and-twenty upright feathers,

with round-eyed tips; the tail-coverts are composed of numerous feathers with loose barbs, and of unequal sizes, the upper ones shortest, and each terminated by an eye of metallic brilliancy. These feathers the bird can raise at will into a circle, which presents when the sun shines, a well-known object of dazzling splendour. The female has the crested head, but not the splendid ornament with which the male is gifted, her colours are of a sombre shade, excepting her throat and neck, which are green like the males. The females of this species have, however, been known, like the pheasant, when past breeding, to assume the attire of the male, and also to have the spurs. When pleased or delighted, and in company with his females, the Peacock erects his train, and by a powerful muscular vibration, makes the shafts of his feathers clatter; he then turns slowly round as if to catch the sun-beams in every direction and shew himself off to the greatest advantage, accompanying this movement with a low murmuring; at other times his cry is very disagreeable, and often repeated, especially before rain. As Peacocks in this country do not fly very well, they climb from

branch to branch to the tops of the highest trees. From these and from the roofs of buildings it is that they usually make their harsh and peculiar cry. In this cry one note is deep, and the other sharp, the latter exactly an octave above the former, and both have somewhat of the piercing sound of a trumpet.

Every year the Peacock sheds his superb plumes; and then, as if conscious of his loss he courts the most obscure retreats, until a new spring restores to him his usual attire. The young acquire the perfect brilliancy of their plumage in the third year. In cold climates they require great attention in rearing, and should be fed on grass, meal, cheese, crumbs of bread, and insects, until they are six or seven months old, when they will eat wheat, and various sorts of grain, like other gallinaceous birds. The favourite food of Peacocks is barley, but at times they are not at all particular in their diet, sometimes being very capricious, and seeking almost any kind of food. At a time when the Peacock has plenty of natural food at command, it will eagerly seek after insects and tender plants. During the indulgence of these

appetites, which arise doubtless from some peculiar instinct, walls cannot easily confine it; it strips the tops of houses of their tiles or thatch; lays waste the labours of the gardener, roots up his choicest seeds, and nips his favourite flowers in the bud. In India, one of its most mischievous propensities is pecking at the eyes of children, which it probably takes for some glistening object of prey. The Peacock, though a native of Asia, may now be considered as almost naturalized in the other quarters of the world; the species has been conveyed as far north as Sweden and Norway, although not without suffering considerable diminution, both in size and beauty. They have long since been transported to Mexico, Peru, and the West Indies, and are known to thrive in North America, notwithstanding the severity and duration of the winter season. When full grown, the Peacock is not easily injured by cold, and an instance is quoted of one which, in 1776, was found quite frozen, and had lain in a court-yard at Dunkirk for some days covered by the snow. By the application of a gentle heat it recovered from the accident, and continued to live as if nothing par-

ticular had happened. The Europeans first carried Peacocks to the coast of Africa, and they are now domesticated by the princes of those countries, particularly of Congo and Angola, where they are greatly prized, both as food and for their gay plumage. Peacocks are frequently found entirely white. This variety occurs sometimes in the wild bird, but more generally is found in the domesticated one. Pied varieties are also sometimes seen, and when the deep blue of the neck and breast is contrasted with pure white they form a beautiful and much sought-for specimen among collectors for a menagerie. In the white variety, the feathers, from retaining their structure, exhibit all the markings of the eyes in the tail and other parts distinctly, according as the light falls. Peacock-shooting is a favourite amusement in India, where, in some parts, they are extremely abundant. "About the passes in the Jungleterry district," says Colonel Williamson, "I have seen such quantities of pea-fowls as have absolutely surprised me. Whole woods were covered with their beautiful plumage, to which a rising sun imparted additional brilliancy. The

small patches of plain among the long grass, most of them cultivated, and with mustard then in bloom, which induced the birds to feed, increased the beauty of the scene; and I speak within bounds when I assert that there could not be less than twelve to fifteen hundred pea-fowls, of various sizes, within sight of the spot where I stood for nearly an hour. When they are in numbers scattered in a jungle, it is easy to get a shot, but I have always found much difficulty when the birds flock together, as they frequently do, to the number of forty or fifty. At such times it is not easy to raise them. They run remarkably fast, and I doubt whether a heavy spaniel or pointer could raise them. They are very jealous of all quadrupeds, especially of dogs; and when Peacocks are discovered on a tree situated on a plain, if a dog be loose and hunt near it, the bird will rarely move from its situation, though it will probably shew extreme uneasiness."

When on the wing, Peacocks fly very heavily and strong; they abound chiefly in close wooded parts, where there is an extent of long grass for them to range in, and will remain only where they

can have free access to water, as they drink a great deal. Thick plantations are their favourite shelter. If there be trees near such spots, the Peacocks may be seen mounting into them every evening towards dusk to roost: here they generally continue until the sun rises, when they descend to feed and pass the mid-day in the heavy covers which defend them from the ardent heat of the sun. When the peepul berries or figs are in season, the flesh of the Peacock is rather bitter; but when they have fed for a time among corn-fields, it becomes remarkably sweet and juicy. The breast is considered, when cooked in cutlets, as a delicate dish, the remaining parts make excellent soup. The Peacocks are fond of frequenting mustard-fields, and fatten well after the pods are formed. Mustard is cultivated in India in large quantities. A kind of wild rice grows in many parts of the country, especially in swampy lands; the grain is very small but sweet, and is much relished by every kind of game. Though peafowls invariably roost in trees, yet they make their nests on the ground, and commonly on a bank raised above the common level, where, in

some bush sufficiently large, they collect leaves, small sticks, &c. and sit very close. "I have frequently," says Colonel Williamson, "seen them in their nests, but as I refrained from disturbing them, they did not attempt to move, although they could not fail to know that they were discovered. They usually sit on about a dozen or fifteen eggs. The old birds may often be seen leading out broods of a dozen or more chicks. They are generally hatched about the beginning of November; and from January to the end of March, when the corn is standing, are considered, when roasted, a great delicacy." The flesh of the Peacock, in hot countries, continues sweet longer than that of any other fowl. The Peacock is said to live about twenty-five years, though Willoughby and other naturalists state that it is capable of existing for a century. We have known a specimen at least thirty years old, but the bird had led a singularly happy life; he was one of a brood hatched on the day that an heir was born to some considerable property; and being the only survivor of the lot, he received great attention, and was so judiciously treated, that he became a remarkably

handsome bird, and was known to shew great marks of attachment to those who fed him with any unusual delicacy. We are not disposed to consider the Peacock to be so stupid a bird as is generally supposed. One at Gravesend, which has the range of a fine large garden, seems not only to be aware of his kind mistress's attention, but to take particular notice of a monkey, which, in fine weather, is brought with his stand on the lawn. As soon as Jacko was on the grass, the Peacock would approach to just within the limit of his chain, and give Jacko a slight peck, upon which Jacko would chatter and appear very discomposed, suddenly perhaps, snatching a feather from the splendid train. The Peacock would then set off as if to run away, but return unexpectedly, if Jacko had his back turned in that direction, and sweeping his whole train over him, perhaps knock him down with it. These antics did not hinder them from being good friends in the main, and they would feed on bread together, though, if a piece of equal size was placed before each, Jacko would immediately, if the Peacock was not too quick for him, greedily secure his own with one

hand and his neighbour's with the other. It was very amusing to watch the gambols of two animals which, if in a state of nature, would be more foes than friends. A desire for society had, we suppose, led to the singular intimacy, for, although they spent a great part of the time they were together in mutual teasing, I was told, that whenever the monkey was brought into the garden, the Peacock directly appeared, and then spent as much time as possible with his frolic-loving friend, and always greeted him with a loud scream or two. Few sounds, as we have before remarked, are more discordant than the note of the Peacock ; it always grates unpleasantly upon the ear. When our sweet songsters are filling the air with their exquisite music it sounds particularly inharmonious and unwelcome, requiring all the brilliant appearance of the bird to atone for his unmusical voice. In his native wilds, we can readily believe that a chorus of Peacocks must be "an astounding clamour." It is singular, that the bright birds of the torrid zone, either possess this harsh kind of scream, or are totally silent, while those of the temperate zone, with more sober plumage, are

noted for the melody of their song. Each climate, however, has birds peculiar to itself. The frigid zones, where the seas abound with fish, possess birds of the aquatic kind in greater abundance than any other. These are clothed with thick and exceedingly beautiful and soft plumage, though not of brilliant colour. Besides being thus clothed warmer, they are supplied with quantities of fat under the skin to defend them from the rigours of the severe climate in which they exist. It is this provision of nature which enables the Eider Duck to survive the cruel “down-stripping” by the natives, to which it is exposed at certain times of the year. The feathers of the Peacock are a favourite ornament for head-dress in the east. They are formed into many pretty ornaments, and may be made into fans as beautiful as the celebrated one belonging to Queen Elizabeth, which was so covered with gems, that it ‘sparkled in the sun, and dazzled the eyes of all beholders!’” The Peacock, formed of gold and precious stones, which once belonged to Hyder Ali, and now forms part of the royal treasure in the gold pantry at Windsor, bears but a faint resemblance to the train of

the living bird when outspread in the mid-day sun. The richest furniture in the apartments of the nobles during the middle ages, was painted in such a manner as to represent this beautiful object; and the Peacock's feathers, formed into a crown were bestowed by ladies on their favourite minstrels. The eyes were understood to express that the attention of the whole world was fixed on them. In those days of chivalry, the figure of a Peacock was hung up in the place where the knights exercised their horses; and before the Peacock, when roasted and dressed in its plumage on table, all the guests took a solemn vow, the knights vowing bravery, the ladies promising to be loving and faithful. It was, no doubt, in consequence of the veneration thus bestowed on the bird, that Queen Elizabeth chose to select a gorgeous robe in which to have her picture taken, covered with eyes, representing in embroidery and precious stones, those of the Peacock's tail.

How pleasant the life of a bird must be,
Wherever it listeth there to flee!
What joy it must be like a living breeze
To flutter about 'mong the flowering trees;
And away through the air what joy to go,
And to look on the bright green earth below!

Mrs. Howitt.

THE LYRE-BIRD.

Mænura superba.

NEW HOLLAND, a country which affords a rich harvest to the lovers of natural history, in the production of so many specimens of the singular and the beautiful, is the native country of this rare bird. The plumage is but sombre in appearance, but the truly magnificent tail gives it a fair claim to our warm admiration. The body is about the size of a common pheasant, and covered with dull brown feathers, inclining to red on the quill feathers. The tail is considerably longer than the body, and in the male bird, is formed of feathers so arranged, and of such singular kinds, as to bear, when raised, a great resemblance to the ancient Greek musical instrument from which it takes its name. The two principal feathers of this beautiful appendage are thicker in appearance than the rest, and have the inner edges scalloped alternately, of a

deeper or lighter brown, inclining to orange, shading gently into a white or silvery colour next the stem; they cross, and at the end are surrounded by a black border. Two other bluish feathers somewhat resemble a broad ribbon, the rest are of the most delicate texture, more like the skeletons of feathers than perfect ones. The bill is long, the legs strong, and armed with powerful blunted nails, which enables it to scratch in the ground for the insects and seeds upon which it feeds. When this bird was first discovered, it was considered, from the singular tail, to be a variety of the Bird of Paradise, but it is now classed among the *rasores*, or birds whose general habits confine them to the ground. It somewhat resembles the poultry family, but differs from them in possessing a rich and melodious voice. Mr. Gould remarks, that the Lyre-Bird is the shyest bird he ever met with; it but rarely takes wing, and when pursued, generally escapes by running into the thick brushwood, and is therefore most difficult to secure. Whilst in the bushes, he has been surrounded by these birds, pouring forth their loud and liquid calls, for days together, without being able to get a sight of

them ; and it was only by determined perseverance and extreme caution, that he was enabled to effect this desirable object, and which was rendered the more difficult by the birds often frequenting the almost inaccessible and precipitous sides of gullies and ravines covered with tangled masses of creepers and thickly-clothed trees. The cracking of a stick, the rolling down of a small stone, or any noise however slight, is sufficient to alarm it ; and none but those who have traversed those rugged, hot, and suffocating brushes, can fully understand the excessive labour attendant on the pursuit of the Lyre-Bird. Independently of climbing over rocks and falling trunks of trees, the sportsman has to creep and crawl beneath and among the branches with the utmost caution, taking care to advance only when the bird's attention is occupied in singing, or in scratching up the leaves in search of food. To watch its actions it is necessary to remain quite motionless, or it vanishes from sight as if by magic. In some of the more accessible brushes, where roads have been cut, the bird, strange to say, will permit the approach of man, if on horseback, thus apparently feeling less fear of a horse than of

man. At Illawarra it is sometimes successfully pursued by dogs, which are trained to rush suddenly upon it, when it immediately leaps upon the branch of a tree, and its attention being attracted by the dog, which stands barking below, it is easily approached and shot. Another successful mode of capture is, by wearing the tail of a full-plumaged male in the hat, keeping it constantly in play, and concealing the person in the bushes, when the attention of the bird is excited by the apparent intrusion of another of its own sex, and it will be attracted within the range of the gun. If the bird be hid from view by surrounding objects, by any unusual sound, such as a shrill whistle, it may generally be induced to shew itself for an instant, when it leaps with a gay and sprightly air upon some neighbouring branch to ascertain the cause of the disturbance. Advantage must be instantly taken of this circumstance, or it may be halfway down the gully the next moment.

“So totally different,” says Mr. Gould, “is the shooting of this bird, to any practised in Europe, that the most expert shot would have but little chance until well experienced in the peculiar nature

of the country and the habits of this shy bird. None are so clever in taking them as the naked black, who glides with noiseless steps, and steals upon the bird unheard; armed with a gun, he rarely allows it to escape, and he will often kill it even with his own simple weapons.

The Lyre-Bird is of an extremely wandering disposition, and though it probably keeps to the same brush, is constantly engaged in roaming through it, from one end to the other, from mountain-top to the bottom of the gullies, whose steep and rugged sides present no obstacle to its long legs and powerful muscular thighs. It is also capable of performing extraordinary leaps, springing sometimes eight or ten feet from the ground. It appears to be of solitary habits; Mr. Gould never saw more than a pair together, and these only in a single instance. Both of these were males, and they were chasing each other round and round with extreme rapidity, apparently in play, pausing every now and then to utter their loud shrill calls: while thus employed, they carried the tail horizontally, as they always do when running quickly through the bush, that being the

only position in which this great organ could be conveniently borne at such times. Among its many curious habits, the only one at all approaching those of the poultry, is that of forming small round hillocks, which are constantly visited during the day, and upon which the male frequently may be seen trampling, at the same time erecting and spreading out his tail in the most graceful manner, and uttering his various cries, sometimes pouring forth his natural notes, at others, mocking those of other birds, and even the howling of the native dog or dingo.*

In Cunningham's Letters from New South Wales he gives a very similar description of the vocal powers possessed by this bird. "Our Mountain Pheasant (one of the names given to the Lyre-Bird) is not only a bird of song, but an exquisite mocking-bird besides. He perches himself in the middle of some thick brush, and picking up carefully all the grass, scratches and raises a bed of

* This animal is described by Cunningham, "as somewhat resembling the shepherd's dog, running with great speed, and snapping in attack or defence. It does not bark, but howls in a melancholy strain when prowling in quest of prey."

soft mould for himself, like a small hot-bed, on which he squats and amuses his leisure-time with imitating the notes of all the birds, and the calls of all the quadrupeds of the forest, from the howl of the native dog, to the discordant clack of the black native."

The early morning and the evening are the periods when the Lyre-Bird is most animated and active. Independently of its loud full call, which may be heard at the distance of at least a quarter of a mile, it possesses an inward and varied song, the lower notes of which can only be heard when you have successfully approached within a few yards of the bird when it is singing. This animated strain, is frequently discontinued abruptly, and again commenced with a low, inward snapping voice, ending with an imitation of the loud and full note of the Satin Bird, and always accompanied with a tremulous motion of the tail. Like the Peacock, the Lyre-Bird loses this attractive ornament every year. During June and the four succeeding months it is in the greatest beauty; after this, the feathers are gradually shed, and the new feathers begin to appear in February or

March. Mr. Bennett says that the tail-feathers detached entirely from the male bird are greatly sought for by collectors, on account of their elegance and beauty, and are sold in the shops of zoological collectors at Sydney in pairs, formerly at a cheap rate, as the birds then abounded in the mountain ranges of the Illawarra district; but now, that the bird from its frequent destruction has become rare, these tails have attained a price of from twenty to thirty shillings the pair. About the ranges of the Tulmat country, where they have been seldom molested, they are more frequently seen. The aborigines of New South Wales, in addition to the feathers of the emu, decorate their gaudy locks with the splendid tail-feathers of this bird whenever they can procure them. Mr. Gould, to whom we have been greatly indebted in our present description of this singular bird, regrets that he never had an opportunity of seeing its eggs. A deserted nest was pointed out to him by one of the natives, which was placed on the prominent ledge of a rock, in a situation quite secluded from observation behind, but affording the bird a commanding view and easy retreat in front. It was

deep and shaped like a basin, and had the appearance of having been roofed; was of a large size, formed outwardly of sticks and lined with fibrous roots and the inner bark of trees. Mr. Bennett describes the nest as being much less compact, “merely consisting of dried grass or leaves scraped together; and states, that the female lays from twelve to sixteen eggs, of a white colour, with a few scattered light blue spots.” The natives generally represented to Mr. Gould, that the nest was like that of a magpie. Great difference of opinion, however, had always prevailed with regard to the habits of this singular bird, and we sincerely hope that continued research may be made, till all doubts and discrepancies may be removed on the subject.

The first specimen of the Lyre-Bird ever described, was one obtained under rather interesting circumstances. “At the first English colony in New South Wales, some Irish emigrants in the settlement, determined, in spite of every opposition, to go in search of a fresh one for themselves. The governor, after ineffectually trying corporal punishment, determined, with the view of checking the spirit of desertion, to convince the

headstrong Irishmen, by their own experience, of the dangers and difficulties attending the step they were about to take. He accordingly caused four of the strongest and hardiest among them to be chosen by their own party, and properly prepared for a journey of discovery. They were to be accompanied by three men upon whom the governor knew he could depend, and who were to conduct them back when fatigued and exhausted with their journey; the route of which was purposely selected through the worst and most dangerous parts of the country. A conspiracy was directly formed to murder the three guides, and on its discovery, four soldiers were added to the guard to prevent a recurrence of the circumstances. On the 14th January, 1789, they set off from Paramatta. On the 24th the soldiers returned with three of the adventurers, who having gained the foot of the first mountains, were so completely wearied of the journey, and of the prospect before them, that they requested to return with the soldiers, whose mission here ended. Their privations had completely sickened them; they had suffered greatly both for want of food and

water; for two days the party had but one rat about the size of a kitten as a means of subsistence, and they must have perished if they had not been so fortunate as to shoot a kangaroo. The birds were too shy to be approached within gun-shot, most probably being Lyre-Birds, which they called Pheasants, from the length of tail and general appearance. The remainder of the party returned in February, in a most wretched condition, bringing with them a specimen of the Lyre-Bird, which they also called a Pheasant. On examination it was then decided to be a variety of the Bird of Paradise, and a drawing was made from it on the spot. Mr. Bennett, in regretting the rapid disappearance of the interesting animals in New South Wales, caused by their being pursued even to extermination, whether useful or dangerous, particularly regrets the probability that the Lyre-Bird may be added to the number. In the settled parts of the colony, the harmless kangaroos and emus are very rarely seen, when they might easily be domesticated about the habitations. The same remark applies to the Lyre-Birds. Why are they not domesticated before the wild race is

lost by extermination? It is indeed much to be regretted that no attempts have been made not only to do this but to bring these magnificent birds to England. There can be but little doubt that they would live as well in this country as other Australian animals, and would form a striking addition to our aviaries, or even become inmates of the farm-yard, and prove as useful as they are most decidedly ornamental. In the rich museum of the Zoological Society there is a good preserved specimen of this curious bird. It is there placed among the Rasores. The specimens once in the possession of Sir Joseph Banks have been placed in the British Museum. Mr. Gould gives an additional interest to the Lyre-Bird, by stating that if he were requested to suggest an emblem for Australia among its birds, he should, without the slightest hesitation, select the *Mænura* as the most appropriate, it being not only strictly peculiar to Australia, but as far as is yet known, to the colony of New South Wales. In his magnificent work, "The Birds of Australia," the Lyre-Bird, whose style of plumage and voice well entitle it to the name it bears, forms the head-piece to every number.

“ The Ostrich skims the desert plain with speed,
That mocks the rider and pursuing steed.”

OSTRICH.

Struthio Camelus.

THE Ostrich, the largest bird in the creation, is in general appearance not unlike a camel. It may, indeed, be almost considered a link between the bird and that quadruped; for although it has wings, they do not enable it to leave the ground. The greater part of the body is covered with hair in place of down; the upper eyelid is moveable, and furnished with long eyelashes, and the eyes are more like those of man than of a bird. The formation of the foot is very similar to that of the camel, and, like that animal, it has not only a callosity on the breast and under part of the body to serve as a support when at rest, but lies down in the same manner as the camel, by first bending the knees, then leaning on the breast, and bringing the under part of the body to the ground. When we add to this that both alike inhabit sandy and

desert plains, and possess stomachs very similar in structure, enabling them to live for a long time without water, the resemblance cannot be considered merely as a fanciful one. The Ostrich, when standing upright, is from six to eight feet in height; but from the ground to the top of the back it seldom exceeds four feet, the rest of its height being made up by its extremely long neck. In length the Ostrich is, from the tip of the bill to the end of the tail, from six to eight feet. Occasionally the bird has been found to exceed these dimensions. In the "Gentleman's Magazine" for December, 1750, it is recorded "that a sea-monster, a huge ox, and two Ostriches were to be seen alive; that the Ostriches were ten feet in height, and that the male weighed three hundred pounds and a quarter." These are the largest that have ever been noticed, and the group of animals thus presented to the public must have been an imposing spectacle. In the following year the Dey of Tunis presented the King of England with a pair of Ostriches and a fine young lioness.

In proportion to its size, the head of the Ostrich is small, and not unlike that of a Goose: the bill is

also somewhat similar, but four inches and a half in length, and of a yellowish colour tipped with dusky black. The head and greater part of the neck are bare of feathers, of a flesh-colour, with a few scattered hairs. The wings are unfit for flight, being composed of long soft flexible feathers; they are armed with a double spur. The muscles of the legs are very large, and well adapted for the long and powerful strides of the animal. The body is black, the feathers varied with white and grey; the primary quill and tail feathers pure white. The female is brown or ash-grey where the male is black. They run with great rapidity, and unfold their beautiful plumes in the course, less for the purpose of aiding their flight than of counterbalancing their great height, for they raise them whether running with the wind or against it.

The sandy and barren deserts of Asia and Africa are the native home of the Black or Great Ostrich. There they roam at large, and in flocks which have been compared at a distance to a body of cavalry. The Black Ostrich is distinguished from others of its species by its greater size, and possessing but two toes, all the rest having three.

The American Ostrich (*Struthio Americana*), the Galeated Cassowary (*Struthio Casuarius*), and the Emu (*Dromaius Novæ Hollandiæ*), a species found in New Holland, are all large and powerful birds. The American Ostrich is full six feet high ; while the Cassowary, though equalling it in bulk, appears of less consequence, from the neck being much shorter. It has, indeed, much the appearance of an enormous Turkey.

The natural food of the Ostrich is entirely of a vegetable description, as grass, fruits, grain ; but their stomachs are of so extraordinary a conformation, and their voracity so keen, that they will gulp down hard and even noxious matters, such as wood, stones, glass, lead, iron, copper, &c. It has been stated that the Ostrich has the power of digesting such substances. And from that circumstance it has been called the “iron-eating Ostrich,” so that the digestion of an Ostrich is frequently quoted as a most enviable gift of nature. These opinions are quite erroneous ; and we may add that the animals frequently fall victims to their undistinguishing and voracious appetite, and have been known to die in consequence

of eating quick-lime, bits of copper, nails, &c. In 1827, a pair of Ostriches were kept in the Jardin du Roi at Paris. The female bird swallowed a triangular piece of glass which fell from a broken pane in the sky-light of their place of residence, and died very shortly after from the internal injury she received. The male bird pined so much for her loss, refusing his food and moping in the corner of his solitary cage, that it was much feared that he would shortly follow his beloved mate. The keeper, however, made use of a curious expedient, which was the means of saving the life of the disconsolate widower. He placed a large looking-glass in the cage; the Ostrich, seeing his own reflexion in it, fancied that his mate was restored to him, immediately recovered his former vivacity, and spent great part of his time close to his own reflexion in the mirror. This appears a surprising fact; but monkeys, we well know, take a particular pleasure in looking at their reflexion in a mirror, and take every opportunity of gratifying themselves in this way. The Canary, when hopping on our breakfast-table, pecks at its shadow in the silver sugar-bason, either in love or anger; and

a cat has been known to peep behind the looking-glass to get a better view of her supposed friend, or raises her back if disposed to consider the reflected image of herself as that of an enemy.

The female Ostrich now in the Zoological Gardens did not, like the Ostrich in Paris, display any conjugal regard for her partner in captivity: she took upon herself, shortly after their arrival in England, to tease and worry him in so many ways, that the poor bird was literally hen-pecked. This was probably owing (Mr. Bennet considered) to an unnatural curve in the neck of the male, the consequence, it was said, of his having formerly swallowed something of unusual bulk, which remained undigested. The system of persecution was at length carried so far, that it was found necessary to separate them, and the female now has the whole enclosure to herself.

The general character of the Ostrich, like that of all other birds feeding on grain, is extremely mild, and, notwithstanding their great love of freedom, these birds are easily tamed and rendered tractable: they become familiar with persons to whose appearance they are habituated, and will

even allow themselves to be mounted and ridden like horses. But they frequently attempt to push down a stranger by running furiously against him, and, if they succeed in knocking him down, they not only peck at the victim with their bills, but strike at him with their feet in the most violent way.

Dr. Shaw mentions having seen an unfortunate person who had his body completely ripped up by one stroke of the formidable inner claw of the bird. While thus engaged, the Ostrich makes a fierce hissing noise, his throat inflates, and his mouth gapes widely. At other times he utters a sort of cackling sound, like some of our domestic poultry, especially when he has vanquished or routed an adversary. The cry of the Ostrich is particularly loud and piercing, and at a distance is said to resemble so much the roaring of the lion, that even the Hottentots are deceived by it. The Hebrew name of the Ostrich signifies both to move briskly and to shout vociferously. Their speed is certainly almost incredible : the fleetest horse cannot overtake them, unless stratagem be adopted to tire them out. By several horsemen taking dif-

ferent sides of a large plain, and pursuing them back and forward until their strength is exhausted, they may be at last run down. If followed up too eagerly, this chase is not free from danger, for the huntsman has sometimes had his thigh-bone broken by a single stroke from the wing of a wounded Ostrich. Such is the power of this bird, that jackalls, tiger-cats, and other animals who prey upon its eggs, are frequently found lying dead near the nest, having been destroyed by a blow from its foot or wing. The general food of the Ostrich consists of the tops of the various shrubby plants which the most arid parts of South Africa and other deserts produce in abundance. It takes so little water, that it contrives to exist in parched and desolate tracts of country, which even the antelope and beasts of prey have deserted; but they are found most frequently in the society of the zebra or quagga. "I once saw," said Burchell, "two large Ostriches feeding in company with ten zebras."

The Ostrich is a prudent and wary animal, and displays little of the stupidity with which it has been generally charged by the old naturalists. On

the borders of the colonies in South Africa, where it is eagerly hunted for the sake of its valuable plumage, this bird is very sagacious in providing for its own safety and the security of its offspring. It adopts every precaution to conceal the place of its nest, and invariably abandons it, after destroying the eggs, if they have been disturbed, or the footsteps of a man are discovered near the spot where it has chosen to lay them. The natives are aware of this fact, and rob the nests by means of long sticks, cautiously avoiding either to tread near the nest, or to touch the remaining eggs with the hand, which, they affirm, would induce the parent birds to abandon the spot. There is some difficulty in ascertaining the exact number of eggs laid by a single Ostrich. Some travellers mention as many as eighty, others reduce the number to ten. It is certain that the three or four females belonging to the nest produce a very large number, which are esteemed a great delicacy by the natives. The eggs in colour are of a dirty white, tinged with light yellow, and sometimes weigh as much as three pounds. They form a considerable article of commerce at the Cape, where they are sold for

about sixpence each to the vessels that touch there, the thickness of the shell rendering them preferable as store for a sea voyage to those of any other bird, as they may be kept for a very long time without even requiring the trouble of turning. At the present day there appears to be a variety of opinions as to their being a luxury or not ; but with the epicures of old the eggs of the Ostrich were an especial and favourite dainty. A number of oval-shaped pebbles, of the size of a marrow-fat pea, are often found in them. These are exceedingly hard, of a pale yellow hue, and are frequently set and used as buttons. The shell of the egg is made into drinking-cups and other utensils, and is often set in silver and gold, being very hard, and quite equal in appearance to ivory. The entire shells, suspended in the domes or arches, are among the common decorations of the Eastern mosques and churches. The Ostrich shell girdle worn by the African chiefs is an article of very ingenious manufacture, and is formed of small portions of the egg-shell cut round, and of an uniform size : by a hole bored through the middle of each, a great number are strung close together,

enough to pass several times round the body. This girdle has the appearance of ivory, and much resembles the long strings of small bone buttons seen in a haberdasher's window. The value of a girdle is very considerable, the number of pieces of shell required for the ornament being very great.

At the time of breeding, the male Ostrich usually associates to himself from two to six females. The hens lay all their eggs together in one nest, which is merely a shallow cavity scraped in the ground, of such dimensions as to be conveniently covered by one of these gigantic birds in incubation. A most ingenious device is employed to save space, and give at the same time to all the eggs their due share of warmth. The eggs are placed to stand each with the narrow end on the bottom of the nest, and the broad end upwards; and the earth or sand which has been scraped out to form the cavity is employed to confine the outer circle, and keep the whole in a proper position. The hens relieve each other in sitting during great part of the day, and the male takes his turn at night. In the middle of the day the nest is occasionally left by all the birds, the heat of the sun

being then sufficient to preserve the eggs warm. When the young birds are hatched, the mothers attend to them with the greatest care and assiduity.

While travelling in South Africa, Burchell tells us that he “fell in” with the nest of an Ostrich. “Within it lay twenty-five eggs; the hole was surrounded by a trench equally shallow, in which were nine more eggs, intended, as the Hottentots said, for the food of the twenty-five young ones the mothers expected to hatch. These are always sure to be good eating, as being the last laid by the parent birds. A meal was made by the party from the discovered treasure, each of the Hottentots eating a whole egg, although containing as much food as twenty-four eggs of the domestic hen. The mode of cooking was one of great antiquity, for all the Hottentot race, their fathers and their ‘grand-fathers’ fathers,’ (as they express themselves,) have practised it before them. A small hole is dexterously drilled at one end of the egg, and a forked stick introduced into the egg, by pressing the two ends together: the stick is then twirled between the palms of the hands for a short time until the yolk and white is completely mixed; they then

set it on the fire, continuing to frequently turn the stick until the inside has acquired the proper consistence of a boiled egg.” The flesh of the Ostrich is very dark-coloured, and resembles coarse beef, exceedingly tough, though not of a bad flavour. The stomach, being tender and delicate, is considered the best part of the bird; but the men who accompanied Burchell on one of his expeditions took care to eat the whole of this before they informed him of the fact. The bird, part of which was eaten on this occasion, was an old male, shot by Mr. Burchell, of a surprising size and weight, one of the legs being as much as a man could carry.

These birds are more difficult of approach than the antelope, occasioned probably by the greater height of their eye from the ground, which enables them to see over all the shrubs of the plain. “I had this morning,” says Burchell, “the pleasure of discovering a pair of Ostriches at a distance, running across the plain. With the telescope they could be distinctly seen; and being the first I had met with in a wild state, I could not but watch, with the greatest gratification, so interesting a sight. The bushes intercepted the view of their long legs, but

their black bodies were plainly to be seen, and those beautiful plumes, destined possibly hereafter to decorate the head of some drawingroom beauty, were now waving and fluttering in the wind, rudely hurrying over the desert. Their long necks and comparatively small heads, raised high above the shrubs like two tall stakes, remained the last in view, but their hasty long strides soon carried them out of sight."

The Bushmen take them by the following ingenious though simple stratagem:—"A kind of flat, double cushion is stuffed with straw, and formed something like a saddle; all except the under part of this is covered with feathers attached to small pegs, and made so as to resemble the bird. The neck and head of an Ostrich are stuffed and a small rod introduced. The Bushman intending to attack the game whitens his legs with any substance he can procure; he places the feathered saddle on his shoulders, takes the bottom part of the neck in his right hand, and his bow and poisoned arrows in his left. Such (as the writer has seen) were the most perfect mimics of the Ostrich, and at a few hundred yards distant it is not possible

for the human eye to detect the fraud. This *human* bird appears to peck away at the verdure, turning the head as if keeping a sharp look-out, shakes his feathers, now walks, then trots till he gets within bow-shot ; and when the flock runs, from being hit by an arrow, he runs too. The male Ostriches will on some occasions give chase to the strange bird, when he tries to elude them in a way to prevent their catching his scent, for when once they do, the spell is broken. Should one happen to get too near in pursuit, he has only to run to windward or throw off his saddle to avoid a stroke from a wing, which would lay him prostrate.”*

When an Ostrich is shot, the Hottentots generally adorn their hats with a white plume. In hot weather they sometimes carry an umbrella made with Ostrich plumes fixed round a small circular piece of stiff hide, through the centre of which a long stick passes, and forms the handle : the whole apparatus is exactly the form of our parasols, and has a very elegant appearance. The smaller black feathers which cover the wing and body of the bird

* Moffat's "Scenes in Africa."

are applied to a very different but equally useful purpose : they are tied round a thin stick of the size of the shaft of a spear, which is thus covered for two or three feet along the upper part of its length, their points turning inwards. This feather-stick often renders the natives important service when hunting or attacking the larger or more ferocious animals. If, on approaching too near, these creatures should suddenly turn on them, their only chance of escape is by immediately fixing the feather-stick into the ground, and taking to flight. The animal seeing it standing up before him, mistakes it for the man himself, and vents its fury upon it, by which stratagem the man gains time either to escape to a place of safety, or till his companions come to his assistance. “ In this manner,” says Burchell, “ the life of one of my Hottentots was once saved from an enraged rhinoceros.”

The caravans of Nubia convey to Cairo vast quantities of the plucked skins of these birds, which form a very thick leather. They are used for dress by the Hottentots both before and after the feathers have been removed, and some tribes of the Arabs cover their breasts with Ostrich hides

when they go to war. The long white feathers form an important article of traffic at Constantinople, and are in great request for parade dress in all parts of Europe. They are also worked into elegant fans; but it is painful to reflect, that for this purpose they are more valued when plucked from the living bird. A correspondent to the "Penny Magazine," who had resided in the interior of the Cape for several years, during which he was principally engaged in collecting Ostrich feathers, states that the finest and most valuable are obtained from the wing of the bird, and not the tail, as is generally supposed. The principal white feathers from the plumage of a full-grown bird amount to forty. The tail-feathers seldom exceed nine inches in length, and are of so little value that they are seldom exported from the Cape, as the birds, when killed, are generally found with the tails worn to the stumps from working in the sand, especially during the season of incubation. By examining any of the living specimens in the Zoological Gardens, or the prepared specimen at the British Museum, the truth of this circumstance may be easily proved. Captain Fitzroy tells us that the feathers

of the American Ostrich are greatly esteemed by the native Indians as articles of adornment, and that great value is set upon them. On one occasion, having returned to some place where he had formerly landed, one of the natives, who had taken a great fancy to him, presented to him, and to each of his boat's crew, a bunch of nine Ostrich feathers, as a token of respect and regard. The Indian had still some bunches of feathers remaining, but, on observing that the next boat's crew who landed were strangers to him, he withdrew with the bunches of feathers under his arm. When the Indian prepares for battle, he wears a tuft of white Ostrich feathers on his head, while the hides which compose his armour are very neatly sewn together with thread made from the split sinews of the bird. This thread is the strongest and most durable material that the women can procure. The natives catch these birds by hunting them on horseback, with the most reckless speed, and then entangling them with the never-failing lasso. The balls attached to the end of this they throw in the air, and in an instant the Ostrich rolls over and over, its legs fairly lashed by the leathern thong.

“It is not generally known,” says Captain Fitzroy, “that the Ostrich will take to the water, but Mr. King informs me that at several times he has seen these birds swimming from island to island. They seem, however, to be but bad swimmers, very little of the body appearing above the water, their necks extending forward, and their progress very slow. They have been known, although generally feeders on vegetables, to come down at low water to the extensive mud banks, then dry, for the purpose of catching small fish.”

The Ostriches which in America are caught young and domesticated, will eat fruits, grain, flies, or even butcher's meat, and, like the Black Ostrich, have been known to swallow many indigestible substances that have been offered to them. They soon become familiar, and are of such a prying disposition, that they poke their long necks through any open window that may be near to them, and anxiously watch what is going on. The flesh is considered an excellent dish at table, and the eggs are much used in making biscuit. These are equally large at both ends, weigh about two pounds and a quarter each, and have an ivory-like

surface, mottled with yellow. A nest is sometimes found containing seventy or eighty eggs; these, of course, are the produce of several hens; but Azara states that the male bird hatches and rears the brood, and calls them together by a hissing noise. It is more probable that, like the Black Ostrich, he may only assist in the duties of hatching and rearing his numerous offspring, and not take the whole of these responsible duties on himself.

The American Ostrich does not possess so thick a plumage as the Great or Black Ostrich, and has three toes. The climate which it inhabits is so cool and temperate, that it has been supposed the animal might be introduced with advantage into England, where the Bustard is at present the largest bird known. The Bustard might indeed be called the European Ostrich, from its similarity in habits to that bird. It requires an uninterrupted range of desert or plain for its wandering life, and the herds are extremely shy and difficult of approach. They run very swiftly on the ground with outspread wings, but rarely fly: they will swallow almost every substance offered to them, provide for their young by merely scratching a hole in the

ground, and refuse to breed in captivity. The Bustard was formerly well known in England, the flesh is excellent food, and once so esteemed as to be an object for the chase. The increasing fertility of our land has deprived it of its usual haunts, the wild and desert plain, and appears to have nearly driven it from the country; and the same cause will, we should think, be an obstacle to the introduction of his transatlantic brother, except as an inmate of the Zoological Gardens.

Who bids the Stork, Columbus-like, explore
Heavens not his own, and worlds unknown before ?
Who calls the council, states the certain day,
Who forms the phalanx, and who points the way ?

POPE.

THE STORK.

Ciconia.

THIS tall and stately bird lives in marshy situations, and feeds principally on reptiles, frogs, and their spawn, smaller fish, and the quadrupeds, and birds. From the great amiability of its disposition, and its great utility in clearing away the noxious animals and filth of countries where it abounds, the Stork has ever been considered the friend of man; a peculiar interest has always been attached to it, and in all ages it has been gratefully protected. In ancient Egypt the destruction of a Stork was made a capital crime, and at the present day its existence and safety are still protected; for there is perhaps no Eastern country where its death would not be avenged either by legal penalties or popular indignation. The protection they receive is warmly returned by the confidence with which the Stork builds its habitation in the midst of

thickly populated cities, and views from thence with no alarm the near approach of man. On the contrary, when they return from the annual migration, they express great pleasure in occupying their old nests, and have been said to recognise with marks of joyful recognition the inmates of the house they may have chosen to build on. The Stork generally stands from three feet to four feet high, including the long neck; it is three feet in length. The feet are partially webbed, the legs exceedingly long, and not apparently of a sufficient thickness to support the body. The beak is straight, pointed, about eight inches in length, and of a fine red colour. The legs, the skin, and the bare parts of the thighs are also red.

The species of Stork best known are the White or Common Stork (*Ciconia alba*), and the Black Stork (*Ciconia nigra*). The White or common Stork is a visitor of the continent of Europe, from the north of Spain to Prussia, and is particularly common in Holland and in Germany. Storks are migratory birds, passing the winter in the more genial climates of Asia and Africa, and in summer

returning to towns and villages in colder latitudes, where they build their nests on the summits of old towers or belfries, on the chimneys of the highest houses, and sometimes in dead trees. In marshy districts, where the birds are peculiarly serviceable in destroying reptiles, the people frequently fix an old cart-wheel on the end of a strong perpendicular pole, in an horizontal position, an accommodation which seems so very acceptable to the birds that they rarely fail to construct their capacious habitations on such platforms. The nest is a large round structure, built very firmly of twigs, sticks, and strong reeds, and lined on the inside with fine dry mosses, and other soft substances. These nests, last many years, and to them do the faithful couples yearly direct their unerring course from their distant winter quarters, to deposit their eggs and rear their young. The female lays from three to five cream-coloured eggs, about the size of those of a goose. She sits for a month, and when the young are hatched, nothing can exceed the tender affection with which they are reared.

The mutual affection of the parent birds is very strong, but the male expects the strictest fidelity

from his partner ; as an instance of this, the following anecdote is related in “ Stanley on Birds ” : —

“ A French surgeon, at Smyrna, wishing to procure a Stork, and finding great difficulty, on account of the extreme veneration in which they are held by the Turks, stole all the eggs out of a nest, and replaced them with those of a hen : in process of time the young chickens came forth, much to the astonishment of Mr. and Mrs. Stork. In a short time Mr. Stork went off, and was not seen for two or three days, when he returned with an immense crowd of his companions, who all assembled in the place, and formed a circle, taking no notice of the numerous spectators, which so unusual an occurrence had collected. Mrs. Stork was brought forward into the midst of the circle, and after some consultation, the whole flock fell upon her and tore her to pieces; after which they immediately dispersed, and the nest was entirely abandoned.” In another instance, as soon as the chickens appeared the old birds testified their surprise by harsh clatter and fierce looks, and after a short pause, they jointly fell upon the unfortunate chicks and pecked them to pieces, as if conscious of the

disgrace that had been brought on the nest by the intrusion.

The solicitude felt by the Stork for its young, has been proverbial from the earliest times. The parents never lose sight of them. While one of the pair is abroad in search of serpents, frogs, or snails, the other remains in charge of the nest, standing on one leg, and keeping its eyes fixed on its offspring. When the young have acquired strength and vigour, it is a most interesting sight to observe the tender couple assist them in their first career through the air. The progeny have been said to repay this care and kindness, when the parents are old and feeble, by supporting their wings when weary in the long flights of their migration. But though it is true that the weak and old are thus assisted by the vigorous and young, we have no means of knowing that the assistants are the progeny of the assisted. It is, however, quite certain that the affection of the Stork for its young is unusually strong: when they begin to flutter about the nest, the female bears them on her wings, and protects them from danger; and she has been known rather to perish along with

them than abandon them to their fate in the time of peril. An affecting instance of this, took place at Delft in 1836, when a fire broke out in a house that had a Stork's nest on it, containing young ones that were then unable to fly. The old Stork returning with some meat, and seeing the danger to which they were exposed, the fire having almost reached the nest, made several attempts to save her offspring, but finding all in vain, she at last spread her wings over them, and in that endearing attitude expired with them in the flames. Another incident of the same kind occurred on the day of the memorable battle of "Friedland," and is related by M. Bory de St. Vincent in an article of the "*Encyclopédie Moderne*." A farm in the neighbourhood of the city was set on fire by the falling of a bomb, and the conflagration extended to an old dry tree, on which a pair of Storks had built their nest. It was then the season of incubation, and the mother would not quit her nest until it was enveloped in flames. She then rose perpendicularly in the air, and when she had attained to a great height, dashed down in the midst of the fire, as if endeavouring to rescue the pre-

cious deposit from destruction. In one of these descents, enveloped in fire and smoke, she fell into the midst of the burning embers and perished.

In Bagdad and some of the more remote cities of Asiatic Turkey, the nests of Storks are very numerous, and present a remarkable appearance. The towers of the old mosques at Constantinople and most other parts of Turkey are tall, round pillars, surmounted by a pointed cone ; but at Bagdad the absence of this cone enables these birds to build their nests upon the summit ; and as the diameter of the nest generally corresponds with that of the tower, it appears as a part, and regular termination of it. The curious effect is not a little increased by the appearance of the bird itself in the nest, which thus, as part of the body and its long neck are seen above the edge, appears the crowning object of the pillar. In France it was formerly the custom to place wheels on the roofs of the houses to induce them to build on them, and in Holland, boxes are placed for the same purpose.

“ In one of the streets of Manheim,” says Mr. Roby, “ I got an opportunity of sketching a

Stork's nest. Most of the chimneys are apparently constructed for their accommodation, it being thought lucky to have a pair of these birds over the roof. Above the vent, rarely pervaded by smoke, charcoal being much in use, a flat piece of iron, supported by legs about a foot high, is placed; on this, an immense heap of straw and other materials, carried thither by the birds, projects considerably over all around. The two grave birds were apparently quite at their ease, though a host of impudent sparrows were screaming and fluttering around the nest in the most unceremonious manner. This nest must doubtless be drenched through and through with the rain, being entirely without shelter, and, as a habitation, the most inconvenient that could possibly be devised." The Stork is not easily deterred by the neighbourhood, from any spot it may think desirable for a nest. A bird once built its home on the Temple of Concord at Rome, in the midst of the noise of the capitol, a circumstance which was commemorated on the medals of Adrian.

The Stork rests and sleeps upon one leg, with its head bent backward on its shoulder; in this

attitude it also frequently singles with its eyes some reptile, and darts on it in a most unexpected manner. It walks slowly and with measured steps, but its flight is powerful and long-continued, and it is accustomed to traverse the higher regions of the air. Their migrations take place in large flocks, sometimes, according to Dr. Shaw, of a half-mile in width, and taking three hours to pass. As they have no note, their course is usually unattended by any noise excepting that of their wings; but when anything occurs to startle them or engage their attention, they make an extraordinary clattering, by striking their bills quickly and forcibly together: this noise may be heard at a great distance. By their migrations they enjoy at all times a nearly equal temperature, avoiding those severe seasons in which the reptiles that form their food remain hid and torpid during a considerable part of the year.

Storks, before their annual migration, assemble in large companies, for the purpose (as the country people call it) of holding a council. On one of these occasions, near Oggersheim, on the banks of the Rhine, about fifty were observed formed in a

ring round one individual, whose appearance bespoke great alarm. One of the party then seemed to address the conclave by clapping its wings for about five minutes. It was followed by a second, a third, and a fourth, in regular succession, each, like the first, clapping its wings in the same odd and significant manner. At last they all joined in chorus, and then, with one accord, fell upon the poor culprit in the middle, and despatched him in a few seconds; after which they rose up in a body, and one, according to their custom, taking the lead, they flew off to the southward. This curious story is in some degree corroborated by the opinion of old writers, one of whom, in describing the migrations of these birds in the eastern countries, says, "that when they go away, the Stork that comes last to the place of meeting, is killed on the spot by the others."* Similar meetings take place among crows in the northern parts of Scotland, though these birds do not migrate. They seem to hold council on certain delinquents of the party, who sit with drooping heads, and while others seem as grave as judges, many are particularly busy

* Stanley on Birds.

and noisy. In about an hour they disperse, and after they have flown away, it is not uncommon to find one or two left dead on the spot.

The Storks move southward about the end of August. At an appointed time, and when the wind is northerly, they suddenly ascend in a large body into the higher regions of the air. This movement is seldom remarked, because it often takes place in the night-time, and always in perfect silence. Deficiency of food, as we have before observed, is probably the main cause of their change of abode; for tame birds seem not to suffer from the severest winter. Bellonius informs us, that "Storks visit Egypt in such abundance, that the fields and meadows are white with them. The Egyptians are not displeased at the sight, as frogs are generated in such numbers that, did not the Storks devour them they would overrun every thing. They also catch and eat the serpents. Between Belba and Gaza the fields of Palestine are often rendered desert on account of the abundance of rats and mice, and were not these destroyed, the inhabitants could have no harvest." It is no wonder, therefore, that the Stork should

be held in such high* veneration in the countries where he fulfils the useful duties to man, of clearing away all noxious animals and filth. In the continental towns, domesticated Storks, which have been taken from the nest when young, may often be seen parading about the market places, being kept as scavengers to clear the place of the entrails of fish, and other offal, which they do much to the satisfaction of their employers. The disposition of the Stork is so mild and gentle that it is easily tamed, and may be trained to reside in gardens, which it will keep clear from insects and reptiles; it is remarkably cleanly in its habits, and although it has a grave and melancholy air, it occasionally indulges in pastime, associating with children and partaking of their amusements. “ I saw in a garden,” says Dr. Hermann, “ where some children were playing at hide and seek, a tame Stork join the party, run its turn when touched, and distinguish the child whose turn it was to pursue the rest, so well as, along with the others, to be on its guard.” “ The following anecdote,” says Mr. Bingley, “ affords a singular instance of sagacity in this bird. A wild Stork

was brought by a farmer who resided near Ham-
burgh, into his poultry-yard to be the companion
of a tame one that he had long kept there; but
the tame Stork disliking a rival, fell upon the poor
stranger, and beat him so unmercifully, that he
was compelled to take wing, and with some dif-
ficulty escaped. About four months afterwards,
however, he returned to the poultry-yard, re-
covered of his wounds, and attended by three
other Storks, who no sooner alighted than they
all fell on the unfortunate tame one, and killed
him on the spot.

The White Stork, though once common in Eng-
land, is now rarely seen but in menageries. One
or two solitary specimens alone have been shot
during the present century. The extinction of
the Stork is one of the many evidences of the
changes produced by man in the operations of his
industry. The marshy grounds which formerly
existed in England to a great extent, have been
drained and cultivated, and therefore England no
longer offers a fitting dwelling-place for the Stork.

The Black Stork (*Ciconia nigra*) resembles the
White in form and proportions, but is somewhat

smaller in size, and of a different colour. The White Stork has a part of its plumage black, but in the Black Stork this hue predominates, intermixed with varying shades and reflexions of violet and green, which become more marked on the back and wings. The under surface from the bottom of the neck to the tail is white. The tail itself is jet black. The wings are extremely long, like those of the White Stork, and so powerful that the bird can raise itself in the air so high as to become almost invisible to the human eye. The character of the Black Stork, in one respect differs from that of the White. It shuns the society of man, and makes its temporary dwelling in the most secluded spots on the banks of rivers or impenetrable morasses, and builds its nest on the highest pines. Its food is exactly similar to that of its more social fellow ; and, except in this peculiar love of retirement, their habits closely resemble each other. The one in the Zoological Gardens submits to captivity with perfect resignation, and never uses its powerful bill as a weapon of offence against its companions. “ It appears,” says Mr. Bennett, “ to have no other voice than the clatter-

ing sound which it produces by the snapping of its mandibles. Colonel Montagu, in 1814, was presented with a living specimen of the Black Stork, which was shot in Somersetshire in the month of May, and he considers it to be the only instance of its ever being found wild in Great Britain. When first observed, it was searching for food by the side of a drain, and when approached, flew to a considerable distance; but in a second attempt, the fowler got sufficiently near to wound it slightly. It made little resistance, and on the following day ate some eels that had been placed near it. Like the White Stork, it frequently rested on one leg, and if alarmed, particularly by the approach of a dog, made a considerable noise by snapping the bill. It soon became docile, and would follow its feeder for an eel, a favourite morsel. When very hungry it crouched, resting the whole length of the legs on the ground, and seemed to be supplicating for food, nodding the head, flapping its unwieldy pinions, and forcibly blowing the air from the lungs with audible expirations. The bird was of a mild and gentle disposition, never used its bill

offensively against any of its companions in captivity, and submitted to be handled without much struggle. When searching in thick grass or mud for its prey the bill was kept partly open; by this means it took eels in a pond with great dexterity, for no spear common in use for taking that fish can more effectually seize it than the grasp of the Stork's open mandibles. A small eel has no chance of escaping when once roused from its lurking place. But the Stork did not gorge its prey instantly like the Cormorant, on the contrary, it retired to the margin of the pond, and then disabled its victim by shaking and beating with its bill before it ventured to swallow it. This bird never attempted to swim, but would wade up to the belly, and occasionally thrust the whole head and neck under water after its prey. It preferred an elevated position to roost, generally selecting an old ivy-bound willow that lay prostrate over the pool." In this state of rest the neck is much shortened by resting the hinder part of the head over which the feathers flow partly so as to conceal it, making a very singular appearance.

The African Gigantic Stork (*C. marabou*) in habits and food bears a close resemblance to the White Stork, but differs widely in appearance. It becomes more familiar, and in consequence of its larger size (the bird standing six to seven feet high), it renders more effectual assistance in the removal of carrion, offal, and other nuisances. It is far from being a handsome bird in appearance; the head and neck are nearly naked, excepting a few straggling curled hairs; a flesh-coloured kind of pouch hangs externally on the front of the neck, and this, and a loose skin at the back of the neck, the bird can inflate to a great size. The head and bill being very large, it has been conjectured that these pouches assist, balloon-like, in supporting them during the flight of the bird, which flies and roosts very high.

There are three of these gigantic animals, which are natives of Africa, and the eastern part of Asia, and have been known to naturalists only within the last sixty years. They each furnish, in more or less perfection, the beautiful plumes known by the name of marabouts, from their name in Senegal, from which place the feathers are

usually brought into Europe. These form the under part of the tail, which is black. The Gigantic Stork of India (*C. argala*) has had the name of adjutant given to it from its bearing some resemblance, when at a distance, to a man in a white waistcoat and dark trowsers. It stands about five feet in height, and measures twelve to fourteen feet in the expansion of the wings. They are found in companies, and when seen at a distance, near the mouth of a river, running towards the observer with wings extended, they may be easily mistaken for canoes on the surface of a smooth sea ; and when stalking about on the sand, appear like men and women picking up shell-fish. They are never molested by the natives, both as a return for their meritorious services, and from the belief that being animated by the souls of the Bramins, they are invulnerable. Mr. Ives, the author of the "View of Hindostan," says, "that when he missed his shot at several of them the standers-by greatly exulted, and declared he might shoot at them as long as he pleased without succeeding." The appetite of those birds is very voracious, and when they feed on fish they will

devour as much as would satisfy half-a-dozen men. From the immense gape of bill they have been called large-throats. Every kind of food is swallowed whole by the Gigantic Stork, and so accommodating is its huge throat that not only an animal as big as a cat is gulped down, but a shin of beef, broken asunder, serves it but for two morsels. It has been known to swallow a leg of mutton of five to six pounds, a hare, and even a small fox. On opening the body of one of them a land-tortoise and a large black cat were found entire in it. It seems to finish the work begun by the jackal and vulture, by clearing away the bones they have stripped, swallowing them whole. Not being at all shy at the approach of man, these birds are soon rendered very tame and familiar, and will catch very nimbly, fish, or other food thrown from the hand.

Fort William, Calcutta, may be said to be infested with the Adjutant. Scarcely can a dinner pass from the kitchen to the higher apartments without being pounced on by these rapacious birds. They so completely besiege a room in which there are symptoms of good cheer, that joints or morsels

thrown from the apartment generally elevated above the ground-floor, are caught long ere they fall to the earth by some fortunate competitor, whose dexterity for the moment causes the clamorous indignation of a crowd of companions. These follow him with loud screams, and make attempts to compel him to disgorge.

Bishop Heber was much struck with the appearance of these birds, which were the first that met his eye on his landing in India. "In the morning," says he, "as the day broke we saw a singular spectacle before us. Besides the usual apparatus of a place of arms, the walls, roofs, and ramparts of the fort swarmed with gigantic birds, larger than the largest turkey, and twice as tall as the heron. These birds share with the jackals, who enter the fort through the drains, the post of scavenger, but unlike them, instead of shunning mankind, they lounge about, with perfect fearlessness all the day long, and almost jostled us from our paths."

A young African Gigantic Stork, about five feet in height, was brought up tame, and presented to the chief of the Bananas, where Mr. Smeathman lived,

and in whose house it soon became perfectly at home. It regularly attended the hall at dinner-time, placing itself behind its master's chair frequently before the guests arrived. The servants were obliged to watch it carefully, and to defend the provisions with switches, but notwithstanding it would frequently seize something or other from the table, and once purloined a whole boiled fowl, which it swallowed in an instant. When sitting, it was observed always to rest itself on the whole length of the hind part of the leg. Sometimes it would stand in the room for half an hour after dinner, turning its head, alternately, as if listening to the conversation. This bird used to fly about the island, and roost very high among the silk-cotton trees ; from this station at the distance of two or three miles, it could see the dinner carried across the court, and darting down would arrive early enough to enter, before all the dishes were set down. Its courage was not equal to its voracity, for a child of eight or ten years of age was able to put it to flight, though it would at first seem to stand on the defensive, by threatening with its enormous bill widely extended, and crying out with

a loud hoarse voice. It preyed upon small quadrupeds, birds, and though it would destroy poultry, it never ventured to attack openly, a hen with chickens.

In 1820 there was a very tame specimen of the Gigantic Stork in the menagerie at Exeter Change; it had been there about twelve months; it walked out of its cage into the exhibition-room for the amusement of visitors, and its grotesque appearance and long strides excited great mirth, especially among the juvenile part of the company. This bird could with ease swallow a rabbit or fowl, and seemed always ready for a meal. It liked to stand on elevated positions, and was generally very amiable, but one day while perched on the top of its cage, its anger was excited by a gentleman who persisted in teasing it, and it suddenly struck its bill quite through the crown of his hat, most fortunate for the owner was it that his head was thus protected.

The Gigantic Stork emigrates during the periodical rains of the country, obeying that wonderful instinct which directs the fowls of the air to change their habitations at certain periods and

seasons. Without a guide to point their way, these, and other migratory wanderers, undertake journeys of many hundred miles through the air, over seas and mountains, with undeviating course, returning in spring to bring forth their young, and to enjoy with them the plenty which a bountiful Providence has prepared. Thus, with other birds, beautifully fulfilling the well-known words of Holy Writ, “the stork in the heavens knoweth her appointed time, and the turtle, and the crane and the swallow observe the time of their coming.”

W. G. R.

Wading through marshes, where the rank sea-weed
With spongy moss, and flaccid lichens strove,
Flamingoes in their crimson tunics, stalked,
On stately legs, with far exploring eye ;
Or fed, and slept in regimental lines,
Watched by their sentinels, whose clarion screams
All in an instant wake the startled group,
That mounted like a glorious exhalation,
And vanished through the welkin far away.

MONTGOMERY.

THE FLAMINGO.

Phœnicopterus.

THE Greeks gave this bird the name of Phœnicopterus, which means “wings of flame,” from the brilliant red colour of the plumage. This epithet is peculiarly applicable to the young birds of about two years old, whose wings alone are of a fine carnation, while the body and neck still retain the white plumes. The bird does not attain its full plumage until the fourth year, when it becomes almost entirely of a pure rose colour. The wings are of a deeper red, and some of the tail feathers are black. The beautiful tint of the plumage can only be seen to real advantage in the living specimen, for in the preserved skin the brilliancy of the colour becomes tarnished, and even passes into white when long exposed to the light. The Flamingo belongs to the great family of the wading birds, and the very remarkable figure and

proportions of the bird render it one of the best illustrations of this numerous race.

The structure and general conformation of this family is such as to fit them for the local situation to which they are appointed, and the nature of their food. They chiefly frequent swamps and morasses, and the low and oozy lands which border the sea, and its petty creeks and inlets. Here they find their food, which consists of the smaller fishes, reptiles, snails, insects, and water-plants. Their legs accordingly are of great length, the thighs often bare of feathers for a considerable distance, and the toes either long and spreading, or partially webbed; many, if necessity requires, can swim, and some few swim and dive with great dexterity. The form of the beak differs greatly in the wading birds. In many it is long, powerful, and pointed, in others broad and rounded, and in some instances soft and pulpy at the tip, and supplied with nerves, so as to perform the office of a feeler, when inserted into the oozy mud in search of minute insects or seeds. The beak of the Flamingo is perhaps the most curiously formed of the family. Its food consisting of small fish,

shells, and water insects; the beak is singularly constructed for the purpose of feeding; in length it is nearly seven inches; the upper mandible is bent down in the middle, as if broken, the lower, which is the largest, is so adjusted as to fit into the angle caused by the bend in the upper. The edges of both are furnished with horny kind of teeth, which together form a sort of filter like the plates of whalebone in the mouth of the whale, to allow the water to drain off from the food. In searching for prey in the mud at the bottom of waters, the upper, and not the under, mandible is applied to the ground, and this forms a scoop. Thus, while feeding, the long neck is twisted, which gives the bird a very awkward appearance. The tongue is large and fleshy, filling the cavity of the bill, furnished with twelve or more hooked spines on each side, turned backwards. The tip is of a horny substance. The head is small and round, when the bird raises this, the neck and legs are so long that it stands about six feet high. The legs are of a pale red colour, and so extremely slender, that at a distance, the bird actually appears as if suspended in the air. If the bird by any

accident injures one of these, it has been known to use its long neck and beak as a crutch. When at rest the bird stands on one leg, the other being drawn up close to the body, with the head placed under the wing on that side of the body it stands on.

The Flamingoes are found in Europe, but seem to prefer a warm latitude, and are accordingly more numerous in most of the warmer countries of the globe, within forty degrees on each side of the equator, occasionally visiting in summer the more temperate regions. They live and migrate in large flocks, and are extremely shy and watchful; during the time they feed, one of their number is appointed as a watch, whose only employment is to give warning of danger, while the remainder are feeding. As soon as this trusty sentinel perceives the slightest appearance of their being molested, he gives a loud scream with a voice as shrill as a trumpet, and instantly the whole party are on the wing. They feed in silence, but upon being thus disturbed all the flock join in a chorus of almost intolerable screamings. The trumpet-cry is said to sound like the word "tococo," from whence the

savages of America have given the bird that name.

Except in the pairing season, the Flamingoes are always to be seen in large flocks, drawn up with the utmost regularity, and at a distance appearing like a regiment of soldiers. Dampier compares them, when drawn up in long lines of perhaps two or three hundred, to a brick wall. Their resemblance to a line of soldiers was productive of great alarm during the French revolutionary war. The English were expected to make a descent upon St. Domingo, and a negro having perceived at the distance of some miles in the direction of the sea a long file of flamingoes, ranked up, and preening their wings, forthwith magnified them into an army of English soldiers: their long necks were mistaken for shouldered muskets, and their scarlet plumage had suggested the idea of a military costume. The poor fellow accordingly started off to Gonaïves, running through the streets, and vociferating that the English were come. Upon this alarm, the commandant of the garrison instantly sounded the tocsin (alarm-bell), doubled the guards, and sent out a body of men to reconnoitre the

invaders ; but by means of his glass he soon found that it was only a troop of Flamingoes, and the corps of observation marched back to the garrison rejoicing at their bloodless expedition.

The Flamingoes of the old and new world differ but little in habits. The colour of the plumage is not perhaps so bright in the American species : the back and wings only are red, the rest of the plumage of a beautiful white ; the head is crowned with a sort of crest, and the quills of the wing feathers are white, in the other species they are black. It is said to be one of the finest birds in South America, and much valued by the inhabitants for its beautiful feathers, with which they adorn their helmets and spears. The wings are also converted into fans. In some parts the Flamingoes are tamed, principally for the sake of their skins, which are covered with a very fine down, and applicable to all purposes for which those of the swan are employed.

The Flamingoes choose for their breeding places extensive marshes, where they are in no danger of surprise. The nests are formed of mud, somewhat in the shape of a chimney-pot, but with a broad

base ; these are about a foot and a half above the marsh, hollowed out at the top to receive the eggs. The great length of the legs of Flamingoes obviously unfits them for sitting or squatting upon a flat or low nest, as is the practice of the families allied to them, and hence when they lay or hatch they stand erect, their feet on the ground in the water, leaning themselves against the hillock of mud which forms the nest, and covering it with the tail. Catesby compares the Flamingo sitting across its nest to a man on a desk-stool, with his legs hanging down. The position of the female while thus sitting is very fatiguing, and the male is under the necessity of relieving her, when summoned by her importunate cries. The eggs are two or three in number, white, of the size of those of a goose, but longer. The young ones do not fly for a long time, but they run with great swiftness ; the first feathers are white, marked with brownish streaks ; the first red tints, as we have before remarked, appear on the wings. The young ones are easily tamed, in five or six days becoming so familiar as to eat out of the hand, but they are reared with great difficulty, generally pining

away and dying for want of the natural food. Pereisa, who had a domesticated one in his possession, remarked that it steeped in water the bread which was presented to it, that it ate more frequently during night than day, and was so sensible of cold that it would approach the fire so nearly as to burn its feet. When it slept, it drew up one leg, and when deprived of the use of one limb, it walked with the other, using the bill as a crutch.

The flesh is pretty good meat, the young thought by some to be equal to partridge, by others it is thrown away as too fishy for food, and the feathers only are valued. It was greatly esteemed by the Roman epicures; Apicius has left receipts for dressing the whole bird, with more than the minute accuracy of a modern cookery book. The *Phœnicopterus* appears among the luxuries of the table in Juvenal's eleventh satire. The brains and tongue figure as one of the favourite dishes of Heliogabalus, and the superior excellence of the latter is particularly dwelt on by Apicius, and is also noticed by Pliny. The substance of the tongue is not muscular, but is chiefly

composed of a substance yielding a great quantity of fat, particularly at the roots. Dampier does not forget to notice the delicious tongue of the Flamingo, observing that a dish of these is worthy of a place at a prince's table.

There is a well-preserved specimen of this highly esteemed delicacy in the museum of the Royal College of Surgeons, London. The bird itself was held in high repute by the ancients, and it appears to have been one of the victims offered to Caligula, who is said to have been sprinkled while sacrificing with the blood of a *Phœnicopter* the day before he was murdered. The feathers of this bird, as we have before observed, are remarkable for their beauty both of colour and texture. The Indians employ them to make bonnets and ornamental decorations. The Sardinians fabricate a flute with the bone of the leg, the tone of which is said to be very fine. M. de la Mormora, in his voyage to Sardinia, gives the following striking account of the Flamingo: "It quits Sardinia about the end of March, to return about the middle of August; then it is that from the bastion which forms the promenade of the inhabitants of

Cagliari, flights of these magnificent birds may be seen to arrive from Africa. Disposed in a triangular band, they shew at first in the heavens like a line of fire. They advance in the most regular order, but at the sight of the neighbouring lake, there is a pause in their progression, and they appear for a moment immovable in the air; then tracing by a slow and circular movement a reversed conical spiral figure, they attain the end of their migration. Brilliant in all the splendour of their plumage, and ranged in line, these birds offer a new spectacle, and represent a small army ranged in order of battle, the uniformity and symmetry of which leaves nothing to be desired; but the spectator should content himself with observing this peaceful colony from afar — woe to him if he dare approach the lake at this deadly season.”

The warm affections of the breast
That Heaven to living things imparts,
Are not exclusively possessed
By human hearts.

CAMPBELL.

THE GOLDEN-BREASTED AGAMI, OR TRUMPETER.

Psophia crepitans.

THIS singular and little known bird is a native of the warmer parts of South America, and takes its name of Trumpeter from the extraordinary sound produced by its voice, either of its own accord in a wild state, or when urged by its keeper in a domesticated.

It not only utters a very shrill cry like that of the turkey, but also a trumpet-like sound, conveyed as if from the interior of the body, which is used as a signal to call stragglers together, for the bird is readily decoyed by an imitation of it, and will be frequently disposed to repeat the sound if tempted by a bit of bread. Mr. Bingley says that “the cry is as if you were to pronounce *tou, tou, tou; tou, tou, tou*, with the mouth shut, resting upon the last *tou*, for a very long time, and sinking gradually with the same note. It also much resembles the lengthened doleful noise which the

Dutch bakers make by blowing a glass trumpet to inform their customers when the bread comes out of the oven."

The Trumpeter is about the size of a large domestic fowl, but with a long neck, the legs are five inches in height; these are covered with small black scales, reaching two inches above the knee. Its general plumage is black, and the feathers of the head and neck are short and downy. Those of the fore part of the neck and upper part of the breast are of a very glossy gilded green, with, in some lights, a reflection of blue, greatly resembling the plumage of the peacock. The feathers between the shoulders are loose and silky, rust-coloured and changing into a pale ash colour as they pass downwards. Those of the shoulders are long, and hang over the tail, which is very short, and consists of twelve blackish feathers. The bill is moderately long, yellowish, curved and much bent at the tip. The young birds retain their down, or rather their first feathers, much longer than our chickens and partridges, and the real plumage does not appear until they have attained one-fourth of their growth. From the

shortness of the wings and tail, the Trumpeter flies heavily, and when compelled to take wing, halts frequently on the ground or on some low branch of a tree ; but, like the partridge, it runs very nimbly, keeping up with a dog without difficulty. These birds are naturally of a familiar and confiding disposition, scarcely ever attempting to avoid the approach of the sportsman, and thus, perhaps, are easy victims to his rifle. This apparent carelessness of danger does not arise from stupidity, for perhaps there are few birds more docile and intelligent. In a state of domestication, to which they readily submit, they become strongly attached to mankind, and are extremely sensible of kindness or of ill-treatment. The Trumpeter, among birds, may indeed be allowed to rank with our faithful companion and friend the dog among quadrupeds. Like the dog, it recognizes and is obedient to the voice of its master, follows or precedes him on an excursion, quits him with regret, and hails his return with joy. It is extremely sensible of caresses, and repays them with every expression of gratitude ; and is so jealous of his master's affection, that if any person approaches him very closely

it will dart at the intruder, biting the legs in a not very agreeable manner. It takes great delight in having its head and neck scratched, and if accustomed to the indulgence, is most importunate in begging for its renewal, becoming almost troublesome, and not to be satisfied without continual fondling. The friends of the family soon become favourites, but if it once takes a dislike to any person from being teased or injured, it never forgets the insult, but pursues the offenders sometimes to a considerable distance, endeavouring to bite their legs, and shewing the greatest marks of displeasure. It appears, like many of the poultry tribe, to be wholly insensible to fear, for when its master sits down at table, it will most pertinaciously insist upon driving the dogs and cats from the room, and never scruples to attack with singular obstinacy animals much larger and better armed than itself, to these it never yields, and often, after a tough battle, puts a middle-sized dog to flight, avoiding his bites by rising in the air, and retaliating by violent blows from its beak and claws, aimed chiefly at the eyes. After the victory is gained it still pursues its victim with the

utmost rancour, and if not taken off, will destroy the fugitive.

By its intercourse with man the instinct of the bird becomes directed, like that of the dog, to the benefit of its master; and in several districts of South America it is trained and entrusted with the charge of poultry, over which it is most vigilant, and it has even been taught to take care of sheep, and conduct them home every evening, not permitting one to stray from the flock. A Trumpeter which was reared by Vosmaer, distinguished its master with peculiar marks of affection: when he opened its cage in the morning the bird hopped around him, expanding its wings, and loudly trumpeting, as if to wish him good morning. When the master went out, or returned home, it shewed equal marks of attention, running to meet him at a distance, pining if prevented from accompanying him, and if in a boat, welcoming him with the same trumpeting compliment the instant he set his foot on the shore. It shewed a great jealousy of human rivals; and when allowed to be in the room at dinner, bit fiercely the naked legs of the negroes and other domestics who approached its master too

closely. This bird appears to have been more select in its attachment than others of its race, for they have all a general habit of following people through the streets and out of the town where they happen to be domesticated, even those persons whom they have never before seen. It is then difficult to get rid of them, for if you enter a house they will await your coming out, and again join you though an interval of some time may have passed. "I have sometimes," says M. de la Borde, "betaken myself to my heels, but they ran faster, and always got before me, and when I stopped they stopped also. I know one bird that invariably follows all the strangers who enter his master's house, accompanies them into the gardens, takes as many turns there as they do, and attends them back again."

Du Tertre, in his History of the Antilles, mentions a bird which is most probably the Trumpeter. "It is there called a pheasant; is often tamed and kept among poultry; is quarrelsome, and for the most part a vanquisher of its enemies, often being known to kill not only fowls but turkeys. It also follows the inhabitants closely, especially the ne-

groes, pecking at their legs, not much to their gratification, for it frequently brings blood. The flesh is considered as good as that of a pheasant. This bird is described to be “as large as a capon, with legs and neck much longer than those of a domestic cock, having a glossy breast and a short black tail.” A bird of this breed, a young one, found its way, probably from some menagerie, into a farm-yard in Surrey, and there associated with the poultry; it was perfectly tame, and on one occasion accompanied the hounds for three miles and kept up with them. It was last in the possession of Lord Stanley, but died on its way into Lancashire. The female Trumpeter has two or three broods of young during the year, and lays several eggs at a time, of a bluish green colour, nearly round, and a little larger than those of the domestic hen. She places them in a hollow which she scratches in the earth at the foot of a tree, without any other preparation as a nest. The Trumpeter is fond of standing on one leg, and sleeps in that position, with the head drawn in between its shoulders, like the stork.

The undulated Trumpeter (*Psophia undulata*) is

a native of Africa, and takes its name from the wavy appearance of the feathers, which are of a beautiful brown, undulated with black. Other birds besides the Trumpeter, possess singular voices. The most marked among these may be reckoned the mocking-bird, which can readily imitate the note of every bird it hears, as well as that of animals and other sounds. It can not only bark like a dog, mew like a cat, call the hens together by screaming like a wounded chicken, but will imitate the sound of a saw and the noise of a trundling wheelbarrow. The campanero, or bell-bird, found both in South America and Africa, produces a sound exactly like the tolling of a church-bell, and many birds of the family of Goatsuckers, possessing peculiar width of mouth and throat, have received names from the different words they are supposed to speak. One will cry, "Who are you? who, who, who are you?" another calls out, "Work away, work away." A third, in a very plaintive and mournful tone, says, "Willy come go, Willy, Willy, Willy, come go." The most common one is the Whip-poor-will, which almost every traveller in America has

noticed. A species of skylark in India is described as having astonishing powers of imitation ; they are taught by being carried daily to the fields and groves, and are so greatly prized that a fine well-instructed bird has been known to sell for four guineas. The notes and cries of birds serve them instead of language, and whoever watches a domestic hen when she utters a shriek which calls her chickens together, because a hawk is seen to take a survey of her brood, may easily convince themselves of this fact. In laying an egg, too, the pride and pleasure of the hen is announced to the farm-yard by her cackle. The warning note of the rook, who, like many birds of other species, may be stationed as a sentinel, announces to the feeding party that an enemy is at hand. The loud cries of the migratory water-birds, which fly by night, are evidently meant for the purpose of keeping them together ; while the song of the warblers is full of interest and affection, either while cheering the mate, during the time of incubation, with the soothing influence of his voice, or exchanging the note of pleasure for another of anger or complaint at the approach of a stranger.

THE GOOSE

Anser.

GEESE, Swans, and Ducks bear great resemblance to each other, but still possess some peculiarities, which have caused them by modern naturalists to be separated into four sections. Geese, Swans, and two kinds of Ducks, one of which has the hind toe connected by a loose membrane ; these chiefly frequent salt marshes. The common Goose is so well known as to need but little description ; it has a shorter neck than a Swan, and longer legs than a Duck ; these are placed farther forward, and enable the bird to walk better. It resides in meadows and marshes, swims little, and never dives. From seeing the bird in its domesticated state, few would suppose that it has great powers of flight, and can remain on the wing for a considerable length of time. The domestic

Geese, near the river Don, in Russia, are known to quit their homes in March or April, as soon as the ice breaks up, and to migrate in a body, to the more northerly lakes, at least from five to six hundred miles distant. Here they breed, and constantly reside during the summer, and in the winter return with the young they have reared, to the homes of their former masters, each alighting at the house to which it belongs. These flights of the domestic Goose are also common in other countries. A gentleman, walking near Aberdeen, in Scotland, was one morning attracted, during a heavy gale of wind, by a loud cackling over head, and saw a flight of large birds ; from the movement of their wings he knew they could not be wild ducks. He next day heard that the farm-yard of a neighbour had been deserted the morning before by thirty Geese, which had all taken flight, and not been again heard of. A singular proof of the speed with which they fly occurred some years since in Yorkshire. A person had a large flock of Geese which fed on high ground not visible from the house. The number was lessened as occasion required, to about six ; these were fetched home

every evening for some weeks ; and very frequently when they reached the top of the hill from which they could see the house, they would take wing and fly homewards, making the circuit of about a mile. On one occasion they were on the point of alighting on a pond of water at the adjoining farm-house instead of a smaller one near home ; they soon, however, discovered their mistake, and raised themselves in the air to nearly as great a height as before, alighting on their own pool long before the driver could reach home, though he went in a straight line. These flights were considered remarkable, because the Geese were at that time quite fat and heavy. In the migration of all birds, their lightness of form, and the great size of the muscles which chiefly regulate the movements of the wing, and which frequently weigh more than all the other muscles put together, enable them to sustain their lengthened flight in the air with perfect ease. “No human ingenuity or skill could ever have devised so perfect an instrument as a bird’s wing for its intended purpose ; so light, and yet so powerful, so spacious when spread forth, and yet so compact,

and gathered into so small a compass when not wanted.”*

We may form some idea of the lightness of the feathers also, when we find that the largest quill of a golden-eagle weighs only sixty-five grains, and that seven such quills do not weigh more than a copper penny-piece; that the feathers of a common fowl of moderate size weigh but three ounces, and that of the entire plumage of an owl, but one ounce and a half.

The Wild Goose, of which there are three species, in its unconstrained state, is widely and numerously spread over various parts of the northern world, from whence some flocks of them migrate a great way southward in the winter; they are indeed general inhabitants of the globe, being met with from Lapland to the Cape of Good Hope, and in Persia, Arabia, China, and Japan, in America, Falkland Islands, Terra del Fuego, and New Holland. Flocks of Geese, consisting of from fifty to one hundred birds are often to be seen flying at very great heights, and seldom resting by day, and their cry may frequently be heard

* Stanley on Birds.

when they are too elevated to be visible ; but they seldom exert their voice when they alight in their journeys. On the ground they always arrange themselves in a line, and seem to descend more for rest than refreshment, for after having continued in this manner for an hour or two, one of them with a long loud note, sounds a kind of signal, to which the rest always punctually attend, and rising in a body, they continue their course with great alacrity. Their flight is conducted with much regularity, for they always proceed, either in a line abreast, or in two lines, joining in an angle in the middle like the letter $\triangleleft$ placed horizontally. In this order they generally take the lead by turns, the foremost falling back in the rear when tired with cleaving the air, and the next in succession occupying the place. In these lofty flights they are seldom within reach of a fowling-piece, and even when they move in a lower track, they file so equally, that one discharge rarely kills more than a single bird. Their principal food consists of aquatic plants, and most sorts of grain. They breed in heaths, or in plains and marshes, as formerly in the fenny districts of England, and in

various other countries; the female nestling on tufts of cut rushes or dry herbage, and usually laying from five to eight dull greenish eggs, which are hatched in about a month. In some years the young are very abundant, and may be easily taken and tamed, but the old birds are always extremely shy, and possessing great acuteness both of seeing and hearing, they generally contrive to elude the approaches of their pursuers. During the day they often take up their abode in a field of young corn, to the serious injury of the farmer's property, and in the evening they resort to some lake or river, and thus escape the wily researches of their enemy the fox, which has been sometimes known to attack them in broad day. Tame geese have occasionally united themselves to the bands of wild ones, and have disappeared with them.

In captivity, the wild bird pairs readily with the common Grey Goose, and the offspring are said to be larger than either. But on the approach of spring these domesticated birds are always observed to become restless and uneasy, frequently looking up into the air, making attempts to fly away, and hailing every flock of Wild Geese which passes over

their heads. As this salute is usually returned by the flock, who fly towards the well-known sound, the tame Geese are commonly made use of as decoys to seduce the wild ones to their destruction.

Ulloa, a Spaniard, who travelled in South America, in the last century, describes a singular stratagem for taking Wild Geese near Carthagena, and which is still in practice we believe. The persons who catch these birds throw into the large lake to which they are in the habit of resorting at night, thirty to forty great calabashes. When the Geese in two or three days' time have become accustomed to see them floating about on the water, two men return early in the morning with a calabash, having holes in it for seeing and breathing. This calabash is placed on the head, and the man walks into the water until it rests on the surface, he then very quietly moves towards the Geese, and pulling them under water by the legs with one hand, seizes them with the other. When he has taken as many as he can carry, he returns to the shore and delivers them to his companion, who waits for him near the water, and returns to

the sport till he has taken as many as he desires.

The domesticated Grey Goose has been considered, in a profitable point of view, to be nearly equal in value to the sheep. It is not only valuable to the poulterer for the table, where it is a well-known delicacy, but it furnishes a most important article to the upholsterer, and gives the soft and downy couch which so many thousands enjoy. In addition to this, acres of marshy land are rendered profitable by becoming pastures for the bird, which is the only one that feeds upon grass. Large flocks are kept in Lincolnshire, and from "Stanley's Birds," we will give a slight sketch of their mode of management:—

"A single person will keep a thousand old Geese, each of which will rear seven; so that, at the end of the year, if fortunate in rearing, he will be possessed of seven thousand. During the breeding season, these birds are lodged in the same houses with their owners, and even in their bed-chambers; three rows of wicker pens are placed one above another in every department; each Goose having its separate lodge divided from

the others, of which it keeps possession during the time of sitting. A person called a gozzard attends the flock, and twice a-day drives the whole to water, then brings them back to their habitations, helping those that live in the upper stories to their nests, without ever misplacing a single bird. These birds are chiefly bred and reared for the value of their down and feathers. The season of sheep-shearing does not return more regularly than that of goose-plucking. This extremely cruel operation is chiefly performed by women; and of course the torture is greater in proportion to their want of skilfulness, those new to the employment often tearing and lacerating the skin so as to cause the death of the bird. But even when performed with the utmost expertness, the poor birds pine for a considerable time afterwards, losing their flesh and appetite, their eyes become dull, and they shew every symptom of weariness and weakness. They are, however, plucked frequently, we believe not less than five times a-year; the first plucking being on Lady Day, for feathers and quills; the remaining pluckings between that time and Michaelmas for feathers only. The old Geese submit

with tolerable patience to this barbarous operation, but the young ones are noisy and unruly. Even goslings of six weeks old are not spared ; their tails being plucked, it is said to habituate them to further plucking. When ready for the London markets, flocks, from two or nine thousand in number are sent off, travelling slowly from three in the morning until twelve at night, during which time they will accomplish on an average about eight or ten miles." Those which become fatigued are fed with oats, the rest with barley, and if too lame to proceed, are placed in an hospital-cart, which follows each large drove. The drivers are provided with a long stick, at one end of which a red rag is tied as a lash, and a hook is fixed at the other. With the former, of which the Geese are much afraid, they are excited forward, and with the latter, such as attempt to stray, are caught by the neck, and kept in order. People who live near commons find the rearing a few Geese very profitable, and if they paid due attention might get still greater advantages, for, if well taken care of, a Goose will lay not far short of one hundred eggs during a year. Artificial and often very cruel

methods are sometimes employed to make the birds unnaturally fat, and increase the size of the liver, which is an esteemed delicacy. In upper Languedoc there is a race of tame Geese of great size, and characterised by a mass of fat which hangs from the belly, so as almost to touch the ground when they walk.

A family near Highworth, in Wiltshire, were, a good many years ago, in possession of a peculiar breed of Geese, which when nursed and fattened, though not by any unusual process, attained to a great size, sometimes weighing from twenty to thirty pounds. The owners were with difficulty ever induced to part with an egg of this gigantic race, and they sold the yearly produce of the flock to a few opulent families in the neighbourhood, at the rate of one shilling the pound. Under proper management, and when unmolested by plucking, the tame Goose will live to a great age, even to beyond eighty years. One is recorded to have lived to the age of sixty-four, and was then unfortunately killed by mistake. A Gander, belonging to a farmer in Cornwall, must have been fully eighty years of age when it was knocked on the

head by a sportsman, who did not relish its attacks on his legs as he was crossing the farm-yard. The owner of this bird was a man of great age, the exact time he was born he either could not or would not state, but he always declared that the Gander grew up with him from a gosling.

Willoughby mentions a Goose that was known to be eighty years old, when it was killed for its mischievous propensity of beating and destroying the younger Geese. When of a vicious disposition, the Gander is the terror of the farm-yard, and attacks from its beak are not to be slighted by persons coming within its territories, as it pecks the legs, sometimes inflicting a severe bite.

The Canada Wild Goose, although it is known in all parts of America excepting the warmer regions of the south, still retains its name, from the early opinion that the bird bred and reared its young in the great lakes situated in the interior of Canada. They migrate in summer in large flocks to the bays and inlets connected with the northern seas of the Western hemisphere for the purpose of breeding. There they are killed in great quantities by the native Indians, as well as by the peo-

ple connected with the fur-trading establishments in those parts. In the seasons when the birds are most plentiful, they are stripped of their feathers and salted down in barrels like beef and pork, and with those who are not very dainty, or who may be short of other provisions, salted Geese are in good repute. When they are killed later in the season, the birds are frozen with the feathers on, and so kept fresh during the whole winter. They do not confine their haunts to the region of countries bordering the sea, for far into the interior, sometimes a thousand miles from the shores of the Atlantic, they are periodically met with in large numbers. A few of them visit the coasts of New Brunswick, Nova Scotia, and all those countries bordering on the Gulf of St. Lawrence. A principal part of their food seems to be a species of plant known by the name of sea-cabbage, upon which they thrive well and even fatten, and by the time they have been on the coast a few weeks they are considered fit for the table, though not thought a delicacy.

A middling-sized Canada Goose weighs from nine to ten pounds. In the American markets they are

sometimes sold for as much as the domestic Geese. The feathers, of which they yield a large quantity, are greatly esteemed among the Americans, and fetch high prices. In many parts of the country, the birds that have been caught alive have afterwards been tamed, and have reared their young broods in company with the domestic Geese, and the farmers consider them to be quite as profitable. The English at Hudson's Bay depend greatly on Geese of this and other kinds for their support; their arrival is anxiously waited for, because they are considered the harbingers of spring, and the month in which they return is called by the Indians the "Goose Moon." The English settlers send out their servants, as well as the Indians, to shoot these birds on their passage. The men for this purpose form of boughs a row of huts, at musket-shot distance from each other, and in a line across the vast marshes of the country. Each hovel, or stand as it is called, is occupied by a single person. The men watch the flight of the birds, and at their approach mimic their cackling so well, that the Geese will answer, wheel in the air, and come nearer to the stand. The sports-

man remains motionless, and on his knees, with his gun cocked the whole time, and does not fire until he sees the eye of the Goose. He fires as they are going from him; then picks up another gun that lies ready by his side, and discharges that also. The Geese that he has killed he sets upon sticks, as if alive, to decoy others; he also makes artificial birds for the same purpose. In a good day (for the birds fly in very uncertain and unequal numbers) a single Indian will kill two hundred. The Siberians decoy them by a person covered with a white skin and crawling on all fours; they mistake him, it is said, for their leader, and follow him, driven by men in their rear, until he entangles them in nets or leads them into a sort of pond prepared on purpose. The birds are then killed and plucked, the insides taken out, and they are put into holes in the earth, where the frost preserves them quite sweet throughout the severe season of winter, during which time these hoards are frequently resorted to.

The plumage of the Goose is not only valuable for the many useful purposes to which it is applied, but in several species is of great beauty.

The Egyptian Goose (*Anser Egyptiacus*) may be considered, perhaps, as one of the most striking, and it has consequently been bred and fostered for the waters of parks and pleasure-grounds. The introduction of a pair, however, which were placed with the water-fowl in St. James's Park were anything but a desirable addition, for on the first night they destroyed nearly all their tamer friends, which were found floating dead on the lake by the keeper, greatly to his consternation.

The Red-breasted Goose (*Anser ruficollis*) is also a very beautiful species, rare except in the northern parts of Asia and Siberia. It may have appeared singular to many young people that the plumage of these and other water-birds do not suffer from immersion in the water. During life the feathers are guarded by an abundant oily covering, which is constantly renewed; every shower of rain would otherwise so injure the elastic feathers, and increase the weight of the whole, that the bird would be prevented from flying at all, and be compelled to linger on the ground to perish from hunger. This oily covering does not permit the wet to penetrate, and, if we were to take any

diving-bird out of the water, we should find it dry and free even from damp. A dead bird if thrown into the water would become as wet as a sponge, and the beautiful smoothness of the plumage would be entirely destroyed.

The Spur-winged or Gambo Goose (*Anser Gambensis*) is an African species, of which but little is known except that it possesses a strong white horny spur on the bend of the wing, and very beautiful plumage. Singular to relate, a specimen of this bird was shot in Cornwall in 1821, and is now preserved in the Newcastle Museum. "When first seen it was in a field adjoining the cliffs at Port Wrinkle, a small fishing-cove about four miles from St. Germans, near which it remained three or four days. Being several times disturbed by attempts to shoot it, it came more inland to a farm, and there associated with the common Geese, but was wild, and immediately took wing upon being approached. Here it kept to and fro for a day or two, but, being much disturbed, left and came down upon the shores of the St. Germans river or lake; it was at length shot in a wheat-field, about a mile from St. Germans, by John

Brickford. His wife attempted to stuff the bird, which, from having received only one shot in the head, was in a remarkably perfect state; failing in the attempt, she cut off the wings for dusters and threw the skin away. A naturalist (Mr. Newburn) hearing of the circumstance, managed to secure the mutilated remains of the skin, and though the head was torn off, it was luckily preserved with one wing; these were put together and presented to the Newcastle Museum, where it is justly considered to form one of the most uncommon ornithological rarities ever known in England. A male specimen of this bird, though a native of the hottest region of the globe, lived for nearly twelve years in the gardens of the Zoological Society. Geese appear to have a very ill-deserved credit for stupidity; few birds are more vigilant; nothing can stir in the night without instantly rousing them, their loud cackling then commences, and this outcry, which once saved Rome from being captured by the Gauls, though entirely an accidental circumstance on the part of the Geese, has long associated them with feelings of gratitude and respect. Their already alluded to sagacity in

alighting at the very doors of their owners on the return from migration, is another symptom of discernment on their part; and they have also asingular instinct, which leads them to return from their pastures unattended at a certain hour in the evening after they have for a time been led home. I have often watched during my evening walk, when staying in the country, the return of these misnamed stupid birds. One brood very near to my house, at the hour of seven, might always be seen to form themselves in line and march straight to the little yard where they were kept, and the old dame was at the gate ready to receive the charge, who, she declared to me, “knew their names.”

They are exceedingly attentive to each other and to their young; while the female of the Wild Goose is sitting, the Gander sails about in her neighbourhood to guard her from harm, and has been known to attack furiously any chance intruder; they also protect their young with great courage. With all these and many more indications of intelligence, surely the contempt generally expressed for the Goose is ill founded. This bird is capable of strong attachments to the human species, though

it is impossible to say on what such affection is grounded ; the bird selects his favourite, and from that time nothing appears to diminish his regard. A Goose is said to have taken so strong a fancy to a philosopher of old, called Lacydes, that it never willingly left him by night or by day ; wherever he went, the Goose was his companion. If he walked in the public streets, the bird followed him, and in his own house, always forced itself into his presence. The philosopher, struck with this constant and strange attachment, seems to have considered it as in some way connected with religious feelings, and accordingly, when at last it died, he was at the expense of bestowing upon it a magnificent funeral.

A Goose, a year old, formed a similar attachment to a farmer in Scotland, would follow him any distance, even through the crowd and bustle of the town of Elgin. Change of dress made no difference, he always distinguished his master however he appeared, and whenever he spoke to it, the bird uttered a cry expressive of satisfaction. A similar case is on record in Germany. An aged blind woman, who probably might have been in the

habit of feeding the bird, used to be led to church by a Gander, which took hold of her gown with his bill. When she had seated herself, he retired to graze in the church-yard till she came out again, when he led her home. One day the clergyman called at the old woman's house, and expressed his surprise to her granddaughter that her mother should venture abroad. She replied, "Oh, sir! we are not afraid of trusting her out of sight, for the Gander is with her." These anecdotes appear almost incredible, but they are quoted by eminent naturalists who, from circumstances that came under their own observation, give them every credit. A farmer in Cheshire was selected by a Goose as an object of attachment, and it followed him most assiduously at market, at plough, even on shooting excursions it was always at his heels, continuing its attention even throughout the evening, when it would mount upon his lap as he sat by the fire after dark, and nestle its head in his bosom. We regret to add, that the farmer at length took it in his head to fancy that this mysterious affection of the poor Goose foreboded some evil, and superstitiously killed the faithful bird.

Many striking instances are known of a mutual affection existing between these birds and the dog.

A specimen of the spur-winged, or Gambo Goose, belonging to a person in Scotland, was observed for some time to pay particular attention to a dog which was chained up; and what was singular, although the dog had always manifested great dislike to poultry; he laid aside his animosity and received his new acquaintance with marked attention. The Goose finding she had nothing to fear from her canine friend, would enter his kennel, in the centre of which, among the straw, she made her nest and deposited her eggs, which was not known until one of the family mentioned that the Goose slept in the dog's bosom. The singularity of this circumstance led to an examination of the box (but not without the greatest reluctance on the part of the dog, who appeared determined to protect the property left to his care). On removing the straw, five eggs were discovered in a fine bed of down and feathers. The dog was in the habit of going into his box with the greatest care for fear of injuring them.*

* Phil. Mag. vol. 56.

A Canada Goose was also observed to associate itself in a like manner with a house-dog, and would never quit the kennel but for the purpose of feeding; it always sat by the dog, but never presumed to go into his kennel, except in rainy weather. If the dog barked, the Goose cackled, running after the persons she supposed he was barking at, and trying to bite their heels. She never roosted with her companions unless compelled; and when at last orders were given that she should be allowed to do as she pleased, she spent the night in running about the yard with him, or following him into the village. This attachment continued until the death of the dog, and is supposed to have originated from his having accidentally saved her from a fox. In the illness which preceded his death, the mourning bird never left him day or night, not even to feed, and it was feared she would have been starved, had not a pan of corn been placed near the kennel. The end of the poor Goose was very tragical, for when her friend died, she still kept possession of his kennel; and a new house-dog having been introduced, which, in size and colour, resembled that lately

lost, the Goose was deceived into going within his reach, and the new dog seizing her by the throat, killed her on the spot.

Lord Stanley, in a letter addressed to the Zoological Society in 1834, gives an interesting anecdote of a Sandwich Island Goose, which was hatched at Knowsley. "Through the kindness of John Reeves, Esquire, I received a pair of these birds in February 1834. They did not at first, when turned out on the pond among the other water-fowl, seem to take much notice of each other; but some workmen being at the time employed about the pond, one of the birds (I think from recollection the male) seemed to have formed some sort of attachment to one of the men working. Whenever he was present, the Goose was always near to him, and when absent at his dinner, or when otherwise employed, the bird appeared restless, and gave vent to its solicitude by frequent cries, which, as well as the anxiety, always ceased with the reappearance of the workman. The man having frequently occasion to pass through a door which was obliged to be kept open, it was feared that the attachment of the animal

might lead to its following its friend, and that on its exit it might fall in with, and be worried or stolen by vermin, and in consequence the pair of Geese were confined to another part of the pond."

" In a small hutch in the corner of the inclosure the female laid her first egg. The male then became extremely jealous of any intruder, would run at and seize them by the trowsers, giving pretty sharp blows with his wings. Three other eggs soon followed, white, and very large in proportion to the bird. During the whole period of incubation there could not be a more attentive nurse than the female, and indeed she could not well avoid it, for the male, if she seemed inclined to stay out longer than he thought right, appeared by his motions to be bent on driving her back, nor was he satisfied until he had accomplished his object, when he again resumed his usual position, with his body half in, half out of the hutch, and his head towards the female. At night he constantly made room for himself by the female, the result of which was unfortunate to their progeny, for but one was reared, owing to injuries received by the eggs. One egg being pushed by the mother from under

her, was placed under a hen, and assisted out of the shell, and appearing weakly from the first, was returned to its mother with the hope that she would do better with it than the nurse. She took to it at first pretty well, but subsequently both parents beating it, the hapless Gosling was taken back to its foster-mother, but died soon after having received some injury in the eye from its parents. The Gosling that was reared was attentively cared for by the parents, and the whole family became so tame as scarcely to move out of the way if persons approached." With a little care and attention Lord Stanley considered that the race of birds might easily be established and form an interesting addition to the stock of British domesticated fowls. This Sandwich Island Goose is a bird of plain plumage, and has but little partiality for water. A fine pair were presented to the Gardens of the Zoological Society by Lady Glengall. Mr. Vigors characterised them as a species of Barnacle Goose.

The Barnacle or tree Goose (*Anser leucopsis*) in less enlightened times than the present, was seriously believed to be produced from the Goose-

bearing acorn-shell (*Lepas anatifera*) ; the feathery beard of the animal occupying it, passed for part of the young bird ; and as the shells were frequently found adhering to fragments of wood, they were fabled to grow on trees. Some old works on natural history actually contain drawings of this Goose-bearing tree, and figures of the animal are seen running about, half out of the shell.

This bird breeds only in the extreme north, visiting the more temperate latitudes in the winter.

In the Falkland Isles, a great loggerheaded Duck or Goose (*Anser brachyptera*), which sometimes weighs twenty-two pounds, is very abundant. “ These birds (says Darwin) were in former times called, from their extraordinary mode of paddling and splashing upon the water, race-horses ; they are now named much more appropriately, Steamers. Their wings are too small and weak to allow of flight, but by their aid, partly swimming, and partly flapping the surface of the water, they move very quickly ; the manner is something like that by which the common house Duck escapes when pursued by a dog, save that

the Steamer moves its wings alternately, instead of both together, as in other birds. These clumsy Geese make such a noise and splashing, that the effect is exceedingly curious. The Steamer is able to dive only to a very short depth. It feeds entirely on shell-fish from the kelp and tidal rocks ; hence for the purpose of breaking them, the beak and head are surprisingly heavy and strong ; the head is so hard, that I have scarcely been able to fracture it with my geological hammer, and all our sportsmen soon discovered how tenacious these birds were of life. When in the evening placing themselves in a flock, they make the same odd mixture of sounds which bull-frogs do within the tropics." *

The Goose was greatly esteemed by the ancients, both alive and as an article of food. By the Egyptians it was held sacred, and at the present day it is a favourite dish with their priests. In the Egyptian paintings and sculptures in the British Museum, the Goose occurs continually, both alive and plucked, and prepared for the table. A place in

* Darwin's Journal during the voyage of the Beagle.

Upper Egypt had its name, *Chenoboseia* (Goosepens) from these animals being there fed, probably for sale; the liver seems to have been a favourite morsel in all ages, and the whole bird is well known to form a popular Michaelmas dish, a custom said to have arisen from Queen Elizabeth's having partaken of Goose the day before the defeat of the celebrated Spanish Armada.

Through yielding water as through limpid air,
The pelican with terrible voracity
Plunges among the finny shoal, her javelin pointed bill.

MONTGOMERY.

THE PELICAN.

Pelecanus.

THERE are about thirty distinct species of the Pelican, four of which are British birds. The family is widely dispersed over the globe, having been met with in almost every clime which navigators have visited; they are singular and interesting birds, equally at ease on the water or in the air. The White Pelican (*P. onocrotalus*) is much larger than a swan, measuring five or six feet from the point of the bill to the end of the tail, and ten to twelve feet from tip to tip of the wings. The feet are large and completely webbed.

Persons who have only seen these birds shut up in a menagerie are scarcely aware of their agility and vivacity in a state of nature. When floating on well-spread wings over the undulating waves, their appearance is extremely animated and graceful. The pale salmon or blush white colour of the

plumage is also seen to great advantage, for with the exception of the quill-feathers, which are black, the bird is of this delicate hue. The Pelican feeds upon living fish, and in order to catch these with facility it is provided with an admirable fishing spear in the bill, which is of great length, and quite straight, the inner edges being like a carpenter's saw; so that the bird, after securing its prey, is enabled to retain a firm hold of its slippery victims; it is terminated by a slight hook, and from the lower bill hangs an elastic bag or pouch, capable of being stretched to hold two or three gallons of water. The travelling showman, in exhibiting the bird, makes a point of displaying this curious appendage to advantage, either by placing his head in it, or, if well rewarded, by filling the pouch with water for the gratification of the curious. This remarkable appendage is used by the Pelican to contain the fish on which it preys, and in which it speedily stores enough for a meal, and then returns to some neighbouring rock to satisfy its voracious appetite from the contents of its wallet. The pouch has also been generally supposed to serve as a storing place for the food which the old birds

bring to their young, either of fish or the refreshment of water; of the latter it is said to make a regular bath in the nest for the use of the young. Many eminent writers allude to the beasts of prey as gratefully availing themselves of the Pelican reservoir to allay their thirst, without molesting her young. The nest of this bird, however, is not constituted to contain any supply of fluid, and we must therefore consider these details as more pleasing than true.

Mr. Audubon tells us that the generally received idea that Pelicans keep fish or water in the pouch to convey them to their young, is quite erroneous. The water which enters the pouch, when it is immersed, is immediately forced out between the half-closed mandibles, and the fish recently swallowed, is disgorged for the benefit of the young. "Of all this," he says, "he has fully satisfied himself, when within less than twenty yards of the bird while fishing; and he never saw them fly without the pouch being closely contracted towards the lower mandible, indeed, he doubted if a Pelican could fly at all with its burden so much out of trim, as a sailor would say." The fable also

of the Pelican's mode of feeding her young with her blood is equally to be discredited. Like many other birds she disgorges food into the throats of her offspring, but the appearance of the pointed and red-tipped bill, when pressed upon the delicate breast, may easily have given rise to this well-known report. The male also feeds the female in the same way while she is sitting. When not in use, the bag, by an admirable contrivance, is wrinkled up in such a manner as to be completely hidden in the angular hollow of the under bill.

The wings of the Pelican are large, muscular, and stiffly feathered, and the bones so light and thin as to be almost transparent ; the air-cells in different parts of the body are numerous and large. These enable it to soar to lofty heights, or hover at moderate elevations, or rapidly descending, to skim on the waters with great lightness. The belly and breast are beautifully formed to meet the yielding wave, and the feet are also completely webbed, the legs short and thick, enabling the bird to pilot its way with incredible speed. In hunting for prey the Pelican may often be seen in groups, particularly in the spots where fish abound ; when

a fish is discovered, the bird soars into the air, discharges the air from the lungs and other parts of its body, and suddenly plunges into the water, entirely disappears for a few seconds, it then emerges with its twisting prey in its long bill, and consigns it to the pouch. M. Roulin states, that "he has seen an American species, when alone in search of prey, wheel round and round, at the height of fifteen or twenty feet, and as soon as it perceived a fish, dart upon it from above with inconceivable rapidity, displacing the water around it for a considerable distance. Should it fail in its attack, which rarely happens, it rises again, to repeat the same manœuvre."

The Pelican, and Cormorant, a bird of the same family, are said to have a very singular method of taking fish, in company with each other. A number of these arrange themselves in a large circle at some distance from the land; and the Pelicans flap with their large wings on the surface of the water, while the Cormorants dive beneath; hence the fish contained within the circle, are driven before them towards the land; and as the circle lessens, by the birds coming close together, the fish

are at last brought into a small compass, and are at the mercy of their conquerors. Various species of gulls are also on the watch, and likewise obtain a part of the spoil. The Pelican has been trained to take fish for the use of mankind, and in former times the Cormorant was very frequently kept in this country for the purpose, as it is at present by the Chinese. They were carefully attended to in the house, and when taken out for fishing, a leathern thong was placed round the neck to prevent them from swallowing their prey ; they were hooded until brought to the water's edge. In the household of Charles I., an officer is mentioned as being called master of the Cormorants. All the Pelican family are remarkably voracious, and consume vast quantities of fish. This gluttony is common to many birds. The gannet or solan goose is a great destroyer of mackerel and herrings : it has been calculated that the swarms of gannets which frequent St. Kilda, destroy at least ninety millions of the herrings in the course of a year, for, unless in great want, they refuse to eat any other fish. Some years ago one of these birds was flying over Penzance, in Cornwall,

when, seeing some pilchards lying on a fir plank in a place for curing this fish, it darted down with so much violence as to strike its bill through the board, and killed itself on the spot. A herring has been frequently tied to a plank and set afloat, that the bird, by falling upon it, might break its neck. The Pelicans kept in the Tower of London, at the time the menagerie was in existence there, were each allowed three dozen of small plaice per day; sufficient nourishment to preserve life, doubtless, but when we consider the extraordinary size of the pouch, which the bird in a state of nature generally fills and empties two or three times during a day, the allowance appears but scanty for so voracious a bird, which will at one meal despatch as many fish as would suffice for half a dozen men. In confinement it has been known to snatch up rats and other small quadrupeds. Audubon mentions one that was shot in America, and though not a full-grown bird, was found to contain, when opened, several hundreds of small fish. The European White Pelican which we have described, migrates about the middle of September to Egypt in regular bands, which terminate like

the flocks of the wild goose, in an acute angle. During the summer months they take up their abode on the borders of the Black Sea and the shores of Greece. They are rare in France and unknown in Great Britain. This bird has its specific name, *Onocrotalus*, from two Greek words, signifying the braying of an ass, as its cry, particularly during flight, bears a great resemblance to that discordant sound. It generally breeds in marshy and uncultivated spots, on the shores of lakes or large rivers, making its nest, which is deep and about a foot in diameter, of sedges and plants, sometimes lining it with soft grass; it also nestles in dry and desert places. The eggs are two or more in number, of equal roundness at both ends, and the female bird, when molested, has been known to hide them in the water.

During the time of sitting and rearing, the Pelicans are very careful of their progeny, and most attentive to their wants. Sonnerat found five eggs under a female of this genus. She would not rise to let him pass, but kept her seat, struck at him with her bill, and screamed when he at-

tempted to drive her from the nest. A pair of Pelicans that were taken very young were tied by the leg to a post in the ground, and the mother daily brought them food, and remained with her young ones until the evening, when she flew up to roost in a tree immediately above them. The Pelican, like many other palmated birds, has the habit of perching on trees. The three birds became very familiar, suffering their owner to touch them, and the young ones gratefully accepted the little fish he offered, storing them first in their pouches, and then swallowing them at leisure. Le Vaillant gives a striking description of a roosting station of these and other sea-birds at the entrance of Saldanha Bay. "After," says he, "wading through the surf and clambering up the rocks, I beheld a wonderful spectacle. All of a sudden there arose from the whole surface of the island a thick cloud, forming at the height of about forty feet above our heads, an immense canopy, composed of sea-birds of every species, and of all colours; Cormorants, Sea Gulls, Sea Swallows, Pelicans; apparently the whole winged tribe of this part of Africa seemed here assembled. Their

voices mixed together and modified according to their different kinds, formed such a horrid discord, that I was every moment obliged to cover my head to give a little relief to my ears. The alarm which we gave was the more general among these birds, as we disturbed the females which were then sitting. They had nests, young, or eggs, to defend, and were like furious harpies let loose against us; their cries were almost deafening. They often flew so near to us that they flapped their wings in our faces, and though we repeatedly fired our pieces, we were not able to frighten them; it seemed almost impossible to disperse this cloud. We could not move a step without crushing either their eggs or young ones, the earth being actually strewn with them." The same traveller found on the Klein Brak river, while waiting for the ebb tide, thousands of Pelicans and Flamingoes, the deep rose colour of the one beautifully contrasting with the white plumage of the other. Captain Flinders, during his voyage to New Holland, describing one of those numerous gulfs which indent the coast of that country, and are thickly spotted with small islands, says, "Upon two of these we

found many young Pelicans unable to fly. Flocks of the old birds were sitting upon the beaches of the Lagoon, and it appeared that the islands were their breeding places ; not only so, but, from the number of skeletons and bones there scattered, it should seem that for ages these had been selected for the closing scene of their existence. Certainly none more likely to be free from every disturbance could be chosen." It is upon this incident that Montgomery founded his beautiful poem of the Pelican island. The Brown Pelican (*P. fuscus*) is described by Audubon as being one of the most interesting of American birds ; it resorts to salt-water alone, and never, like the White Pelican, enters fresh-water streams. He saw the birds for the first time in a salt-water inlet in Florida. Several dozen were perched on some mangroves, and apparently sound asleep. He shot at them, but only succeeded in driving them all away. At other times, however, he had opportunity of securing several specimens, and of also studying their habits. They were very familiar at the Keys of Florida, frequently flying within pistol-shot of the wharfs ; the boys attempted to knock them down

with stones, though very rarely successful in their efforts. Scarcely an hour of the day passed without these birds being seen, some fishing, some slumbering as it were on the bosom of the ocean or on the branches of the mangroves. The flight of the Brown Pelican, though heavy to appearance, is remarkably well sustained; it is able to remain many hours on the wing, and also to mount to a great height in the air. While on wing they draw in their head between their shoulders, stretch out their broad webbed feet to their full extent, and proceed in perfect silence. When the weather is calm they are often seen in the bright sunshine ascending in broad circles, flock after flock, until they attain a great height, when they gracefully glide on constantly expanded wings, and course round each other for an hour or more at a time, after which, in curious zigzags, and with remarkable velocity, they descend towards their beloved element, and settle on the water or on large sand-bars, or on mangroves.

The Brown Pelicans are as well aware of the return of the tide as the most watchful pilot, though but a short time before they have been

sound asleep, yet their eyelids suddenly open, they stretch open their mandibles and pouch as if yawning, leave their roosts, expand their ample wings, and pursue the prey that the returning waters bring with them. The Pelican, like most sea-birds, can judge with certainty of the weather. If they are seen fishing altogether in retired bays, a storm may be expected, but if they pursue their sport far out at sea, the weather will be fine. This species procures its food on wing, and in a manner quite different from that of the White Pelican. A flock will leave their resting place, proceed over the waters in search of fish, and when a shoal is perceived, separate at once, when each, from a height of about twenty feet, plunges in an oblique direction, spreading to its full extent the bill and pouch, and suddenly scoops up the fish, immersing its head and neck, and sometimes body, for an instant ; it immediately swallows the fish, rises on wing, dashes on another fish, seizes and devours it, and thus continues, sometimes plunging eight or ten times in a few minutes, and always with success. When it is completely satisfied it rests on the water for a while, but if it has

a brood or a mate sitting on her eggs, it flies off at once, however heavily laden it may be. They at times follow the porpoise, when that animal is in pursuit of prey, and as the fishes rise from the deep water towards the surface, fall upon the frightened shoal, and swallow up one or more. The Pelican sometimes acts as purveyor to the gull in the like manner. The black-headed gull, which is abundant along the coasts of the Floridas in spring and summer, carefully watches the motions of the Pelicans. The latter having plunged after a shoal of small fishes, of which it has caught a number at a time in its pouch, in letting off the water from amongst them, sometimes allows a few to escape with it. The gull at that instant alights on the bill of the Pelican, or on its head, and seizes the fry with great dexterity, the Pelican not manifesting the least displeasure at the transaction. This species of Pelican walks but awkwardly on the ground, and when running, it stretches out its neck, partially extends the wings, and reels so that one might imagine it ready to fall at every step. If approached when wounded, and on the water, it swims off at full speed, and if overtaken, suddenly

turns about, opens its large bill, snaps it violently several times in succession, causing it to emit a smart noise, striking and biting very severely. The negroes are very adroit in taking them: a hunter, who waded after a Pelican, the wing of which had been broken, and which could not be seized without danger, drew his butcher's knife, struck the long blade through the open pouch of the bird, and at one jerk swung it up in the air with extreme dexterity, after which he broke its neck. At all seasons the negroes lie in wait for these birds, killing all they can find, to serve as food during winter; they skin the birds, cut off the head, wings, and feet, and either salt or smoke them, but in whatever way prepared they are esteemed to be good food both by the negroes and Indians. The pouch is dried and used for keeping gunpowder, shot, and snuff; when fresh it may be stretched so as to become quite thin and transparent like a bladder. Great numbers are shot for the pouch alone, which, when carefully prepared, is as soft as silk, and is sometimes embroidered by the Spanish ladies for work-bags. The fishermen of the Nile convert it into vessels to empty their

boats of water, preserving the bones of the jaw. The flesh is tough and coarse when the bird is full-grown ; the young ones, when half-fledged, are a complete mass of fat : at this period the Indians carry them off in great numbers ; the vultures also devour them in the absence of their parents ; and the negroes make them into Gambo soup, a favourite dish. The crows also suck the eggs ; and many a young one which has fallen from the nest is devoured by some quadruped. When extensive depredations have been thus made, the birds abandon their breeding places, and do not return to them, and in fact year after year they are retiring from the vicinity of man. The Pelican is a long-lived bird, and has often been domesticated. According to the account of Faber, one was kept in the court of the Duke of Bavaria above forty years. He says that it seemed fond of being in the society of man, and that when any one played on a musical instrument it would stand perfectly still, turn its ear to the place, and with outstretched head appear to pay the utmost attention. We are told that the Emperor Maximilian had a tame Pelican that lived for more than eighty years, and

always attended his soldiers when on their marches. When unable to use its wings it was kept for a long time at the court of the empress, at the cost of four crowns a-day. Turner mentions one which lived fifty years. Of a great number of Pelicans kept in the menagerie at Versailles, none died in the space of twelve years, though during that time some of almost every species of animal fell victims to death. They are very harmless in a state of captivity.

St. Pierre mentions having seen, at Cape Town, a large Pelican playing with a great dog, whose head she often, in her frolic, took into her enormous beak. The pair of Pelicans in the gardens of the Zoological Society, Regent's Park, like most of the swimming-birds, are perfectly contented, harmless, and familiar. Their house is very appropriately built of mimic rock-work, with a railed enclosure and a capacious tank, in which the birds can indulge in their favourite element, the water. There is a very fine specimen of this Pelican belonging to the Earl of Derby at Knowsley.

The Frigate Pelican (*P. aquilus*) derives its

name from the steadiness and rapidity with which it cleaves the air, in which the greater part of its time is spent, and also from the spirited manner in which it attacks other birds. The Frigate is fitted by nature for the warlike life it leads. Its legs are remarkably strong, with sharp talons, which are but partially webbed, and a powerful bill, long, and the upper mandible terminated by a very pointed hook. This conformation, so well calculated to make him the terror of other sea-birds, was probably the reason why Linnæus gave him the name of *Aquilus*, or Eagle. Audubon calls him the Marine Vulture, and adds, that "he well deserves the name, being alike lazy, tyrannical, and voracious." The term lazy can scarcely apply to a bird possessed of a power of flight, perhaps superior to that of any other; tyrannical he certainly may be considered, as he attacks all birds weaker than himself, compelling them to give up their prey for his own eating; and voracious he may also be termed, for his appetite is so ravenous, that he is not deterred from indulging it by the sight of man, and will even continue his repast while held in the hand. The Frigate preys on all kinds

of fish that approach the surface of the water, particularly the flying sorts, on which it darts with the greatest velocity. The wings, when expanded, measure fourteen feet, though the body is not larger than a full-grown domestic hen. This amazing stretch of wing, which is of great service in supporting the bird during its long flights, is of great inconvenience to him on shore, as he is hardly able to rise from the ground; and in this situation may be readily taken. The Frigate Pelican inhabits the tropics. When the bird is first hatched, it is covered with a light grey down, which gradually becomes of a deep brownish black, and in certain lights, shades of green, purple, and bronze are seen on every part of the head, neck, and body. The feet are red when young, but change to black as the bird grows older; the bill of a purplish blue, the eyes black and brilliant, and surrounded by a bluish skin. The full-grown male has a red pouch hanging from its throat, that of the female is much smaller. This pouch is of great service to the bird in sustaining it in the air, where, as we have before remarked, it principally passes its life. It is capable of being distended with air

from the lungs, with which, as well as with the hollow bones of the wings, it communicates. These united, require the bird to use but little effort to sustain the weight of the body ; with outspread wings it may frequently be seen to remain for a length of time suspended in the air without motion. The tail is very long, deeply forked, and formed of twelve rounded feathers. These birds may be seen, like the vultures, in large or small flocks ; like them, they spend the greater part of the day on the wing, searching for food, and like them also, when completely satisfied or roosting, collect in large flocks, either to fan themselves with their vulture-like wings, or to sleep close together. " About the middle of May," says Audubon, " the Frigate Pelican may be seen flying at a great height over the islands on which they have bred many previous seasons, in pairs of from fifty to five hundred ; they then alight on the mangroves, and commence repairing the old nests or constructing new ones, and do not scruple to pillage each other's nests of their materials. They break the dry twigs of trees with ease, passing swiftly on wing, and snapping them off by a single grasp of

their powerful bill. It is a beautiful sight to see them when thus occupied, especially when several are so engaged, passing and repassing with the swiftness of thought over the trees whose tops are blighted; their purpose appears accomplished by magic, for they are far more expert than the forked-tailed hawk, or our swift or chimney-swallow. If the bird drops a stick while travelling over the water to its nest, it drops after it and seizes it with its bill before it has reached the waves. The nests are usually placed towards the south, and on such trees as hang over the water, and are formed of sticks, crossing each other, to the height of about two inches, and are flattish but not very large. When the birds are sitting, their long wings and forked tail are seen extending beyond the nests for more than a foot. The Frigate Pelican is very dexterous in hunting for its prey, and in compelling other birds to part with their spoils. It does not dive, its bill in form resembling that of the cormorant, which also never plunges when flying in pursuit of fish, and only dips into the water when dropping from a perch or rock to escape danger. Audubon gives the following animated

description of its mode of preying and powers of flight :—

“ The Frigate comes from on high with the velocity of a meteor, and on nearing the object of its pursuit, which its keen eye has spied while fishing at a distance, darts on either side to cut off all retreat, and with open bill forces it to drop or disgorge the fish which it has just caught. See him now ! Yonder over the waves leaps the brilliant dolphin, as he pursues the flying fishes which he expects to seize the moment they drop into the water. The Frigate bird, who has marked them, closes his wings, drops towards them, and now ascending, holds one of the tiny things across his bill. Already fifty yards above the sea, he spies a porpoise in full chase, launches towards the spot, and in passing seizes the mullet that had escaped from its dreaded foe ; but now, having obtained a fish too large for his gullet, he rises, munching it all the while, to the skies. Three or four of his own tribe have watched him and observed his success. They shoot towards him on broadly extended pinions, rise in wide circles, smoothly yet as swiftly as himself. They are now all at the

same height, and each as it overtakes him, lashes him with its wings, and tugs at his prey. See ! one has fairly robbed him, but before he can secure the contested fish, it drops. One of the other birds has caught it, but he is pursued by all. From bill to bill, and through the air rapidly falls the fish, until it drops dead on the waters and sinks into the deep. I once observed a Frigate bird that had forced a Cayenne Tern yet in sight to drop a fish, which the broad-winged warrior had then caught as it fell. This fish was rather large for the Tern, and might probably be about eight inches in length. The Frigate bird mounted with it across his bill about a hundred yards, and then tossing it up caught it as it fell, but not in the proper manner. He therefore dropped it, but before it had fallen many yards caught it again. Still it was not in a good position, the weight of the head, it seemed, having prevented the bird from seizing it by that part. A second time the fish was thrown upwards, and now at last was received in a convenient manner, that is with its head downwards, and was immediately swallowed. Instinct leads the birds who prey on fish to prefer

this mode of swallowing them. Fish, it would appear, are not so particular when they prey on each other. The dolphin, whose appetite is as voracious as that of the vulture, swallows its prey tail foremost. One was caught, that when opened contained no less than twenty-two flying fish, all regularly disposed side by side with their tails downwards, somewhat as herrings are packed in a barrel. The Frigate is described by many travellers as entirely living on the spoils of others, and has, from this cause, been named the Pirate. It certainly fishes as much on its own account as any other ocean bird, but its extreme voracity induces it not to remain satisfied without procuring everything that comes in its way.

The Booby is said to be invariably attacked and robbed by the Frigate. Catesby says, "that as soon as this Pirate perceives that the Booby has caught a fish, he flies furiously against him, and obliges him by blows from his wings to dive under water for safety; the Pirate not being able to follow, hovers above the water, till the Booby is obliged to emerge for respiration, and then, while spent and breathless, compels it to surrender its

fish." Lequet says, that the Boobies repair at night to repose on the island of Rodrique, and that the Frigate waits for them on the tops of the trees; rises very high and darts down on them like a hawk upon its prey, not to kill them but to make them disgorge their fish. The Booby then throws up a fish, which the Frigate snatches in the air. Often the Booby screams and defies the attack, but the Frigate rising again descends with such a blow as to stun the poor bird and compel a surrender. It is not correct that the Frigate forces the Pelican in the same manner to relinquish its prey, for this bird, if attacked or pursued, could alight on the water or elsewhere, and by one stroke of its sharp and powerful bill destroy the rash aggressor. The Gulls and Terns are its chief purveyors, and these it continually forces to drop their prey. They will devour the young of the Pelican when quite young, as well as those of other birds who breed in flat and exposed nests. Their sight is extremely keen, and they now and then come down from a great height to pick up a dead fish, but a few inches long, which they have observed floating on the water. They also see

well at night, though they are not known to go to sea excepting during the day; on being disturbed at roost, they take wing and mount into the air, and sail as beautifully as in the day, returning to their roosts when danger is at an end. They are not at all shy, and appear to be quite unaware of danger from a gun, rarely all going off when a party is shooting at them. When seized, they display but little disposition to defend themselves, if ever so slightly wounded, but struggle and beat themselves to death with their wings. Audubon was on a shooting excursion at a place where the party found many hundreds of these birds; they sailed overhead for nearly half-an-hour, and about thirty were shot; some of them at a remarkable height; when the shot struck them they fell to the water, their great wings producing a sound as they whirled through the air like a sail flapping during a calm. As their flesh is tough, dark, and totally unfit for food, the wanton destruction of so many, appears scarcely justifiable to any one but an ardent sportsman. In the aid of science, a fewer number would, we should think, have sufficed.

Frigates are esteemed by the inhabitants of the South Sea Islands, for the sake of their long-neck feathers, and their fat ; the former are worked into bonnets, and the latter is highly valued as a sovereign remedy in rheumatic complaints. The buccaneers extract this oil, which they call “oil of Frigates,” by boiling the birds in great cauldrons.

“ In every track of ocean, air, and skies,
Myriads of birds in still succession rise.”

THE PENGUIN.

Aptenodytes.

THERE are several varieties of the Penguin, differing in size from that of a swan to a Muscovy duck; they inhabit the Southern hemisphere, and are all admirably formed for swimming, possessing wings which act as fins. These assist the bird in the water instead of the air, for they are of no use as organs of flight. In swimming, the Penguins sink above the breast, the head and neck only appearing, and row themselves along by the feet and wings, which much resemble the flippers of the turtle, and are covered with feathers not longer than those of the rest of the body. The whole plumage is thick, forming by its broad feathers an almost scaly covering; indeed it has been said, that an old bird, whose flesh is consequently tough, can stand the blow of a scimitar without injury. The feet are very broad, with four toes, three of which are

webbed. Though so active in the water, Penguins are very helpless upon land, the legs being short and placed in the same position as the tail; on these they can but awkwardly stand upright, and their fin-like wings hanging down in front like arms give them much the appearance of a dog who has been taught to sit up. In walking, the body waddles from side to side, and if they did not occasionally use their wings as fore-legs, they could move but slowly. They feed very voraciously, entirely on fish, and seldom come to land except in the breeding season, thus spending the greater part of their lives on the water. They are well fortified against harm from remaining so long in this cold element by a clothing of fat under their thick plumage. Like other sea-fowl, Providence has most amply protected it by this warm covering. It is a singular fact, that animals which do not take the water, as wolves, foxes, hares, &c. have the fur much thicker on the back than on the breast, while the beaver and other amphibious animals possess an ample covering on the latter part. The Penguin, from its more than usually well-feathered breast, is thus able to meet the heavy seas of its abiding

places, and to brave the surges of a Southern hemisphere with enviable ease. Though the Penguins have the reputation of being stupid on land, from the awkward position of the legs, which unqualify them from escaping readily from an attack in the water, this apparent infirmity enables them to dive with great rapidity at their approach ; for, if they find themselves pursued they can instantly sink, and then the bills alone are visible.

The appearance of the Penguin is very striking, from the peculiar whiteness of its breast, which is beautifully contrasted in the different species with a rich black or brown. At the Falkland Islands, where they appear to have excited more observation than in any other place, and where they are found in great abundance, their towns, camps, and rookeries (as the breeding places are called) have been most interestingly described by many voyagers to the South.

The Penguins at the Falkland Islands and the Cape of Good Hope associate in large companies, and when they visit the shore may be seen drawn up in regular companies like a party of soldiers, for they hold their heads high and stand very

erect: a line of black running across the white crop, has also led some travellers to compare them to a row of children with white bibs fastened round the waist with black strings.

The Penguin colonies have been described as spots which give a dreary idea of the solitary places in which they are found. Providentially for these vast flocks of birds is it, that their breeding-places have been mercifully cast on the desolate islands of the Southern Seas, where man rarely intrudes and in most instances where an ungenial climate and barren soil offer no temptations for him to invade their territories. These breeding-places by long residence become barren, and are entirely freed from grass: when the intruders walk among the feathered population to provide themselves with eggs, they are regarded with side-long glances by some of the birds, but produce little feeling of alarm. In many places the shores are covered by the Penguins, and three hundred have been taken in an hour; they generally make but little effort to escape, and stand quietly by until it comes to their turn to be knocked down with sticks like their companions. They are very

tenacious of life. Mr. Foster, while he went in pursuit of others, left a great number of them apparently lifeless, from the blows they had received, but they afterwards got up and marched off with the utmost gravity, as if nothing particular had happened. Their sleep is also very sound. Dr. Sparrman accidentally stumbled over a Penguin, and kicked it several yards without disturbing its rest, nor until repeatedly shaken, did the bird awake. Penguins appear in the southern hemisphere to occupy the place filled by the auks in the North; both are extremely numerous in these desert regions. Captain Cook, speaking of two islands in high southern latitudes, describes the cold as intense, and the islands to be covered with hoar frost and snow, not a tree, in short, was to be seen, and no living creatures but Shags and Penguins, the last being in such numbers "that they seemed actually to encrust the rocks."

The "rookeries" or "towns" on the Falkland Islands are described as designed with the utmost order and regularity, though occasionally they are the resort of three species of Penguins; a regular camp, often covering three or four acres, is laid

out and levelled, and the ground disposed in squares for the nests, as accurately as if a surveyor had been employed. Their marchings and counter-marchings are said to remind the observer of the manœuvres of soldiers on parade, in black coats and white trousers. In the midst of all this order, their government is not very strict, for some of the strongest species are said to steal the materials from the nests of the weaker. But large as the rookeries of the Penguin on the Falklands are, they sink into insignificance when compared to the settlements of the King Penguins, recorded by Mr. G. Bennett, who saw on an island in the South Pacific Ocean, a colony of these birds, which covered an extent of thirty or forty acres. He describes the number of Penguins collected together in this spot as immense; but observes, “that it would be almost impossible to guess at it with any near approach to correctness, as, during the whole day and night, from thirty to forty thousand are continually landing, and an equal number going to sea. They are arranged, when on shore, in a very compact manner, and are classed with the greatest order, the young birds

being in one situation, the moulting birds in another, the sitting hens in a third, the clean birds in a fourth, &c. and so strictly do birds in a similar condition congregate, that should a bird that is moulting intrude itself among those that are clean, it is immediately driven away by them."

Mr. Weddell, during an expedition towards the South Pole in 1822-24, had an opportunity of closely observing the habits of the King Penguin, and we will make a few extracts from his account of those he saw in the desolate Island of Georgia.

"The mountains here are lofty and always covered with snow, and almost the only natural production of the soil is a strong-bladed grass, which grows in tufts on mounds three or four feet high. Birds and amphibious animals are the only inhabitants of the dreary region." Of the bird tribe, the King Penguin he considered as the most worthy of notice. "The Penguins," says Mr. Weddell, (or as they ought properly to be called, Pinguins, the name being evidently derived from the Latin word *pinguido*, on account of their fatness) "were seen in large flocks along the shore, walking erect and with a waddling gait, and

through a hazy atmosphere, might readily be mistaken for a body of men.

These birds are not perhaps surpassed even by the peacock, in pride, and in beauty of plumage; they are but very little inferior. During the time of moulting, they seem to repel each other with a disgust, arising from the ragged state of their coats; when the plumage is again restored they reassemble, but no bird who has not quite completed the moulting process is allowed to enter the community. It is truly amusing to watch them frequently looking down their breast and sides, apparently admiring the beauty of their white plumage, carefully adjusting it, and removing any speck which may sully its snowy appearance.

“ About the beginning of January they pair; the egg produced is about the size of that of a goose. During the time of hatching, the male is remarkably assiduous in feeding his mate, fishing at sea to provide her with food, until she grows extremely fat. After the young is hatched, both parents attend to it, and then become very thin, while the young bird soon gets so fat as to be scarcely able to move. The female

hatches her egg sitting in an erect position, and holding it close between her legs and tail, in a cavity which, in the female, is particularly suited for the purpose. If disturbed during the time of incubation, she moves away, carrying the egg with her. When she leaves the nest for the purpose of washing, the egg is rolled to the male by her feet, who receives, and adjusts it between his legs with his bill, carefully watching over it until her return. The hen bird keeps charge of her young nearly a twelvemonth, during which time it changes and completes its plumage. In teaching it to swim, the mother has frequently recourse to an ingenious artifice: if the young one refuses to take the water, she entices it to the side of a rock, and cunningly pushes it in, and this is repeated until the young bird takes the sea of its own accord." The full-grown Penguins walk in an erect position until they reach the water-side, when they throw themselves on their breasts, and boldly encounter the very heavy sea met with at their landing-places. The King Penguin stands about three feet and a half in its erect position, and some individuals have been known to weigh

thirty pounds. Bougainville caught a specimen of this bird, which soon became so tame, as to follow and recognize the person who had the care of it. For some time it fed upon flesh, fish, and bread, but gradually became lean, pined, and died.

Captain Fitzroy gives the following interesting account of the mode in which Penguins feed their young at their own expense. Multitudes of Penguins were swarming together in some parts of Noir Island, on the coast of Terra del Fuego, among the bushes and "tussac" (a thick rushy kind of grass) near the shore, having gone there for the purpose of moulting and rearing their young. They were very valiant in self-defence, and ran open-mouthed, by dozens, at any one who invaded their territory, little knowing how soon a stick would scatter them on the ground. The young proved good eating, but the others were black and tough when cooked. The manner in which they feed their young is curious and rather amusing. The old bird gets on a little eminence, and makes a great noise, between quacking and braying, holding its head up in the air as if it were haranguing the Penguinery, while the young one stands close

to it, but a little lower. The old bird having continued its clatter for about a minute, puts its head down, and opens its mouth widely, into which the young one thrusts its head, and then appears to suck from the throat of its mother for about a minute or two, after which the clatter is repeated, and the young one is again fed; this continues for about ten minutes. I observed some which were moulting make the same noise, and then apparently swallow what they thus supplied themselves with; so in this way I suppose they are furnished with subsistence during the time they cannot find it in the water.*

The species here mentioned is that which, from the discordant braying it utters, is called the Jack-ass Penguin, and which does not seem to endure invasion so quietly as some of the other species. It makes its nest in burrows on downs and sandy plains, and appears to have been the Penguin noticed by Forster, who describes the ground as everywhere so much bored, that a person, in walking, often sinks up to the knees, and if the Penguin happens to be in her hole, she revenges

* Voyages of the Adventure and Beagle.

herself on the passenger by fastening on his legs, which she bites very hard. Mr. Darwin amusingly relates an encounter with one of these birds on the Falkland Islands.

“One day, having placed myself between a Penguin and the water, I was much amused by watching its habits. It was a brave bird, and till reaching the sea, it regularly fought and drove me backwards. Nothing less than heavy blows would have stopped him ; every inch he gained he firmly kept, standing close before me, erect and determined. When thus opposed, he continually rolled his head from side to side in a very odd manner, as if the power of distinct vision lay only in the lower part of the eye-ball. This bird is commonly called the Jackass Penguin, from its habit while on shore of throwing its head backwards and making a loud, strange noise, very like the braying of an ass ; but while at sea and undisturbed, its note is very deep and solemn, and is often heard in the night-time. In diving, its little wings are used as fins, but on the land, as front legs. When crawling it may be said to be on four legs. On the side of a grassy cliff it moves

so very quickly that it might easily be mistaken for a quadruped. When at sea, and fishing, it comes to the surface for the purpose of breathing with such a spring, and dives again so instantaneously, that I defy any one, at first sight, to be sure that it was not a fish leaping for sport." *

It has been conjectured that the four-footed duck of Gessner might have owed its origin to an ill preserved Penguin, and the notion of its being four-footed been strengthened by some voyager who had seen the bird making progress, as Mr. Darwin has above described.

The French naturalist Garnot, mentions this Penguin as burrowing holes, in which to deposit its eggs. These are deep and large enough to lodge the whole family, which consists of father, mother, and two children, and if you chanced to place your leg in one of these burrows, you would feel it pretty sharply pinched. "It was very amusing," he says, "to take the young Penguins and introduce them into a neighbouring hole. The intruders were directly assailed by blows from the beak of the possessors of the burrow,

* Darwin's Journal during the voyage of the Beagle.

who not being able to expel them, soon permitted them to remain at peace. When we stopped to examine the Penguins in their holes, the male or the female advanced its head to the entrance, and stared at us, alternately moving it to the right and left. When these Penguins cry, you really believe that an ass is braying. During calm evenings you may often hear a sound produced by the braying voices very similar to that of the populace on a feast-day. Indeed, we could hardly persuade ourselves that the island was uninhabited. Notwithstanding the coarse fat which surrounds the body of the Penguin, and the black colour of the flesh, the sailors did not disdain to eat it. The eggs are considered a great delicacy." The Albatross, the largest of the gull kind, seems to have a peculiar affection for the Penguin, and pleasure in its society. These birds are always seen to choose the same places for breeding, as if they stood in need of mutual assistance and protection. Captain Hunt, who for some years commanded our settlement at the Falkland Islands, was often struck with this singular union, and the regularity with which the Albatross and Penguin built to-

gether. In that bleak and desolate spot, where the birds had long maintained undisturbed possessors, they seemed to make their abode as comfortable as if they expected it to be lasting. They were seen to build with great uniformity, their nests covering the fields by thousands, and resembling a regular plantation. In the middle, the Albatross raised its nest on heath, sticks, and long grass, about two feet above the surface; round this the Penguins made their lower settlements, rather in holes in the ground, and most usually eight Penguins to one Albatross. These nests have now, I am told, totally disappeared, and Albatross and Penguin are gone to breed upon more desert shores in greater security. Bingley tells us that the crested Penguins form their nests among those of the Pelicans, and that they live in tolerable harmony together. The Crested Penguin takes its name from a beautiful crest of pale yellow feathers surmounting its rich dark plumage, and which it can raise or depress at pleasure. The bill is red, and three inches in length. This beautiful bird has also the names of Hopping Penguin, and Jumping Jack, from the action of springing

out of the water, which it sometimes will do to the height of three or four feet, on meeting with any obstacle in its course, or frequently for amusement alone. This species, though so much more lively both in appearance and action, is still as regardless of its safety as any of the other Penguins. Like them, it suffers itself to be handled by any one who may choose to take it up. If irritated, however, the Crested Penguins raise their beautiful crest, and run in flocks at the enemy, pecking their legs and tearing their clothes.

Dr. Latham has, in his "General History of Birds," described a Woolly Penguin, but in 1833, Lady Rolle presented a fine specimen of the King Penguin to the Zoological Society, and during the discussion which occurred at the time, an opportunity was afforded to Mr. Yarrell of confirming his previously expressed opinion, that the Woolly Penguin of Dr. Latham was the young bird of the King Penguin.

REMARKABLE NESTS OF BIRDS.

Behold a bird's nest !
Mark it well, within, without !
No tool had he that wrought, no knife to cut,
No nail to fix, no bodkin to insert,
No glue to join ; his little beak was all ;
And yet how neatly finished ! What nice hand,
With every implement and means of art,
Could compass such another !

HURDIS.

THERE is perhaps nothing in Nature more wonderful than the nest which the bird constructs for the reception of its future progeny. Cold must be the heart that does not glow with feelings of admiration, in reflecting on the instinctive qualities of the little feathered mechanic. Gifted by its merciful Creator with powers adapted to its necessity, the female bird prepares her nest. This

must be so formed, that it should be able to retain the heat around the eggs, during the time of incubation, and at the same time be large enough to contain the young, till their strength enables them to provide for their own support. And these two seemingly opposite requisites, the unerring instinct of the bird enables it to contrive. The perfect similitude, that is found in the nests of all birds of the same species; the singular adaptation of the dwelling to the habits of its occupier; the industry, neatness, and precaution, everywhere observable, are indeed facts that claim our warmest admiration.

“In my aviary,” says the engaging author of the “Spectacle de la Nature,”* “my little prisoners cannot make excursions for the necessary materials to build their nests; I therefore take care to supply them with everything I imagine can be agreeable to them, and am curious in examining of what the nests are composed which the children bring me from all parts. I throw into the aviary, sprigs of dry wood, shivers of bark, and dry leaves, hay, straw, moss, down,

* Abbe de la Pluche.

wool, silk, cotton, spiders' webs, feathers, and a hundred other little materials that are all useful in the nests. You would smile to see the inhabitants come to traffic at this fair; one wants a bit of moss, another has occasion for a feather, a third cannot get on without a straw; you will see two outbidding one another for a lock of wool, and this sometimes causes great quarrels; however, the difference is commonly adjusted, and each carries what she can to the nest." When the natural supplies of the bird fails, there is scarcely any invention to which they will not have recourse as a substitute. The author already mentioned, when he first bred some Goldfinches, furnished them with hay only, for the structure of their nest, and the female, for want of raw silk, down, or cotton, found out an expedient that rather surprised him. She began to unplume the breast of her mate, without the least opposition on his part, and afterwards lined her apartment very artificially with the down.

One of the most essential properties of a nest is warmth, and the eider-ducks are very provident on this subject; they line their nests so thickly

with the valuable down from their breasts, that the nest is frequently plundered for the sake of the snug bed it contains ; and which sometimes affords, when cleansed, enough elastic down (according to Pennant) to fill a large hat. When this store is taken from the nest, the male furnishes it with a fresh supply. When compelled to seek for food, the careful mother carefully turns the down over her eggs to keep them warm. The down plundered from the nest is more esteemed than any procured from the dead bird, and sells for as much as twelve shillings the pound. The cause of its being more valued as an article of commerce, has been attributed either to its being in greater perfection at the breeding season, or to the birds plucking only her finest and most delicate feathers. In most instances, the nests of birds are placed in dry situations, and formed of dry and warm materials. But some birds are known to make use of moist ones. This is well exemplified in a bird peculiar to America, called by Wilson, "Willet" (*Totarius semipalmatus*), from its reiterated sharp cry of "Pill-will-willet," which is loud enough to be heard at the distance of half-a-mile.

This bird is very similar to the snipe. "Their nests," says Wilson, "are built on the ground, among the grass of the salt-marshes, and are composed of wet rushes, and coarse grasses. This nest is gradually raised during the period of laying and sitting, to the height of five or six inches," but the eggs are so placed, that the lower parts only are exposed to the moist rushes, the broad end being uppermost, and thus receiving all the influence of the mother's heat ; and it may be from this heat being naturally too high, that the moist materials of the nest are required to counteract it. Another circumstance mentioned by Wilson may be considered a proof of this.

"During the time of incubation," he says, "that the female often resorts to the sea-shore, where, standing up to the belly in water, she washes and dresses her plumage, seeming to enjoy great satisfaction from these frequent ablutions."

The Dabchick (*Podiceps minor*), a frequenter of ponds and lakes, makes a nest very similar to the American birds. Pennant says, that "it forms its nest of an amazing quantity of grass and water-plants, near the banks in the water, but without

any fastening, so that it rises and falls with the water, the female always covering the eggs when it quits the nest."

The Water Hen, which forms its nest of straw and leaves, sometimes pilfering the flower-garden for its artless nest, always covers the eggs very carefully when it leaves the nest. A gentleman, while fishing on the Thames, was much struck with the care displayed by one of these birds in collecting dry rushes and flags, and depositing them, one by one over the eggs. The bird, not aware that it was watched, stole away, and the gentleman found the nest with difficulty, so successful had been her efforts to conceal it.

It would appear as if the practice followed by the Willet, of gradually raising its nest in height, after the laying has commenced, arose from the anxiety of the mother to preserve the eggs from too much wet. This habit of adding materials to the nest after the female begins sitting, is common to almost all other birds that breed in marshes. As a breeding-place, the ground is selected by a great number of birds. Amongst the most remarkable of the nests so placed, may be mentioned that

of the Wattled Talegalla (*Talegalla Lathamii*), an Australian bird, described by Mr. Gould. This bird seems allied to the poultry tribe, the head having much the appearance of that of the turkey, and the body being shaped like those of our domestic fowls. Its bright yellow wattle, and red neck, give it a peculiar appearance. The feet are large and strong, and of a disproportionate size, the claws slightly curved, and admirably adapted for the uses to which they are applied. This bird, in forming a nest, collects together an immense heap of decaying vegetable matter, as a depository for the eggs, and trusts entirely 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 size from two to four cart-loads, and is of a perfectly pyramidal form. The construction of this 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 accumulations are collected is singular, and proves the utility of their large and strong feet and claws. The bird never uses the bill, but always grasps a quantity in its foot, throwing it backwards to one common centre, and thus clearing the surface of the ground so completely that scarcely a leaf or blade of grass is left. The heap being accumulated, and time allowed for a sufficient heat to be engendered, the eggs are deposited, not side by side, as is ordinarily the case, but planted 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. Some of the natives state, that the females are constantly in the neighbourhood of the heap about the time the young are 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 placed horizontally, are frequently turned during incubation. There is little doubt but that this species might be domesticated; its eggs are said to be delicious eating, and 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 midday sun, at which time they will allow a number of shots in succession to be fired at them, until they are all brought down. Unless therefore some measures are taken for their preservation, this circumstance must lead to an early extinction of the race.

The Mound-raising Megapode (*Megapodius tumulus*) is a bird of the same family, still more interesting in its habits. Mr. Gilbert communicated the following account of the extraordinary

nest raised by it. "On arriving at Port Essington, his attention was attracted to numerous mounds of earth, which the natives informed him, were made by the jungle-fowl, for the purpose of hatching their eggs. Having determined to ascertain all he possibly could on the subject, and having procured the assistance of an 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, when he saw a mound of sand and shells, with a slight mixture of black soil. 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 something to do with the bird's mode of incubation ; but he was still sceptical as to the probability of the young birds ascending from so great a depth as the natives represented to him, and his suspicions were strengthened by his being unable to prevail on the native 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.' "

Mr. Gilbert took the greatest possible 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 in 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 kept awake by the noise made in its constant endeavours to escape. In scratching up the sand, it only used one foot, and having grasped a handful as it were, the sand was thrown behind 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 connection 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. 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, and the earth being 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 room to admit their bodies, and to throw out the earth between their legs. By grubbing with their fingers, they follow the direction of the hole with tolerable 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 last came up in such a state of exhaustion, that he refused to proceed. Mr. Gilbert was too much excited to relinquish this oppor-

tunity 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 discrediting the statements of these untaught children of Nature, simply, because they may appear too wonderful to be believed. Mr. Gilbert, on other occasions, discovered some of these remarkable mounds. In re-visiting Knocker's Bay, in February, he with difficulty penetrated into a dense thicket of cane-like creeping plants, and suddenly found himself beside a mound of gigantic proportions, being fifteen feet in height, and sixty in circumference, at the base. It was entirely composed of the richest kind of light vegetable mould, and on the top were very recent marks of birds' feet. Assisted by a native, he, after an hour's extremely fatiguing labour, succeeded in obtaining an egg from the depth of about five feet. Like the majority of these hot-bed nests, it was so enveloped in 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 position; most of those that are placed near the water's edge, were formed of sand and shells, but some had a portion of soil and decaying wood. When constructed of this loose material, they are very irregular in outline, often resembling a bank thrown up by a constant heavy surf.

One remarkable specimen of this description, situated on the southern side of Knocker's Bay, has the appearance of a bank from twenty-five to thirty feet in length, and five in height. 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. 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 situated in the densest thickets. Occasionally they are to be 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 round.

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, and which, when decomposed, forms the particular description of soil. These mounds are, doubtless, the work of many years, and of many birds in succession, some of them evidently being very ancient ; trees being often seen to grow from out of their sides. By those birds which collect few or no materials for a nest, great care is frequently shewn in the selection of a convenient spot. The nest of a Peahen was discovered by Mr. Rennie, in a remarkably sheltered spot, overhung by the low branch of a spruce-fir, which was suspended over it, like an umbrella, and completely protected it from rain and dew. This bird had shewn singular sagacity in protecting herself. It is well known that female birds frequently wear off a considerable portion of the feathers from their breasts by their frequent movement in turning their eggs. Now, as her eggs were placed on the bare earth, no grass grow-

ing under the dip of the spruce-branch, the breast of this Peahen must soon have been rubbed bare of feathers. Foreseeing this event, the careful creature prepared a soft cushion of dry grass, upon which her breast might rest. This cushion was placed in the most exposed side of the nest, but no part of it under the eggs themselves. Singular precautions against future injury may be observed in many other instances in the feathered race. The Nut-hatch (*Sitta Europæa*), for instance, breeds in the hole of a tree, and forms a clay barrier, as a door to protect her young from the attacks of enemies, and to prevent them from falling out when they begin to move about. This bird, when it cannot find a convenient hole in a tree, hews out a hollow in a worm-eaten spot with its powerful bill, which is of a wedge-shaped form. Some idea may be formed of the power of excavating it possesses from the following account of a wounded one, which was placed in a small cage of plain oak wood and wire :—

After remaining quiet all night, he commenced knocking and battering the frame of his cage, until the wood was pierced and worn, like a piece of old

worm-eaten timber. He eat and drank readily, but his labour was so incessant that he lived but twenty-four hours. His hammering was peculiarly laborious, for he did not perch, as other birds do, but grasping his hold with his immense feet, he turned upon them as upon a pivot, and struck with the whole weight of his body, thus assuming the appearance, with his entire form, of the head of a hammer.

The Reverend Mr. Bree, of Allesley, states that, having caught a Nuthatch in the common brick-trap used by boys, he was struck with the singular appearance of its bill, which appeared to have been cut off, and he inferred that it had been fairly ground down to about two-thirds of its original length by the pecking of the bird at the bricks, in its efforts to escape from the trap.

The greater number of those birds which nestle in trees are capable of hewing out for themselves convenient holes, or of enlarging them when they are too small, from which habit they have been called Carpenter-birds. Colonel Montague has frequently seen the Marsh-tit excavating the decayed part of an old willow-tree, and artfully carrying

the chips in its bill to some distance from it. Wilson describes a kind of wood-pecker (*Picus pubescens*) which carefully selects a suitable tree for the reception of the eggs and young, and the male commences the work. He cuts out a hole in the solid of the pear, apple, or cherry-tree, as circular as if described by a pair of compasses. He is occasionally relieved by the female, both parties working with the most indefatigable diligence. The direction of the hole, if made in the body of the tree, is generally sloping downwards for the distance of six or seven inches, and then straight down for ten or twelve more, within, roomy, and as smooth as if polished by the cabinet-maker; but the entrance is judiciously left just so large as but to admit the body of the owner. During this labour they regularly carry out the chips, often strewing them at a distance to prevent suspicion. This operation sometimes occupies the chief part of a week. Before the female begins to lay, she often visits the place, passes in and out, examines every part, both of the exterior and interior, with great attention, as every prudent tenant of a new house ought to do, and at length takes complete

possession. The eggs are generally six, pure white, and laid on the smooth bottom of the hole. Notwithstanding the care taken by this and other birds of the genus to place its young beyond the reach of enemies, yet there is one deadly foe, against whose depredations neither the height of the tree nor the depth of the cavity is the least security. This is the black snake (*Coluber constrictor*), who frequently glides up the trunk of the tree, enters the wood-pecker's peaceful apartment, devours the eggs or helpless young, and, if the hole be that of the larger kind of wood-pecker, coils himself up, and remains several days to digest his meal. "The eager school-boy," says Wilson, "after hazarding his neck to reach the wood-pecker's hole, at the triumphant moment when he thinks the nestlings his own, strips his arm and plunges it into the cavity, grasping what he conceives to be the callow young, starts with horror at the sight of a hideous snake. He retreats down the tree with terror and precipitation, and not always without serious consequences. In one instance both boy and snake fell to the ground together, and a broken thigh and long confinement

cured the adventurer completely of his ambition for robbing wood-peckers' nests."

In Wakefield's "Instinct Displayed," a singular circumstance is recorded as occurring at Chelmsford in 1807, and which places the carpentry of birds in a very striking light. In the centre of an elm, which was being sawn into planks, a hollow was discovered near the centre of the tree containing a bird's nest and several eggs, which were unfortunately broken by the saw. The yolks of the eggs were not dried up, and it is singular that so slow-growing a tree should have increased so rapidly as to enclose the nest and eggs before they were destroyed by insects or moisture, particularly as the cavity in question was covered with five or six inches of solid timber. The parent birds had probably been killed, or had deserted the nest.

Amongst the basket-nest-making birds, so called from the peculiar manner in which they weave the flexible materials which form the nests, every one must be acquainted with that of the Jack-daw. It is perhaps the simplest in construction of any of the ingenious workers, but great instinct is sometimes displayed in securing it from

danger. A striking instance of this provident care is given by Mr. Jesse in his "Country Life," as displayed by a pair of Jack-daws, who, in 1842, built a nest in the bell-tower of Eton College.

"After," says he, "ascending the winding steps of the turret to a considerable height, we found our progress stopped by a sort of pillar built of sticks. The staircase was sufficiently lighted to afford complete observation of the proceedings of the birds. On the ledge of one of the narrow apertures for the admission of light, a pair of Jack-daws had built their nest. The ledge, however, was so narrow that the nest had evidently an inclination inwards, and would probably have fallen down upon the steps below. In order to obviate this difficulty, they contrived the following ingenious method of supporting the nest. As the staircase was a spiral one, the birds began to make a pillar of sticks on that identical step which would alone give them the best foundation for their intended work. Had they gone either to the one above or 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 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, 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 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 all their labours, and to seek for some more secure retreat in which they could hatch their eggs and bring up their young."

A considerable number of the American birds are very expert at basket-work. The blue-eyed Yellow Warbler constructs its nest with great neatness, generally in the triangular fork of a small shrub, near or among brambles. The outside is composed of a framework of flax or tow, disposed in circular strands, which, in the parts contiguous to the supporting branches, are strongly twisted round them, the branches rising through the materials, like the ribs of a basket. The inside is lined with hair, and with the down stripped from the stalks of fern. Some of our own little mechanical warblers exhibit no small skill in the management of their materials: we can but quote the Reed-Warbler. The nest it builds is very deep, nearly three inches, by the same in diameter, and almost wholly composed of hay, the brim being of thicker stems of dry grass. A very few hairs are wound around the interior, which is very smoothly finished.

That of the Sedge Warbler (of which there is a beautiful specimen in the British Museum) is closely woven of roots, wool, and hair, admirably adapted for the warmth required by so small a bird; it is usually built over water, supported in an elegant manner between three or four rushes. In this floating cradle, even if rocked by the tempest, the hen securely sits without fear or dread, though every strong blast of wind bends the reeds to which it is suspended, close to the water.

NEST OF SEDGE WARBLER

The birds which build in communities in Southern Africa, furnish us with curious illustrations

of the art of basket-making. The Locust-eating Thrush (*Turdus bicolor*), according to Barrow, unite in forming a common fabric for containing individual nests, large enough for a vulture. One of these, which he met with on a clump of low bushes, at Sneuberg, consisted of a number of cells, each of which formed a separate nest, with a tubular gallery leading into it through the side. Of such cells each clump contained from six to twenty, one roof of twigs, woven into a sort of basket-work, covering the whole. They also build along the banks of the Orange River, on the tall mimosa-trees, which were observed to be loaded with thousands of their nests.

Mr. Campbell, during his travels in Africa, noticed some of these singular habitations, "constructed," as he remarks, "so as to accommodate a large number of birds, who appear to live very harmoniously together. A tree, at a little distance from our waggon, had two of these remarkable nests. The one was about four yards in circumference, and the other three, and about a yard in depth: they were built of coarse grass. One of these nests had seventeen holes in the

bottom, by which the birds enter; the other had seven. At one time, I saw about a hundred birds come out of them. Instead of being the nest of a single pair of birds, they seemed to be towns of birds, or the property of a single pair, in which they accommodate all their descendants. A horned owl had taken possession of the outside of the roof of the largest for a nest. She was sitting on it, and it appeared from the bones and hair strewn under, that she lived upon the field-mouse. The whole was neatly thatched, and had a hollow in the middle to contain the owl, but no passage leading to the inside."

Another of these gregarious African birds (*Loxia pensilis*), which is about the size of a house-sparrow, makes a basket-net, of straw and reeds, interwoven into the shape of a bag, with the entrance below, while it is fastened above to the twig of some tree, chiefly such as grow on the borders of streams. On one side of this, within, is the true nest. The bird does not build a distinct nest every year, but fastens a new one to the lower end of the old, and as many as five may thus be seen, one hanging from another. From

five to six hundred of such nests have been observed, crowded upon one tree. Forbes thus describes these birds, or a species very similar.

“The Baya, or Bottle-nested Sparrow,” is remarkable for its pendant nest, brilliant plumage, and uncommon sagacity. These birds are found in most parts of Hindostan; in shape, they resemble the sparrow, as also in the brown feathers of the back and wings; the head and breast of a bright yellow, and, in the rays of a tropical sun, have a splendid appearance, when flying by thousands in the same grove; they make a chirping noise, but have no song; they associate in large communities, and cover extensive clumps of palmyras, acacias, and date-trees, with their nests. These are formed, in a very ingenious manner, by long grass woven together in the form of a bottle, and suspended by one end to the extremity of a flexible branch, the more effectually to secure the eggs and young brood from serpents, monkeys, squirrels, and birds of prey. These nests contain several apartments, appropriated to different purposes; in one, the hen performs the office of incubation; another,

consisting of a little thatched roof, and covering a perch, is occupied by the male, who, with his chirping note, cheers the female during her maternal duties.

The Sociable Grosbeak seems to surpass the preceding species in the extent, if not in the skill, of its workmanship. "Figure to yourself," says Le Vaillant, "a huge, irregular, sloping roof, with all the eaves completely covered with nests, crowded close together, and you will have a tolerably correct idea of these singular edifices." The birds commence this structure by forming the immense canopy of a mass of grass, so compact and firmly basketed together, as to be impenetrable to the rain. This sometimes surrounds a large tree, giving it, but for the upper branches, somewhat the form of a mushroom. Beneath the eaves of this canopy, the nests are formed; the upper surface is not used for this purpose, but as it is sloping, with a projecting rim, it serves to let the rain-water run off, and preserves each little dwelling from the wet. Le Vaillant procured one of these great shelters, and cut it in pieces with a hatchet; the chief portion con-

sisted of Boshman's grass, so compact as to be impenetrable by rain. Each nest is three or four

NEST OF SOCIABLE WEAVER-BIRD,

inches in diameter, which is sufficient for the bird; but, as they are all close together around the eaves, they appear to the eye to form but one building, and, in fact, are distinguishable from each other only by a little external aperture, which serves as an entrance to the nest. This large nest contained three hundred and twenty inhabited cells."

The Satin Bower-Bird of Australia, *Ptilonor-*

hynchus holosericus, builds so singular a bower-like structure, that, although it is not used for the purpose of a breeding-place, we cannot refrain from giving a description of it, from Mr. Gould's elegant work, the "Birds of Australia."

This gentleman had the opportunity of closely studying these curious bowers or playing-places, though he failed to discover the nest and eggs of the species, nor could he obtain any information on the subject.

The bird is of the crow kind, and takes one of its names from the glossiness of its beautiful plumage, and the other from the habits we are about to describe. Under the shelter of a large overhanging tree, in the most retired part of the forests, Mr. Gould discovered several of these bowers, differing considerably in size, some being of great extent and height. The base consists of an extensive, and rather convex, platform of sticks, firmly interwoven, on the centre of which the bower 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 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 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 Pennautian parrots, bleached bones, the shells of snails, &c.; some of the feathers are stuck in among the twigs, while others, with the bones and shells, are strewed about, near the entrance. 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 brush. Mr. Gould found, at the entrance of one of these halls of assembly, a small, neatly-worked stone tomahawk, of an inch and half in length, together with some slips of blue cotton rags, which the

birds had doubtless picked up at a deserted camp of the natives. These bowers are the resort and play-place of many individuals of both sexes, which,

NEST OF BOWER-BIRD,

when there assembled, run through and round them in a sportive manner, and that, so frequently, that it seldom happens that they are 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, but it is highly probable that they are merely resorted to during the pairing season and time of incubation. At these periods, Mr. Gould observed that the bowers had been repaired, and it was evident, from the accumulated mass of sticks, that the same spot had been a place of resort for many years. Mr. Charles Coxen secreted himself, after destroying one of these fabrics, and had the satisfaction of seeing it partially reconstructed by the females.

The Spotted Bower-Bird, *Chlamydera maculata*, decorates its retreat to a far greater extent. The bowers are considerably longer, and more avenue-like than those of the satin-bird, being, in many instances, three feet in length. 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, skulls of small quadrupeds, and other bones. Evident and beautiful indications of design, are manifest throughout the

whole of the bowers and 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 fixed firmly 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, bones, shells, &c., are placed in a heap before the entrance of this avenue, this arrangement being the same at both ends. In some of the larger bowers, which had evidently been resorted to for many years, Mr. Gould has seen nearly half a bushel of bones, shells, &c., at each of the entrances. In some instances, small bowers, composed almost entirely of grasses, apparently the commencement of a new place of rendezvous, were observable. These structures were frequently found at a considerable distance from the rivers, from the borders of which they could alone have procured the shells and small round pebbly stones; their collection and transportation must, therefore, be a task of great labour and difficulty. As these birds feed almost entirely on seeds and fruits, 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 in the sun, or such as have been roasted by the natives, and by this means whitened, that attract their attention. Mr. Gould brought two fine specimens of these curious structures to England, one of which he presented to the British Museum, the other to the collection at Leyden.

The Weaver-Birds form their nests in a still more compact form than the basket-makers. The Baltimore Starling (*Icterus Baltimore*) takes its name from its colours (which are black and orange), being those of the arms or livery of Lord Baltimore, formerly the owner of Maryland. It is about the size of a blackbird, and from the singular mode of building its nest, it is sometimes called hang-nest. Few receptacles for future progeny possess such convenience, warmth, and security, as the nest of this industrious little bird. It generally fixes on the upper branches of an apple, willow, or tulip-tree, in the vicinity of the farm-houses, and fastening strong strings of hemp, or flax, round two forked twigs, corresponding to the intended width of the nest, with the same materials, mixed with

quantities of loose tow, it interweaves or fabricates a strong firm kind of cloth, not unlike the substance of a hat in its raw state, forming it into a pouch of six to seven inches in depth, lining it substantially with various soft substances, well interwoven with the outward netting; and lastly, finishes with a layer of horse-hair, the whole being shaded

NEST OF BALTIMORE ORIOLE.

ed from the sun and rain by a natural pent-house, or canopy of leaves. So solicitous is the Baltimore bird to procure proper materials for the nest, that

in the season of building, the women in the country are under the necessity of narrowly watching their thread that may chance to be out bleaching, and the farmer to secure his young grafts ; as the Baltimore, finding the former, and the strings which tie the latter, so well adapted for his purpose, frequently carries off both ; or should the one be rather heavy, and the other too firmly tied, he will tug at them for a considerable time before he gives up the attempt. Skeins of silk and hanks of thread have been often found after the leaves were fallen, hanging round the Baltimore's nest, but so woven up and entangled as to be entirely irreclaimable. Before the introduction of Europeans, no such material could have been obtained here ; but with the sagacity of a good architect, the Baltimore has improved this circumstance to his advantage ; and the strongest and best materials are uniformly found in those parts by which the whole is supported. Wilson, to whom we are indebted for the preceding account, has written some pretty lines on this elegant little bird :

“ High on yon poplar, clad in glossiest green,
The orange, black-capped Baltimore is seen ;

The broad extended boughs still please him best,
Beneath their bending skirts he hangs his nest.
There his sweet mate, secure from every harm,
Broods o'er her spotted store and keeps them warm,
Lists to the noontide hum of busy bees,
Her partner's mellow song, the brook, the breeze;
These day by day the lonely hours deceive
From dewy morn to slow-descending eve."

The Baltimore is sometimes called golden robin, and fire-bird, from the bright orange of its plumage, which in the sunshine gleams through the green foliage like a flash of fire.

The white-eyed Fly-catcher (*Myothera cantatrix*) constructs a neat, conical nest, "suspended," says Wilson, "by the upper edge of the two sides, on the circular bend of a prickly vine, a species of smilax that generally grows in low thickets. Outwardly, it is constructed of various light materials, bits of rotten wood, fibres of dry stalks of weeds, pieces of paper, commonly newspapers, an article almost always found about its nest, so that some of my friends have given it the name of the politician; all these substances are interwoven with the silk of caterpillars, and the inside is lined with fine dry grass and hair."

The Hooded Fly-catcher (*M. cucullata*), instead of spider's web for a binding material, uses flax and fibres of hemp to interweave with moss.

The Pine-creeper (*Sylvia pinus*) uses both coarser and finer materials than this, suspending its nest, according to Abbot, from the horizontal fork of a branch, and forming it of slips of vine-bark, and rotten wood, interwoven with caterpillars' webs, and bits of hornets' nests, the interior being lined with pine-leaves and roots.

A still prettier nest of the same materials is made by the Prairie Warbler (*Sylvia minuta*), but more delicate, from its very small size, as it weighs scarcely a quarter of an ounce.

Dr. Coko, of New York, once took a Hanging-Bird's nest from the bough of a sycamore-tree. The extravagant little builder had constructed it entirely of silver wire. This costly little nursery for the future progeny, most probably was formed from the pilfered epaulette of some young lieutenant.

One of the prettiest perhaps of the woven nests is figured in the adjoining plate. Le Vaillant describes it in his splendid work on African birds, though he seems doubtful what species of bird was

the builder. "It is, I believe," says he, "the nest of the Tchitrec (*Muscicapa cristata*); for though I have never captured the bird of this spe-

NEST OF TCHITREC.

cies in the nest, and am not therefore certain of the fact, my good friend Klaas, a faithful, if not a profound observer, assured me that it was. In one of our journeys through a wood of mimosas, in the country of the Caffres, he discovered and brought

me this nest, having seen, as he said, and particularly observed, a male and female Tchitrec occupied in constructing it. It is remarkable for its peculiar form, bearing a strong resemblance to a small horn, suspended with the point downwards, between two branches. Its greatest diameter was two inches and a half, gradually diminishing towards the base. It would be difficult to explain the principle upon which such a nest had been built, particularly as three-fourths of it appeared to be entirely useless, or idly made; for the part which was to contain the eggs, and which was alone indispensable, was not more than three inches from the surface; all the rest of this edifice, which was a tissue closely and laboriously woven of slender threads, taken from the bark of certain shrubs, seemed to be totally useless."

The Indian Sparrow (*Loxia Bengalensis*) is said not only to weave a nest in the shape of a bottle, but to light it up during the night by fastening glow-worms or fire-flies to the nest by means of a glutinous substance. In "The Architecture of Birds," a gentleman, long resident in India, gives the following testimony in favour of a fact which has

been disputed by many observers in Natural History. “Desiring to ascertain the truth of the current belief, that the sparrow employs the glow-worm for the purpose of illuminating its nest, I adopted the following method. Taking advantage of the absence of the birds, about four o’clock in the afternoon, I directed a servant to prevent their return, while I examined their nest, which I cut open, and found in it a full-sized glow-worm, fastened to the inside with what is called in India, *morum*, a peculiarly binding sort of clay. Having sewn up the division, I replaced the nest, which on the following evening I again examined, and found another smaller sized glow-worm, with fresh clay, a little on one side of the former spot.

That the insect is placed in the nest as food, is, I think, rendered extremely doubtful, by the fact of its being fixed in the clay, a useless labour for that purpose; and from the little likelihood there is, that a bird which, as I believe, never quits its nest after roosting, which delights in sunshine, and which is never known to take any food during the night-time, should be of such a greedy disposition as to be unable to retire

to rest without providing food for a future occasion. Mr. Murray thinks that the fire-fly is placed by the bird to scare away some nocturnal spoiler from the nest. Dr. Buchanan, in his "Christian Researches" in Asia, mentions writing one of his letters under the nest of this bird, which had lighted it up with fire-flies, "as if," he facetiously remarks, "to see company."

Sir William Jones describes this bird as being of an extremely familiar and teachable disposition. He says, "it may be taught with ease to fetch a piece of paper at the command of its master, and may be trained to carry notes like the pigeon." "In a state of nature, it usually builds on the highest tree it can find, especially on the palmyra, or on the Indian fig-tree, and it prefers that which happens to overhang a well or a rivulet. The nest is skilfully woven of grass, in a bottle-form, like some we have already described, and consists of three chambers, like those mentioned by Vaillant.

In speaking of the art of weaving, so beautifully displayed by the foreign birds we have alluded to, we must not forget, that there are few among the feathered tribes constructing their nest with any

degree of neatness, that do not, in some part of the structure, exhibit more or less of this peculiar skill. Even those which make very slender nests, are sometimes extremely careful in interweaving their materials. "Take," says Mr. Rennie, "any of our common small birds which line the interior with hair, and remove the outer basketing of hay or roots, or the felt-work of moss and wool, and there will remain a circular piece of hair-cloth of various workmanship, according to the ingenuity of the bird and the materials which it has been able to procure. In the instance of the Hedge-Sparrow, which usually makes a rather loose nest of green moss, upon a foundation of dry twigs or roots, the hair within, though most usually so thin as not to cover the moss, is sometimes of considerable thickness; but in both cases the hairs are collected and interwoven into the structure singly, and always bent carefully so as to lie smooth in the circular cup of the nest. It may be remarked also, that none of the ends are left projecting, but uniformly pushed in amongst the moss of the exterior. The Pied-wagtail (*Motacilla alba*), which builds a nest on the ground, in the hole of a bank,

or on the shelf of a low rock, forms a texture of hair, more than half an inch thick.

But in neatness of execution the Chaffinch (*Fringilla cœlebs*), one of the felt-making birds, surpasses both. It does not indeed line with hair-cloth of its own weaving, as it often uses down, feathers, or cotton, with a few long hairs to bind these materials together. If a tuft of hair is procured from a tree or gate-post where cattle have been rubbing themselves, the Chaffinch seems to pull it minutely to pieces before interweaving it, while the Wag-tail and some others merely flatten it to make it lie smooth.* The nest of the Goldfinch is even more neat in the execution of its felting than the Chaffinch, and they are very choice in the selection of materials. Bolton gives an instance of this in the following anecdote:—"I observed," says he, "a pair of Goldfinches beginning to make their nest, in my garden: they had formed the ground-work with moss, grass, &c. as usual; but on my scattering small parcels of wool in different parts of the garden, they in a great measure left off the use of their own stuff, and employed the

* The Architecture of Birds.

wool. Afterwards, I gave them cotton, on which they rejected the wool, and proceeded with the cotton. The third day I supplied them with fine down, on which they forsook both the others, and finished their nest with the last article. The nest, when completed, was somewhat larger than is usually made by this bird, but retained the pretty roundness of figure, and neatness of workmanship, which is proper to the Goldfinch."

The nest of the Canary is very similar to that of the Goldfinch, and is built in its native regions in the fork of an orange tree. "When kept," says Mr. Rennie, "in a green-house in this country, it will make a similar choice, seeming to be pleased with the perfume of the orange flowers."

Thunberg says, that a bird called the Kapock forms its curious and beautiful nest, which is of the thickness of a coarse worsted stocking, from the down of the rosemary tree. The Cape-tit weaves its nest of cotton, and on the outside it forms a kind of perch, on which the birds rest, before entering into the neck of the bottle-shaped nest. The active little family of birds called Titmice, all construct very snug and compact nests. Of these, that

NEST OF THE CANARY.

of the Long-tailed Tit (*Parus caudatus*), is a well-known example. This bird, from the shape of its nest, is called “Jack-in-a-bottle,” “Bottle-tom,” and “Bottle-tit.” The basis of the nest is formed of green mosses, carefully fitted together with fine wool: the outside consists, for the greater part, of white and grey lichens, in small bits, intermixed

with the egg-nests of spiders, from the size of a pea and upwards, part of which are drawn out to assist in felting, so that when the texture of the nest is stretched, portions of fine gossamer-like threads appear among the fibres of the wool.

However wonderful and incredible may appear the weaving and felting acts of the little mechanics we have described, their ingenuity is almost surpassed by the Tailor-Birds, which actually perform the office of a needle with their bills, and sew the parts of their nests together by its aid. Wilson gives a very faithful description from his own observation of the Orchard Starling, one of this family. "These birds," he says, "are so particularly fond of orchards, that scarcely one in summer is without them. They usually suspend the nest from the twigs of the apple-trees. It is formed, exteriorly, of a particular kind of long, tough, and flexible grass, knit or sewed through and through, in a hundred directions, as if actually done with a needle." An old lady, to whom Wilson shewed this ingenious fabrication, after admiring its texture for some time, asked in a tone betwixt joking and earnest, "whether these birds might not be

taught to darn stockings?" This nest is hemispherical, three inches deep by four in breadth, the concavity scarcely two inches deep by two in diameter. One of the fibres or stalks of dried grass, when carefully detached from the nest, measured thirteen inches in length, and in that length was thirty-four times hooked through, and returned, winding round and round the nest? The inside is usually composed of wool, or the light downy appendages attached to the seeds of the button-wood (*Platanus occidentalis*), which form a very soft and commodious bed. Here and there the outward work is extended to an adjoining twig, round which it is strongly twisted to give more stability to the whole, and prevent it from being upset by the wind. When they choose the long pendant branches of the weeping willow to build in, the nest, though formed of the same materials, is made much deeper, and is of slighter texture. The circumference is marked out by a number of these pensive twigs, that descend on each side like ribs, supporting the whole; their thick foliage, at the same time, completely concealing the nest from view. These long twigs, being sometimes twelve

or even fifteen feet in length, have a large sweep in the wind, and require that the nest should be much deeper to prevent the eggs or young ones from being thrown out. The close shelter afforded by the remarkable thickness of the foliage, is, no doubt, the cause why the nest is of a slighter construction.

Thus, like other birds, it always constructs its nest of materials laid in the same order, and exactly of the same figure, and yet it adapts the dwelling to future necessity and convenience.

The Bonana Starling (*Icterus bonana*) is another of the tailor-birds, inhabiting the West India Islands. The materials used in the construction of its very curious nest are fibres and leaves, which it shapes into the fourth part of a globe, and sews the whole with great art, to the under part of a bonana leaf, so that the leaf makes one side of the nest.

But the most celebrated of this division, is one which in the East is called by distinction the Tailor-Bird. "Comparing it with the Baya, which we have already described," Mr. Forbes says, "equally curious in the structure of its nest, and far superior in the variety and elegance of

NEST OF TAILOR-BIRD

its plumage, is the Tailor-Bird of Hindostan, so called from its ingenuity in forming its nest. It first selects a plant with large leaves, and then gathers cotton from the shrub, spins it to a thread, by means of its long bill and slender feet, and then, as with a needle, sews the leaves neatly together to conceal its

nest. The Tailor-Bird resembles some of the Humming-Birds at the Brazils, in shape and colour. The hen is clothed in brown; but the plumage of the cock displays the varied tints of

azure, purple, green, and gold, so common in those American beauties. Often have I watched the progress of an industrious pair of Tailor-Birds in my garden, from their first choice of a plant until the completion of the nest, and the enlargement of the young." Three nests of this bird may be seen in the British Museum. In the article on the Swallow, we have given a description of the kind of nests built by the Cementers; those of the American Chimney Swallow are especially curious.

Amongst the dome-builders, or those birds who build their compact nests with a very narrow opening in the side, the common Wren is, perhaps, the best known. The nest of the Wren in shape is almost oval, with but one small entrance. It generally chooses some corner of an out-house, stack of wood, or hole in the wall, to build in; but when it builds in woods, it chooses the ground, some bush near to it, or the stump of a tree. The materials of the nest are generally adapted to the place where it is formed. If against a hay-rick, it is of hay, if against the side of a tree clad with white lichens, it is covered with that substance, and if a tree or bank is chosen, green moss is se-

lected. The lining is invariably of the softest feathers. It is very usual for the bird to build under a overhanging bank, where it suspends its nest, well securing it at the top in some small cavity. The nest of the Golden Crested Wren is frequently suspended like those of the tropical birds, on the twigs at the tip of a high fir-branch, where it swings about in boisterous winds with the greatest security. The Marsh Wren of N. America constructs a nest which in durability, warmth, and convenience, is scarcely inferior to any. This is formed outwardly of wet rushes, mixed with mud, well intertwisted, and fashioned into the form of a cocoa-nut. A small hole is left, two-thirds up, for an entrance, the upper edge of which projects like a penthouse over the lower, to prevent the admission of rain. The inside is lined with soft grass and feathers, and the outside, when hardened by the sun, resists every kind of weather. This nest is generally suspended among reeds, above the reach of the highest tides, and is tied so fast in every part to the surrounding reeds, as to bid defiance to the winds and waves.

The nest of the Sparrow is always well shel-

tered against any injury ; a roofing seems an indispensable requisite. When a hole is selected, the quantity of materials in the nest is always proportioned to its size, some are small, others would fill a hat. The materials are hay, straw, moss, feathers, cotton, pieces of ribbon, thread, silk, in short whatever comes into the bird's way that suits its purpose.

Mr. Rennie mentions a pair of Sparrows, who employed half the summer in trying to convert into oakum an old piece of rope that bound some faggots opposite to his window. A pair who carried off from the garden a long piece of bass, and had carefully stowed it in the nest under the tiles, appeared not to have strength or skill to work it into the fabric, and in their endeavours to manage it, both the birds so entangled their feet in the folds, that they were held close prisoners. Mr. Rennie's attention was called to their hapless situation by the more than usual twittering of their neighbour Sparrows, who had assembled, it appeared, more to scold the unfortunate pair for their carelessness, than to assist them in getting rid of the bass, for not one attempted to aid them.

When taken down, they were so exhausted by their struggles that they did not long survive.

The Magpie shews great architectural skill in the formation of its nest, which lasts it for many years, when placed in a favourable locality; generally, as Wilson remarks, a tall tree is selected adjoining the farm-house; its nest is placed among the highest branches.

In the north of Scotland, almost every farm has its denizen pair of Magpies, which incubate in their hereditary nest, on the old ash-tree, year after year. In the more closely wooded districts of the south, indeed, it does not so frequently build on the trees in the farm-yard. The following is a very singular instance of a nest in an unusual situation :—

“On the road,” says the Rev. J. Hall, “between Huntley and Portsoy, I observed two Magpies hopping in a peculiar manner round a gooseberry-bush, in a small garden, near a poor looking house, and flying out and into the bush. I stepped aside to see what they were doing, and found, from the poor man and his wife, that these birds for several successive years had built their nest, and

brought up their young in this bush; and that foxes, cats, hawks, &c., might not interrupt them, they had barricaded not only their nest, but had encircled the bush with briars and thorns in a formidable manner, nay, so completely that it would have cost a fox, cunning as he is, some days' labour to get into the nest. The materials in the inside of the nest were soft, warm, and comfortable, but all on the outside, so rough, so strong, and firmly entwined with the bush, that without a hedge-knife, hatch-bill, or something of that kind, even a man could not, without much pain and trouble, get at the young. From the outside to the inside the nest extended as long as my arm. These Magpies had been faithful to each other for several summers, and drove off their young, as well as every one else that attempted to take possession of their nest. This they carefully repaired and fortified in the spring, with strong rough prickly sticks, that they sometimes brought to it by uniting their force, one at each end, pulling it along when they were not able to lift it from the ground."* The dome of the Magpie's nest is a loose irregular fabric

* Bird Architecture.

of black-thorn twigs, laid crosswise in all directions, and raised pretty high above the body of the nest.

Some birds take the name of Parasite-birds, from their readily adopting any convenient habitation that may come in their way, or invading the nest of another bird, not from any unwillingness to build, but from their anxiety to procure shelter. Those who are fond of harbouring birds near their habitations take advantage of these propensities, by fixing conveniences for them to nestle in about houses and gardens. Belon tells us that, in certain provinces of France, it is customary, in this way, to hang pots in the tops of trees which are frequented by Thrushes, and these birds, finding these sheltered nests, seldom fail to lay their eggs in them and to hatch and rear their young. The Romans carried a practice somewhat similar to great extent, constructing "voleries," as they were called, which contained many thousands of Thrushes, Blackbirds, Ortolans, and Quails. These birds were never suffered to be at liberty, and being supplied with choice food, fattened, to the great profit of the proprietor.

"We are not aware," says Mr. Rennie, "that

any contrivance is resorted to in Britain to entice birds to build in particular places, except in the case of the House-sparrow. Sometimes pots of unglazed delf-ware of a sub-oval shape, with a narrow hole for the entrance, are fixed upon the walls of houses, several feet below the eaves, and the Sparrows, finding a domicile so suited to their habits, very soon take possession of every pot thus provided for them. But those who are so careful to accommodate the Sparrows, do it, not because they are fond of their neighbourhood, but to prevent their nestling under the eaves, where they dig out the mortar with their strong bills, when they do not find holes large enough for their accommodation. It probably never struck these persons that, by thus encouraging the Sparrows to breed, they are promoting the increase of the race ; and unless they multiply their sparrow-pots yearly, they may be almost certain that the supernumeraries will resort to the eaves nearest to their birth-place."

The Parasite-birds will frequently unceremoniously appropriate the nest or hole which another bird has been at the trouble of making. The House-wren, for instance, when it cannot find a

suitable excavation in the hollow of a tree, carefully watches the operations of the downy Wood-pecker, and when its chisel-shaped bill has sufficiently worked for the bird's purpose, it attacks the Wood-pecker with violence, and is generally successful in driving it away. "I saw," says Wilson, "some weeks ago, a striking instance of this, where the downy Wood-peckers, after commencing in a cherry-tree within a few yards of the house, and having made considerable progress, were turned out by the Wren. The former began again on a pear-tree in the garden fifteen or twenty yards off, whence, after digging out a most complete apartment, and one egg being laid, they were once more assaulted by the same impertinent intruder, and finally forced to abandon the place."

Hawks and Owls will frequently take possession of the old nests of Ravens, Crows, Magpies, or Squirrels. In these and similar cases, the birds always hatch their own eggs and nurse and rear their own young; but there is more than one species which not only choose the nest of another bird, but deposit their eggs, and take no further heed of them. The Cuckoo is a well known instance of

this kind ; and as the female commonly selects the nest of a smaller bird than itself, when the brood is hatched the young Cuckoo generally contrives to eject her foster-brothers and sisters from the nest. The American Cow-birds, which resemble the Cuckoo in their habits of breeding and migration, “ may frequently be observed,” says Wilson, “ loitering singly about solitary thickets, reconnoitering, no doubt, for proper nurses to whose care they may commit the hatching of their eggs and the rearing of their helpless orphans.” The Yellow-throat and the Red-eyed Fly-catcher appear to be generally selected as favourites, and they pay great kindness and affectionate attention to the nurslings.

The attention of the inmates of the nest to the Parasite-birds has been frequently commented on by observers in natural history as a subject well worthy of admiration, for the species is by this wise provision of nature prevented from becoming extinct. In all cases during the time of hatching and rearing the young do the old parents appear to forget their own safety and wants in the duties of protecting and providing for their helpless nestlings. This feeling of parental love changes the

timid into the brave, and makes the most shy and reserved denizen of the forest to become fierce in the defence of its offspring. Birds of prey, cats, dogs, and sometimes even man, when he approaches the sanctuary, are attacked and followed with angry cries. For some time after quitting the nest, this care continues, till the nestling is able to provide for itself. Then the whole scene changes. The young bird still lingers about the old one, and approaches when it finds a worm or insect, expectant of the morsel. At first the young bird is unheeded and treated coldly; but if it does not take this hint, and perseveres in its solicitations, the parent, which a few days before would have braved a hawk or a cat in its defence, and would have been content to suffer hunger rather than have seen it without food, gives it a buffet, and thus compels it to rely on its own resources.

In many instances the natural timidity of the bird seems to be almost entirely removed during the season of incubation, and it selects situations for its future nursery which would appear incredible if they were not well substantiated. The following anecdotes are curious cases of this kind:—

“No one, perhaps, (says a correspondent to the ‘Saturday Magazine,’) would ever think of looking for a bird’s-nest on a railroad; yet it is a fact that a Water-wagtail built a nest under the hollow of a rail, on a well frequented coal-line. The spot chosen was at a crossing, within six feet of which the engine and many loaded and empty wagons passed from ten to twelve times a day. No doubt the nest was commenced on some holiday, or on the occasion of a day’s suspension, as there is no Sunday’s traffic. Near the same place is a small signal-house, in the corner of which a Tomtit built its nest, for several years, notwithstanding that a man had occasion to go close to the spot a dozen or twenty times a day. At the top is a large bell, twelve inches, or more, in diameter, and though this was rung at intervals, the sound of it did not seem to give any alarm to the bird.”

For three years in succession, a Blue Titmouse chose to build its nest in a betwell (a close basket of wicker-work used in brewing), which was hung on a peg against a cottage wall in Leamington, not more than six feet from the ground. The first nest was not discovered until after a brewing,

when the old woman who owned the implement, on cleaning out her betwell, was astonished to find in it a bird's-nest, full of eggs. About the same time, in the following year, having occasion to brew again, she recollected the circumstance, and examined the betwell previous to using it. There, again, she found a Titmouse's nest, which she unceremoniously removed, and the brewing proceeded as usual. The third year, the bird renewed the attempt, and moved, perhaps, by its perseverance, the old woman allowed the nest to remain until the birds were hatched. "It was upon this occasion," says the Rev. Mr. Bree, "that I was witness of the fact, just as the eggs were on the very point of being hatched. On my going to the house to see this curiosity, the betwell with its contents was immediately taken down from the peg, and placed in my hand for inspection, the bird all the while sitting within it upon its nest, which it made no attempt to quit, but merely gave signs of anger, by frequently bristling up its wings and feathers, and by hissing." This bird, it appears, had suffered itself to be carried in its wicker habitation about the vil-

lage (as Leamington then was), and exhibited to the visitors.

A still more remarkable instance occurred, a few years ago, at Newland, in Gloucestershire. A pair of Blue Titmice built their nest in the upper part of an old pump, fixing it to the pin on which the handle worked. It happened that, during the time of building and laying the eggs, the pump had been out of use; but at the time when the female was sitting, it was again set going, and it was naturally expected that the motion of the pump-handle would drive her away. But so determined was she in her duties, that she remained sitting for the appointed period, and the young birds were safely hatched, with no other misfortune than the loss of a part of the tail of the sitting bird, which was rubbed off by the friction of the pump-handle.

The Greater Titmouse and the Tomtit have been known to choose similar situations. Mr. Dovaston, of Westfalton, near Shrewsbury, gave, in 1832, an account of one of the Greater Titmice, who annually, or nearly so, built in his pump, "where," he says, "there is a nest of eggs at this moment.

It is placed just under the top of the handle, where that lever bends, and is joined, by a piston, to the swivel. The only entrance the bird has is close over the handle. This pump is used every hour, and is always accompanied with much noise and agitation, and frequently, for negligent want of oil, will “on its hinges grate like thunder,” yet the bird sits on, quiet and unmolested. If the handle be lifted up, she merely puffs, blows, and hisses, at the curious intruder.” A great quantity of moss was used in the construction of this nest, and to prevent any from falling into the tube or bucket, the sagacious bird placed small sticks, as props, a material which she never employs under ordinary circumstances. When the young are hatched, one or more will sometimes crawl to the edge of the nest, and fall over into the water, and so get ejected through the spout. “Under these circumstances, it greatly pleases me,” says Mr. Dovaston, “to see my servants replace them gently in the nest, with kind soothing or facetious chidings, shewing that natural humanity is innate in very many of the labouring classes, until corrupted by evil communications.”

At Springfield House, Warwickshire, a pair of Red-starts once built their nest under an inverted garden-pot accidentally left on a gravel-walk ; they entered their habitation from the drain-hole above. This nest attracted much attention, and was watched daily, as it became an object of interest in the family to ascertain, when, and by what means the young birds would emerge from under the pot, and take their first view of the outer world. How long they might have continued in confinement if left to themselves it is impossible to say, as they were eventually indebted to female curiosity for their freedom. A lady lifted up the pot, to see whether the birds were still there, when the whole brood, taking advantage of so favourable an opportunity, made their escape, darting forth in all directions like rays from a centre.

Mr. Bree gives an amusing account of the nest-place chosen by a pair of Robins. In the parish church of Hampton in Arden, Warwickshire, these birds, for two years in succession, affixed their nest to the church bible, as it lay upon the reading-desk. The worthy vicar would on no account have the birds disturbed, and accord-

ingly another bible was introduced. As if encouraged by this tolerance to commit further audacious acts, the birds actually plundered the rope-ends from the belfry to assist in the construction of their nest.

We knew an instance of a pair of these fearless little birds choosing a small shelf at the back of an organ in a country-church in Cornwall. Undisturbed by the strains of the organ, or the voices of the singers, they reared a brood of young ones, who made their exit through a broken pane of glass, as soon as they were sufficiently grown. "At Knowle Hall," says Mr. Bree, "a Wren built its nest in the skeleton body of a Heron, which had been nailed up against a wall. A still more remarkable choice was that of a Tomtit, which some years ago built its nest in the skull of a murderer who had been gibbeted at Drinsey Nook, in Lincolnshire. In 1838, an old tea-kettle was found exposed on the race-ground in Mr. Mattheson's premises near Market Wighton, Yorkshire, and on examination it was found to be inhabited by a Robin, with four young ones, which were permitted to remain undis-

turbed. A similar instance occurred in the garden of Mr. Evans, a florist, near Sheffield.

In the "Buckinghamshire Herald," June 1793, it is related that a pair of Chaffinches had chosen to build a nest in a block or pulley near the head of the mast of a hulk. When the vessel quitted Greenock for Broomielaw, it was followed by both the birds, and, though the block was occasionally lowered for the inspection of the curious, the birds did not forsake their young. The cock, however, visited the nest but seldom, while the hen never left it but when she descended to the hulk for food. This anecdote was selected by Cowper as the origin of a very pretty poem entitled "A Tale." It is gratifying to read and hear of cases where our beautiful little feathered friends are thus allowed to remain unmolested in the strange localities they may have chosen ; the wanton custom of "birds'-nesting," as it is termed, bids fair, among our fastly increasing population, to greatly curtail the enjoyments of the songsters of the groves. We heartily wish that fines, similar to those in many places on the continent, were also in force in England, thus checking, to a great degree, the idle, not to say

wicked propensity. In the Duchy of Nassau, for instance, it is against the laws to take birds'-nests. Even those of the birds of prey cannot be destroyed without a permission from the keeper of the forests. A fine of five florins is the penalty for taking a nest of common singing birds, for that of a Nightingale fifteen. If the nest be removed from a pleasure ground or garden, the fine is doubled.

The merciful goodness of our great Creator has been greatly displayed in the protection of the bird from its numerous enemies. "It is a fact well worthy of observation," that, "the nests of those birds which are the most uncovered, and the eggs in which, are consequently the most exposed to the sight of their enemies, contain those of a colour as little different as possible from surrounding objects, so as to deceive the eyes of destructive animals ; whilst, on the contrary, those birds, the eggs of which are of a deep and vivid colour, and consequently very liable to strike the eye, either hide their nests in hollow trees, or elsewhere, or do not quit their eggs except at night, or commence their incubation immediately after laying.

"It must, however, be remarked, that in those

species the nests of which are exposed, if the females alone sit on the eggs without being relieved by the male, these females have generally a different colour from that of the male, and more in unison with neighbouring objects. Pure white, the most treacherous of colours, we find to be that of the eggs of birds which build in holes, as the Wood-pecker, the King-fishers, the Swifts, and others ; also of those birds, as the Titmice and Wrens, which construct their nests with openings so small, that their enemies cannot see into them. The eggs of birds which only quit their nests at night, as the Owls, or for only a short time during the day, as the Falcons, are also white. The clear green or blue colour is proper to the eggs of many species which build in holes, as the Starlings, the Fly-catchers, &c.: it is also common to the eggs of birds the nests of which are constructed of green moss, or situated in the midst of grass, but always well hidden. Green eggs, too, are found with many powerful birds able to defend them, as the Herons. A faint green colour, approaching to a yellowish tint, is observed in the eggs of birds, as the Partridges and Pheasants, which lay in the grass, without preparing a

regular nest. The same colour is remarked in those which cover their nests when they leave them, as the Swallows and Ducks.* This watchful care of concealment is to be observed in many other and interesting cases among birds."

It is indeed both profitable and delightful to study the harmony and precision which reigns even among these the inferior animals of the earth. The more we ponder on their unerring instinct, their unwearied industry, and their cheerful perseverance in fulfilling the work given them by a merciful Creator, the more ought we to be stimulated in running our own more elevated way. Forcibly convinced, at the same time, how defective is the order and the best product of any effort and invention of the human thought, when compared to the perfection that reigns in the works of "Him who spake and it was done, who commanded and it was created."

* Edinburgh Journal of Science and Art.

THE END.

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