



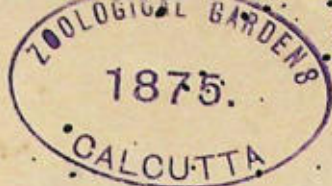


THE BIRD WORLD.



1875.

CALCUTTA



THE BIRD WORLD

Described with Pen and Pencil.

BY

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AUTHOR OF "THE MEDITERRANEAN ILLUSTRATED," "THE ARCTIC WORLD," ETC.,

AND

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Preface.



PERHAPS there is no subject on which a writer can discourse with greater certainty of carrying with him the sympathies of his readers than the Bird. So popular with all of us is this member of the animal creation, that we never seem to weary of details of its habits, of illustrations of its mode of life. Whether we select a type famous for the swiftness and gracefulness of its flight, or for the beauty and elegance of its plumage, or for its intelligence and its familiarity with man, we find our interest equally excited, and gladly give our attention to every particular that can be gathered about it. In our songs, in our fables, in our legends, in our proverbs, the Bird has a conspicuous share. Our groves and woodlands would seem dull without its presence. What would spring be without the swallow, or winter without the robin! How dreary a Highland loch without its snow-white swans, and the rocky cliffs of the islands without the dusky wings of the sea-birds! How much of beauty the world would lose if deprived of its humming-birds and its birds of paradise! Would there not be a blank in our poetry without the joyous morning strain of the skylark or the full rich night-song of the nightingale?

I believe, therefore, that, whatever their defects, the following pages will find many sympathetic readers, if only because they are devoted to sketches of the Bird World. They do not lay claim to much originality; but they bring together a large number of facts and anecdotes

from a great variety of sources, which can hardly fail to contain something that will be new to a majority of their readers. They are not intended, as will at once be seen, to usurp the place of a manual of zoology. They are not, and they were not meant to be, scientific. Their object is to gossip pleasantly about birds distinguished by the possession of some special character,—about birds of plumage, birds of prey, birds remarkable for their intelligence or their nests, birds of song, birds of the sea and the shore,—introducing, where appropriate, the descriptions of travellers, or the fancies of poets, or the associations of history and romance. I have followed no classification; I have allowed myself digressions in the freest possible manner; and the only order observed, and that very loosely, is geographical. In truth, I have been led to and fro at the will of the artist, but for whose exquisite illustrations this book would never have been written.

While I have endeavoured to make the letterpress something more and something better than a mere running commentary on M. Giacomelli's designs, still I am aware that these, in their admirable fidelity to nature, their combined grace, and strength, and delicacy, constitute the chief claim of the present volume to the public favour. They were drawn and engraved expressly for it; and it is only just to say that artist, engraver, and printer have done their best to ensure accuracy and finish in every detail. And I feel that, in offering this new book of the Bird World to the English reader, the author may safely repose under the ægis of the artist. My deficiencies will be forgotten as the reader dwells more and more delightedly on the masterpieces of Giacomelli.

W. H. DAVENPORT ADAMS.



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I.—THE BIRD AS AN INDIVIDUAL.



GOLDEN-CRESTED WREN.

See Page 113.

I.

The Bird as an Individual.

THE BIRD IN POETRY.

THE BIRD has always been a favourite with man; and in parable, legend, myth, and song, almost invariably occurs in connection with picturesque and romantic associations. In the fable of the Greek as in the saga of the Norseman, in the polished odes of the Latin as in the more spontaneous lyrics of the English, it is the image of all that is light, and innocent, and graceful. Especially is it the embodiment of human aspiration; of the desire of the human heart, when oppressed with the burden and the mystery of this unintelligible world, to take to itself wings, and flee away, and be at rest. Poised in the air on equal wings, it is the type of self-reliance and independence. Swooping downwards with arrowy rush on some doomed prey, it is an

emblem of power. Clinging to the partner of its little nest, it is the type of love. Carolling in the sunshine of the early morning, it is the symbol of praise. What would our poetry be without the Bird? Dréar and dull as the woodlands without the music of their feathered choristers. And in the strains of the minstrels, as in the depths of the grove, we may exclaim, with Spenser,—

"Hark! how the cheerful birds do chant their lays,
And carol of love's praise!
The merry lark her matin sings aloft;
The thrush replies; the mavis descant plays;
The ousel shrills; the redbreast warbles soft."

Religion clothes the Holy Spirit in the form of a dove, as we are reminded by Herbert's lovely stanza:—

"Listen, sweet dove, unto my song,
And spread thy golden wings on me;
Hatching my tender heart so long,
Till it get wing, and fly away with thee."



"LISTEN, SWEET DOVE, UNTO MY SONG."

Nations have chosen the eagle for their emblem; and a Roman legion named itself after the lark, *Alauda*. We express our idea of wisdom by the owl; of the supreme sweetness of music by the nightingale; of home and homely affections by the robin. The birds,

in the pages of the poets, are always suggestive of bright fancies and pure thoughts. Coleridge employs the albatross to teach a lesson of humanity. Tennyson finds a moral in the singing of the blackbird:—

“Take warning! He that will not sing
While you sun prospers in the blue,
Shall sing for want ere leaves are new,
Caught in the frozen palms of Spring.”

A lesser minstrel, Michael Bruce, has invested the cuckoo with pathetic memories. Wordsworth sees a skylark, and is taught to cultivate a mood of thanksgiving and contentment:—

“Joyous as morning,
Thou art laughing and scorning;
Thou hast a nest, for thy love and thy rest:
And, though little troubled with sloth,
Drunken Lark! thou wouldst be loath
To be such a traveller as I.
Happy, happy liver!
With a soul as strong as a mountain river,
Pouring out praise to th’ Almighty Giver,
Joy and jollity be with us both!
Hearing thee, or else some other,
As merry a brother,
I on the earth will go plodding on,
By myself, cheerfully, till the day is done.”

Even the green linnet, modest singer that he is, can awaken the poet's thought, and draw from him an expression of the sense of happiness his song inspires:—

“While birds, and butterflies, and flowers
Make all one band of paramours,
Thou, ranging up and down the bowers,
Art sole in thy employment;
A life, a presence like the air,
Scattering thy gladness without care,
Too blest with any one to pair,
Thyself thy own enjoyment.”

In truth, we may reasonably ask, What would the poets have done without the birds? How many happy images should we have missed!

how many delightful suggestions, and rare and pleasant fancies! Who would wish to have been without Shelley's Skylark?—

“ Sounds of vernal showers
On the trickling grass,
Rain-awakened flowers,
All that ever was
Joyous, and clear, and fresh, thy music doth surpass.

“ Better than all measures
Of delightful sound,
Better than all treasures
That in books are found,
Thy skill to poet were, thou scorner of the ground!”

Or who would not have regretted if he had been deprived of Keats' Nightingale?—

“ Thou wert not born for death, immortal bird!
No hungry generations tread thee down;
The voice I hear this passing night was heard
In ancient days by emperor and clown:
Perhaps the self-same song that found a path
Through the sad heart of Ruth, when, sick for home,
She stood in tears amid the alien corn;
The same that oftentimes hath
Charmed magic casements, opening on the foam
Of perilous seas, in faery lands forlorn.”

When Spenser seeks to convey to us an idea of enchanted or supernatural music, he tells us that

“ The joyous birds, shrouded in cheerful shade,
Their notes unto the voice attempered sweet;”

as if a concert of sweet sounds were impossible without the melody of birds. Webster, the old dramatist, calls upon the robin and the wren to watch over the last home of sad humanity:—

“ Call for a robin redbreast, and the wren,
Since o'er shady groves they hover,
And with leaves of flowers do cover
The friendless bodies of unburied men.”

When the bloom and sunshine of May make glad the heart of man, Tennyson represents the birds as sharing in the general mirth:—

" From the woods
Came voices of the well-contented doves,
The lark could scarce get out his note for joy,
But shook his song together as he neared
His happy home, the ground. To left and right
The cuckoo told his name to all the hills ;
The mellow ousel fluted in the elm ;
The redcap whistled ; and the nightingale
Sang loud, as though he were the bird of day."

It is not difficult to understand why between Man and the Birds so close a fellowship should exist. We are drawn towards most of them by their comparative helplessness; but more, perhaps, by the



"THE JOYOUS BIRDS, SHROUDED IN CHEERFUL SHADE."

— singular conditions of their existence. They are the children of the air, and enjoy the possession of an attribute which we covet,—the capacity of flight. We see them rising to heaven's gate on out-stretched wings, and hovering far away among the blue until the eye can scarce distinguish each floating speck; and we are filled with a sense of envy. How lightly and gracefully they pass from tree to tree, or skim the surface of the waters in search of their insect prey;

or cleave the air with rushing pinions, as if bent on some mission of urgent speed! The facility and elegance of their movements is not less admirable than the beauty of their form.

But everything about the birds seems adapted to engage our interest. Many of them attract by the glowing colours of their plumage, which, in exquisite brilliancy and subtle harmony, surpass the finest efforts of human artists. Others charm by the sweetness of their song, which is always distinct and characteristic—so that the notes of the lark are easily distinguished from those of the blackbird. Others invite attention by the marvellous ingenuity displayed in the construction of their nests; others, by the care and foresight with which they provide for their offspring. Then the variety of family and sub-family is marvellously rich. Some species are so tender and frail as to appeal at once to our sympathies and command our protection; others are so fierce and strong as to compel our admiration and surprise. We pass from the eagle clutching a kid or lamb in his talons, and bearing it away to his rock-built eyrie, to the tiny wren hopping in and out of leafy bush with timid glance; or the humming-bird, which might lose himself in the cup of a tulip! We pass from the birds that build their nests high among the foliage of lofty forest-trees, to those that are fain to conceal their little houses in the furrows of the corn-field or behind hoar and mossy fragments of stone. The diversity in their food is not less remarkable. The swallow lives upon insects which it catches on the wing; the soui-manga feeds on the honied stores of beauteous flowers; the toucan banquets on the fruits of the primeval forests; the hoaitzin lives on the leaves of a particular species of arum; the woodpecker on the insects which lie concealed beneath the bark of the trunks of aged trees; the francolin on worms and berries and bulbous roots; while the vulture feeds on carrion; the avocet on mollusca and sea-worms; and the diver upon fish. The majority of birds, however, are either insectivorous or frugivorous; but even here a great variousness prevails. Some pursue the insects that flutter to and fro in the shade of night; others, those which bask in the sunny noon. Some delight in shelly fruits, which they break open with powerful bill; others in fruit of a pulpy char-

acter; others in the apple, plum, and cherry of our sober English orchards.

THE NEST.

If we turn for a moment to Bird Architecture, of which we shall speak more fully in a later chapter, we find ourselves confronted by a subject of the utmost charm and significance. Between the rudely-woven nest of the sparrow and the exquisite workmanship of the chaffinch, how vast the interval! And again, what a difference be-



tween the compact and trim little abode of the chaffinch and the platform of larch-twigs, hair, wool, and feathers which the vulture and his mate inhabit!

"The Nest" is, indeed, a theme on which every writer feels tempted to enlarge. As Michelet says, this attractive object, so much more delicate than language can describe, owes everything to art, and skill, and calculation. Its materials are not always those which the little builder would have preferred, and generally they are of the rudest description. Then, again, the implements or tools employed are

necessarily defective. The bird has neither the squirrel's hand, nor the beaver's tooth. She is limited to her bill, her claw, and her body; and it is wonderful what she attempts, and what she accomplishes. Not less wonderful is the way in which each bird adapts her nest to the requirements of her mode of life. There is as much individuality in the nest as in the bird; and the naturalist is never at a loss to determine to what species any particular nest belongs. That of the linnet, for instance, cannot be mistaken for the blackbird's; that of the martin is wholly unlike that of the nightingale.

It has been well said that the bird builds for her family—for her young; that the nest is a creation of love, and impressed with the force of an extraordinary resolution and indomitable perseverance. The



"THE NEST IS A CREATION OF LOVE."

architect usually is the female, who employs the male bird as her purveyor. He is despatched in search of the materials; the grass, roots, moss, hair, feathers, down, which she weaves, plaits, or kneads together so dexterously. This part of the work must be sufficiently difficult; but the difficulty increases when the interior has to be completed. "Care must be taken that it is fitted to receive an egg peculiarly sensitive to cold, every chilled point of which means for the little one a dead limb. That little one will be born naked. Its stomach, pressed close to the mother's body, will not fear the cold; but the unfeathered



GRIFFIN VULTURE.

back will be warmed only by the couch on which it lies. Therefore, the maternal anxiety and precaution are not easily satisfied. The husband brings her some horse-hair, but it is too hard; it will serve for nothing more than an undermost layer—a kind of elastic mattress. He brings hemp, but that is too frigid. Only the silk or silky fibre of certain wool or cotton bearing plants is admissible; or, better still, her own feathers, her own down, which she plucks from her breast, and places beneath her nursling."

Speaking generally, the nest or home is situated in the centre of the space which the bird regards as his domain, and within which he confines his peregrinations. Its position varies according to the habits of its builder. The bird of prey constructs his eyrie at a considerable elevation above the soil, on the crest of a tall tree, or the rocky ledge of a precipice.

"He clasps the crag with crooked hands,
Close to the sun in lonely lands,
Ringed with the azure world he stands;
The wrinkled sea beneath him crawls;
He watches from his mountain walls,
And like a thunderbolt he falls."—TENNYSON.

The cursorial birds build upon the ground; the passerine, as they were formerly called, on the branches or in the hollows of the trees, or in thick leafy bushes, or among the tangles of the sheltering hedge. Clare has described a thrush's nest and its locality with all a naturalist's accuracy and a poet's feeling:—

"Within a thick and spreading hawthorn bush
That overhung a mole-hill, large and round,
I heard from morn to eve a merry thrush
Sing hymns of rapture.....
I watched her secret toils from day to day;
How true she warped the moss to form her nest,
And modelled it within with wood and clay."

The birds of the marshes construct their nests on little islets among the reeds, and frequently in such a manner that they float on the surface of the water; while the ocean-fowls haunt the ledges, projections, and crevices of the sea-washed cliffs. The rocky coasts of the Western Islands—such, for instance, as St. Kilda; or such isolated

masses as the Bass Rock, off the estuary of the Forth, and Ailsa Crag, off the mouth of the Clyde; or the chalk cliffs of Kent, Sussex, and the Isle of Wight; or the bold sea-wall of Yorkshire;—these are the places where gull, and kittiwake, and guillemot, or solan goose, love to congregate. But they are found in still greater numbers further north, and beyond the imaginary limit of the Arctic Circle. Dr. Kane speaks of the cliffs at Providence Halt as being white with wings; while Dr. Hayes describes a hill-side near "Brother John's Glacier" as inhabited by myriads. The length of the declivity where they



"THE PLACES WHERE GULL AND KITTIWAKE LOVE TO CONGREGATE."

made their nests was about a mile; and some idea of their numbers may be inferred from the fact that they swept across it in a continuous stream. They would traverse the whole extent in their rapid flight; then return, but higher in the air; and this circuit they would perform repeatedly. Occasionally, as if in obedience to some magic signal, a few hundreds or thousands would drop down; and, in an instant, the rocks for the space of several rods would swarm all over with them, until the surface was no longer visible beneath the mosaic of their black backs and pure white breasts.

The form of the nest is not always the same in the same family of birds. It is modified very much according to locality,—and in this respect great differences are observable between birds of the same tribe or genus; though our former statement always holds good, that the nests of a particular species of bird can be distinguished from those of another species. The nests of thrushes are not invariably alike; but they can be recognized, at all times, as different from those of black-birds. The simplest nests are those of birds which breed on the ground. Next come those of birds content to scratch a small cavity in the soil for the reception of their eggs; in a third and still higher rank may be placed the birds which line this cavity with soft substances. We meet with a similar order of comparison among the species which build in holes, or construct a floating nest. Great differences also are to be noted among the tree-builders. Some do nothing more than collect a heap of dry branches; others arrange quite an artistic framework; others dig out a hollow which they carpet with grass, young shoots, hair, feathers, roots; others there are who cover their nests with a kind of roof, and others who construct a corridor or passage by way of entrance. The weaver-birds work with vegetable fibres, and stitch their woofs together with fine threads, which they themselves prepare or collect in their wanderings abroad.

Generally, the nest is constructed simply for the reception of the eggs and as a cradle for the young; but not a few birds—such as the weaver-bird of South Africa and the satin bower-bird of Australia—build nests of pleasure or winter habitations. The woodpecker sleeps always in the hollow of a tree; and most of the sparrows pass the winter nights in dwelling-places warmly lined.

The female, as we have said, is the builder of the nest, and the male lends his aid. This is the rule; but, like all rules, it has its



"IN THE HOLLOW OF A TREE."

exceptions. For instance, the male weaver-birds work quite as assiduously as their mates. In most cases the male is responsible for the safety of the home; it is only among polygamous birds that he takes no interest in its defence. Certain birds construct their nests on the socialistic principle; the females lay their eggs side by side, and sit upon them indiscriminately. Others build for the benefit of the community an enormous pile, divided into numerous compartments, each of which is appropriated to a family. Thus Mr. Paterson says of the sociable grosbeak, which, in all probability, had learned the value of association, and congregated in communities long before man himself, that on one tree, a mimosa, in a South African grove, he saw from eight hundred to a thousand of its nests under one general roof. "I call it a roof," he says, "because it resembles that of a thatched house, and projects over the entrance of the nest below in a very singular manner. The industry of these birds seems almost equal to that of the bee. Throughout the day they appear to be busily employed in carrying a species of fine grass, which is the principal material they employ for the purpose of erecting this extraordinary work, as well as for additions and repairs. When the tree which is the support of this aerial city is obliged to give way to the increase of weight, it is obvious that they are no longer protected, and are under the necessity of rebuilding in other trees. One of these deserted nests I had the curiosity to break down, to inform myself of the internal structure; and found it equally ingenious with that of the external. There are many entrances, each of which forms a regular street, with nests on both sides at about two inches' distance from each other. The grass with which they build is called the 'bushman's grass.' From every appearance, the nest which I dissected had been inhabited for many years, and some parts were more complete than others. This, therefore, I conceive to be an additional proof that the animals added to it at different times, as they found necessary from the increase of the family, or, rather, of the nation or community."

MIGRATIONS.

The bird is a great traveller. Many families, after they have brought up their young to take care of themselves, undertake voyages

of greater or less length, guided through the trackless fields of air by an instinct which we find it difficult to understand. We must not confound, however, those which migrate with those which only travel, or enjoy, as it were, an aerial ramble. The former set forth every year at or about the same date, and follow always the same direction; the latter do not remove until urged by some imperious necessity. Neither the date nor the direction of their flight is determined beforehand, and it comes to an end with the cause which impelled it. Thus there are others who traverse a very limited area, simply abandoning one locality



for another situated at no great distance apart. It is in this last sense that the bird may be called a migratory individual. Some of our favourite English species, for instance, keep always near a particular spot; but every year, or even oftener, they move their nest, under what we must suppose to be in their opinion a sufficient motive.

But we wish to speak rather of those general migrations, which every autumn deprive us of so many of our feathered favourites, to bring them back in the spring; or which carry off our aquatic birds before the winter has fettered the streams with ice. The return of the

birds is one of the welcome signs of the maturing year. The swallow, more particularly, is the herald of sunshine and bright days. So one of our Scottish poets hastens to greet him with a song:—

“ The little comer's coming,
The comer o'er the sea,
The comer of the summer, all
The sunny days to be.
How pleasant through the pleasant sleep,
Thy early twitter heard,
O swallow by ' the lattice !'
Glad days be thy reward !”

More than half the birds of Europe, of Northern Asia, and North America, are migratory birds. Most steer their course towards the



FLIGHT OF WILD SWANS.

genial bowers of the South; those of the eastern hemisphere towards the south-west, and those of the western towards the south-east, according to the configuration of the countries where they winter. Their routes are the rivers and valleys which extend in the direction of their migrations; and the deep valley-basins, enclosed by mountains, are their places of reunion. Some travel in pairs; others in more or less numerous bands. The weaker species pursue their way under the protecting cover of night; the majority migrate during the daytime. They set out before famine comes upon them, advancing with great

swiftness, and as if driven by an irresistible force. Even those birds which have spent their lives in the luxurious captivity of a cage are obviously excited and much moved at the epoch of the annual migrations. Some species leave early, some late in the season; but all at fixed dates. The last to leave are the first to return. Those which first desert us are generally the last to come back. The black martin leaves, for example, at the beginning of August, and does not return until the month of May; while those late-lingering emigrants who do not disappear until November, return to us in February.

It is surprising what long distances are covered by the birds in these migrations. Many of our English favourites winter in the south of Europe; a still larger number sojourn temporarily in Algeria and the north of Africa generally, from 37° to 24° N. lat. Others penetrate as far as the Tropics, and may be seen in winter on the coasts of the Atlantic and the shores of the Red Sea and Indian Ocean. India and its islands, Burmah, Siam, and the south of China, form also a great winter-station.

The birds of North America resort to the Southern States and Central America.

Audubon gives an interesting account of the return of the barn-swallows after their winter absence. They make their appearance at New Orleans from the middle of February to the 1st of March, arriving in pairs, or a few together, and betaking themselves immediately to the places where they bred, or were reared, the year before. Their northward progress depends greatly on the state of the weather; and a difference of a month may be observed in their arrival at different places, when the temperature is low. Thus, in Kentucky, Virginia, or Pennsylvania, they sometimes do not arrive until mid-April or the beginning of May.

It is summer-time, and the swallow rejoices in the happiness which all nature feels. How pure and fresh is the air! how warm and exhilarating the sunshine! The little birds come forth from their leaf-shaded coverts, and fill the echoes with sweet sounds. What a happy world is theirs! Here a smart fellow roguishly challenges his

neighbour in all the pride of his glorious song; or listens for a while to the tender notes of his beloved mate, still sitting on her "pearly egglets" in their tiny nest. Now let us follow him to the open fields. On every blade and leaf sparkles the diamond dew, while the hill-side shines in the splendour of the sun like a golden shield. The husbandman watches with pleasure the airy gyrations of the swallows, for he knows they betoken a continuance of fair weather. Myriads of insects are now abroad, in search of food, like their feathered destroyers, and wheeling lightly in the calm, fragrant air. Down upon them swoops a swift-winged swallow, and one after another falls a victim to her ready bill. She seems to use hardly any exertion in this foray; for all her movements, upwards or downwards or sideways, are performed with graceful ease, and she sweeps along like a flash of light. How many circuits she makes in the hour are not to be determined, but they must needs be very numerous, since her rate of travelling is a mile a minute.

Now towards the sandy margin of lake or river she betakes herself; and alighting, hops forward with delicate steps, takes a few drops of the cool water, plumes her wings, and then returns to her nest, on the way filling her wide mouth with insects. Or should her nest be still unfinished, or in want of some repair, she carries a pellet of tempered earth in her bill, or picks up a feather that has fallen from goose or fowl, or from the hayrick removes a stalk of grass to mix with the mortar. As the heat becomes a burden and a weariness to the lowing cattle, she passes and repasses them where they have gathered under the umbrageous trees, and seizes upon each vexatious insect. For a while she perches by the side of her offspring on the slender branch of a convenient elm, pluming and chattering and taking her rest, until she once more launches into the air, unwilling to lose the summer sunshine.

But the summer sunshine gives way at length to the mists of autumn, and the swallows, young and old, assemble at a previously concerted rendezvous, and discuss the necessity of departure for climes where winter's frown is all unknown. The chatter becomes general, and is repeated day after day with increased vigour. We



SWALLOWS AND THEIR PREY.

may suppose that the course of the journey is indicated to those young birds who have had no experience of it, and that preliminary excursions are taken to test their strength. Finally, a cold night comes, followed by a touch of frost; the time of departure has arrived; and on the next bright morning the swarms rise high above the trees, and set out on their adventurous course.

Migrations similar to those at which we have glanced are observable also in the southern hemisphere. The birds of North America wing their way southward as far as Brazil; those of South Australia towards the north of the great "island-continent" and the neighbouring islands,—as, for example, New Guinea.

Before setting out, the migratory birds, as in the case of the swallows, are accustomed to assemble at certain places, and when their numbers are sufficient they take their departure. Some exercise themselves before entering on their long journey; test their physical energies against those of their companions,—with whom, not unfrequently, they engage in mimic strife.

The migrating swarms keep together more or less closely during the voyage. Occasionally they assume, in flying, a compact and regular array. The reader will remember the lines of Milton which describe the winged phalanx of the cranes:—

"Part, more wise,
In common, ranged in figure, wedge their way,
Intelligent of seasons, and set forth
Their aery caravan, high over seas
Flying, and over lands, with mutual wing
Easing their flight; so steers the prudent crane
Her annual voyage, borne on winds; the air
Floats as they pass, fanned with unnumbered plumes."

Not a few kinds sail through the air in closed-up rank and file, while others scatter into irregular groups. Generally, they keep at a very considerable elevation; but at intervals they allow themselves to fall abruptly, flying for a time quite close to the ground, and then rising again to their former altitude. The feebler species do not venture on long flights, but pass only from tree to tree, from forest

to forest. Birds to whom flight is a painful and difficult effort, accomplish a great part of the distance "on foot;" the aquatic birds alternately swim and fly. If the wind face them, the journey is made with rapidity; if it blow from behind them, their rate of speed slackens, and sometimes they rest for several days.

The travelling expeditions or excursions of the birds resemble their migrations in this respect, that they take place at a certain epoch, with more or less regularity. Many of the Northern families are travelling birds, wandering all the year round within sufficiently extensive limits; but it is only in very severe winters that they direct their course towards the south—penetrating even into Southern Europe.

" Wild birds that change
Their season in the night and wail their way
From cloud to cloud."—TENNYSON.



FALCON PURSUING SMALL BIRDS.—See Page 321.

II.—THE MOVEMENTS OF THE BIRD.



GOLDEN-COLLARED WHISTLING BIRD.

See Page 27.

II.

The Movements of the Bird.

MOTION A PLEASURE TO THE BIRD.

LIFE and motion are, as Brehm says, in the case of the bird, identical. That feathered creature is the very genius of activity. He seems incessantly in movement: his heart throbs more quickly, his blood circulates more rapidly, his limbs appear more freely articulated than those of the mammals. Movement is for the bird a necessity; for the mammal, it is but a means. The latter seems to enjoy life only when he is recumbent and half asleep,—like the kine on a summer's noon among the perfumed grass, or the sheep dreaming unknown dreams on the fresh hill-side, or a dog outstretched at his master's gate. This state of *dolce far niente* is not to be seen in the Bird World, except it be among the vultures. The birds are beings of motion; the mammals, beings of sensation. Of course, we

do not pretend that the movements of mammals are in any way limited. They can walk, run, leap, climb, swim, dive, like the birds. But they are fettered and oppressed to a certain extent by their bulk: however swift they may be, the bird surpasses them; while the cursorial birds, the ostrich and the cassowary, rival in speed the swiftest horse, the most agile antelope. Slow as the crane is, he flies as rapidly as a race-horse can gallop; while the passenger-pigeon outstrips the latter. When a mammal essays to compete with the winged race, it proves only its inferiority: the bat is a caricature of the bird.

We have spoken of movement as a necessity for the bird; who can doubt that it is also an enjoyment? See the chaffinch speeding from tree to tree, or skimming the surface of the daisied field; or the thrush balancing himself in the air, and suddenly taking a long bold sweep in some new direction; or the linnet undulating in his airy, graceful, and rapid course; or the pigeon darting arrow-like from his point of vantage to engage with his companion in a rivalry of speed,—and be convinced that each and all feel a keen delight in the exercise of their power of wing. According to Professor Wilson, however, it is the lark alone that lets loose the power in his wings for the expression of joy and gratitude. "The eagle," he says, "sweeps in passion of hunger—poised in the sky, his ken is searching for prey on sea or sward—his flight is ever animated by destruction. The dove seems still to be escaping from something that pursues—afraid of enemies even in the dangerless solitudes where the old forests repose in primeval peace. The heron, high over houseless moors, seems at dusk fearful in her laborious flight, and weariedly gathers her long wings on the tree-top, as if thankful that day is done, and night again ready with its rest. 'The blackening trains o' craws to their repose,' is an image that affects the heart of 'mortal man who liveth here by toil,' through sympathy with creatures partaking with him a common lot. The swallow, for ever on the wing, and wheeling fitfully before fancy's eyes in element adapted for perpetual pastime, is flying but to feed—for lack of insects prepares to forsake the land of its nativity, and yearns for the blast to bear it across the sea. Thou alone, O lark! hast wings given thee

that thou mayest be perfectly happy—none other bird but thou can at once soar and sing—and heavenward thou seemest to be borne, not more by those twinkling pinions than by the ever-varying, ever-deepening melody effusing from thy heart.”

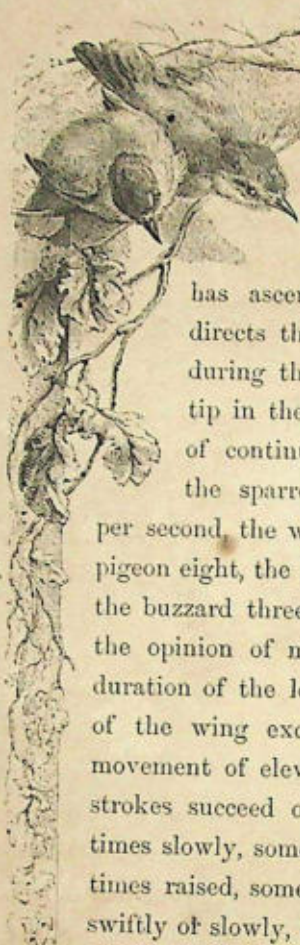
But while conceding to Professor Wilson all that he claims on behalf of the lark, we venture to assert that most birds, more particularly the smaller species,—we give up the birds of prey,—have a real and obvious delight in their power of swift and unrestrained movement. Watch one of our warblers in the glow of a bright warm summer noon, and mark how he flaps and flutters his little wings, how he spreads them out to their fullest extent, and then how he sweeps hither and thither in airy graceful curves, now rising and now sinking, now speeding onwards for a short distance as straight as the flight of an arrow, now balancing in the air like a boat on the surface of the water,—and say whether the bird does not fully enjoy the special gift which he has received from bountiful Nature!



THE LARK.

THE WING.

Something must now be said about that wonderful instrument of progression, the wing of the bird, which is at once so light and so strong, so solid and yet so mobile. The feathers are imbricated, like the tiles on a house-roof, and curved upward so as to give the wing an arched configuration. When the wing is uplifted, the feathers separate so as to let the air pass through them; when it is lowered, they close in together quite compactly, opposing to the atmosphere considerable resistance. At each stroke of his wings the bird rises; and as his upper arm, or *brachium*, moves at the same



time with a simultaneous downward and backward motion. his body is propelled in advance. A French observer—M. Marcy—has ascertained that the force which sustains and directs the bird in the realms of air is wholly created during the lowering of the arm; and that the wing-tip in the movements of translation describes a series of continuous curves. According to this authority, the sparrow makes thirteen evolutions of the wing

per second, the wild duck nine, the pigeon eight, the barn-owl only five, the buzzard three; and, contrary to the opinion of most observers, the duration of the lowering movement of the wing exceeds that of the movement of elevation. The wing-strokes succeed one another, sometimes slowly, sometimes rapidly; the anterior margin is sometimes raised, sometimes depressed, according as the bird flies swiftly or slowly, hovers, or describes a circular flight. When he wishes to sink to the ground, he folds them up completely. The bend of the arch of the wing indicates that the bird is flying against the wind; the air-current which strikes it in

front raises the wing, and the bird with it; while that from behind ruffles and disarranges the feathers, and considerably impedes progression. In guiding his flight, the bird uses his tail as a rudder: when he would rise, he raises it; when he would sink, he lowers it; and when he would go sideways, he moves it diagonally.

The rapidity, nature, and type of the bird's flight, vary with the conformation of the wing and of the plumage generally. Long, pointed, acuminate wings, with resistant pens and short feathers,



LEARNING TO FLY.

permit a rapid and sustained flight; while short and rounded wings, with loose plumage, are adapted only for a leisurely mode of progression. With a long broad tail the bird can change his direction abruptly; with great broad rounded wings can hover with very little effort.

In flying, as already stated, a bird advances with greater swiftness, and continues his advance longer, than any other animal. In truth, what he accomplishes is almost incredible. In a few days he traverses thousands of leagues; in a few hours, he crosses a sea. The carrier-pigeon covers in a day a distance which would fatigue the strongest rider. There is a story on record that a falcon of Henry II. of France, which was let loose one day from Fontainebleau, was captured on the day following at Malta; while another falcon, sent to the Duke of Parma, returned from the orange-groves of Andalusia to the wooded valleys of the island of Teneriffe, a distance of two hundred and fifty leagues, in sixteen hours. Humboldt affirms that he has seen the condor of the Andes cleaving his onward way at an elevation of 23,273 feet above the level of the sea, and yet suddenly descending to the sea-shore, so as to traverse all the climatic zones, as it were, in a few minutes. Mr. Gould remarks that the powers of flight of the albatross are truly wonderful. He is almost constantly on the wing, and seems equally at ease while sailing over the glassy sea in a breathless calm, or sweeping with arrowy swiftness before the most terrific gale. A vessel before the wind will sail upwards of two hundred miles in twenty-four hours, and yet the albatross will easily keep up with it; and not only so, but will perform diversions of many miles in extent, and always return without difficulty into the ship's course. Coleridge indulges in no poetical license when he represents an albatross as steadfastly pursuing the vessel of the Ancient Mariner:—

"And a good south wind sprang up behind;
The albatross did follow,
And every day, for food or play,
Came to the mariners' hollo!

"In mist or cloud, on mast or shroud,
It perched for vespers nine;
While all the night, through fog-smoke white,
Glimmered the white moon-shine."

The flight of the frigate-bird, or frigate-pelican, with wings eight feet in span, is even more astonishing for velocity and force. As Audubon says, the swiftest hawks are obliged to pursue their victims at times for half a mile at the highest pitch of their speed before they can secure them; but the frigate-bird swoops from on high like a meteor, and on nearing the object of his pursuit, which his keen vision has descried at a distance, darts on either side to cut off all retreat, forcing it to drop or disgorge the fish which it has just caught. "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, dives towards them, and immediately ascending, holds one of the tiny things across his bill. Already, fifty yards across the sea, he spies a porpoise in full chase, launches towards the spot, and in passing seizes the mullet which had escaped from its dreaded foe; but now, having caught a fish too large to be at once swallowed, he rises with it into the air, as if bound for the skies. Three or four of his own tribe have watched him and observed his success. They shoot towards him on broadly extended pinions, mount upwards in wide circles, smoothly, yet as swiftly as himself. They are now all at the same height, and each, on overtaking him, lashes him with strong wings, and tugs at the prey. See! one has 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 quite dead on the water, and sinks into the deep."

Among birds of great faculties of flight may be classed the stormy petrels, which, under the grotesque name of Mother Carey's Chickens, were so long dreaded by the seaman as harbingers of storm and calamity. They can keep on the wing all day; and are found at vast distances from the land, skimming the foamy crests of the billows, darting along the darkling troughs of the sea as through a mountain-valley, and now apparently riding on the tempest-tossed surface.

"Up and down! up and down!

From the base of the wave to the billow's crown;

And amidst the flashing and feathery foam
The stormy petrel finds a home,—
A home, if such a place may be
For her who lives on the wide, wide sea."



THE STORMY PETREL

The Alpine swift may also be instanced as a bird gifted with extraordinary faculties both of speed and endurance. She lives upon the wing; from dawn to sunset she is constantly traversing the "fields of air," and her daily flight must comprehend several hundreds of miles.

Most birds seem to fly with equal facility at all elevations, whatever may be the differences of the atmospheric pressure, and the degree of strength required. Near the summit of Chimborazo, Humboldt saw a condor hovering above him at an incalculable height. Against the profound azure of the heavens he seemed but a speck of black; yet to all appearance he moved with as much ease as he could have done in the lower regions. We must admit, however, that this is not always the case. Aeronauts have let pigeons loose at great elevations, and have observed that their flight was much more laboured and irregular than it is when near the ground.

Sometimes the bird hovers tranquilly; anon, he darts forward like

an arrow; again, he rocks and gambols playfully; or he glides, he runs, he speeds through the air with the rapidity of thought. Sometimes he moves to and fro with a gentle, slow, undulating motion; the waves of air seem agitated beneath him. We hear no sound, at first; but now we catch the rapid beat of the restless wings. Another moment, and not even the slightest movement is perceptible; then he rises to heights of which we can hardly conceive, or drops down even to the surface of the waves, the spray of which moistens his plumage. But, says Brehm, however varied it may be, flight is still flight. The organs used in it we call "wings;" and with wings the imagination of our poets has furnished the blessed spirits who stand before the great white Throne of God, prepared to do His bidding.

Birds also walk, swim, dive, and climb; but of these actions it seems unnecessary to speak in detail. The characteristic movement of the bird is—Flight.



RAVENS.—See Page 166.

III—INTELLIGENCE OF THE BIRD.



LEONA GOATSUCKER.

See Page 62.

III.

Intelligence of the Bird.

THE ORGANS OF SENSE.

WE come now to the Intelligence of Birds; but it would be difficult to define in what way it differs from that of the mammals, except, perhaps, in degree. It varies, of course, in different species; it is greater in the rook than in the wren; but it is always, so to speak, of the same kind or quality. Some naturalists, it is true, have denied them that faculty of understanding which the mammals possess; will allow them nothing but that unconscious force or impulse which we call "instinct." But this theory cannot be maintained in the face of careful observation and research. To admit the existence of such a force, is, the brothers Müller say, the last term of a false philosophy.

The bird is without ratiocinative power, but endowed with something higher and better than instinct.

Hear what Brehm says:—

It must not be forgotten that in questions of this nature we are reduced to the invention of hypotheses in order to account for certain phenomena which the animals present. These we understand but partially. At times we believe ourselves to be witnesses of the succession of their thoughts, the sequence of their judgments; but we cannot determine how far we are in the right. Many facts are still for us quite enigmatical and inexplicable. Are we sure that it is really with a view to the wants of the future that certain birds accumulate provisions? Do we know why some species migrate when the land which they abandon still supplies an abundant nutriment? Can we fully explain the modifications of form and of structure which they bring to bear upon the building of their nests, or the differences in their mode of reproduction? Instead of having recourse to conjectures to account for these perplexing circumstances, it would be more reasonable if we frankly confessed our ignorance. Future observations may solve the problem of these apparent mysteries; and by denying that they are really mysteries, we shall encourage further research and inquiry. It is very convenient, but at the same time it is unworthy of the philosophical spirit, to attempt to supply our deficiency of knowledge by a suggestion of the supernatural; for, by accepting the latter, we abandon the right and privilege of investigation.

Whoever denies to the bird intelligence, and intelligence considerably developed, knows nothing of his true nature. He leaves out of sight the fact that he is capable of being educated; that he can be accustomed to leave and return to his cage; that he can be trained to imitate human speech; that, in a word, he can be taught almost anything; and that, consequently, his faculties rise far above an unconscious, inappreciable, and unreasoning force like that of instinct.

With respect to the *nervous system* of the bird, it occupies, as might be supposed, a middle place between that of the reptile and that of the mammal. The bird's brain is relatively larger, especially as regards the size of the cerebrum proper, than the reptile's; but

the cerebellum, though never wanting, consists simply of the central lobe, and lacks the lateral lobes which occur in the mammals, or they are present only in a rudimentary form.

In connection with the intelligence of the bird must be considered his *organs of sense*; for when these are defective or imperfect, the intelligence is invariably defective or imperfect. "The eyes are always well developed, and in no bird are they ever rudimentary or absent." Such is Professor Nicholson's *dictum*; and he proceeds to point out some peculiarities of the bird's eye. For example, the cornea forms a segment of a much smaller sphere than does the eyeball proper; so that while the anterior part of the eye is obtusely conical, the posterior portion is spheroidal. Again, the form of the eye is maintained by a circle of from thirteen to twenty bony plates, situated in the anterior portion of what is called the sclerotic coat. Few birds have eyelashes; but, in addition to the ordinary upper and lower eyelid, they possess a third membranous eyelid, the *membrana nictitans*,—in man only rudimentary,—which is sometimes pearly-white, sometimes more or less transparent. This winking membrane (to speak literally) is placed on the inner side of the eye, and, by means of a special muscular apparatus, falls over the anterior surface of the eye like a veil, subduing the intensity of the external light.

Most birds have no outer ear, or *concha*, by which sounds can be gathered up and conveyed to the inner ear. In some species, however, as in the ostrich and bustard, the external *meatus auditorius* is surrounded by a circle of feathers, which can be raised or depressed at will. That the hearing of birds is admirable, is proved by the excellence of their song: for song is not with them, as is popularly supposed, an innate or inherited faculty—a gift from Heaven; it has to be acquired. The fledgelings learn by listening to and imitating their mother. Frequently, it is through their keen hearing that they are warned of the approach of danger. They enjoy one another's companionship by means of the same quickness of sense which enables them to recognize and comprehend the lightest sounds. It is a curious fact, however, that the song-birds which are sensible to music are those whose hearing is the most imperfect; while birds with a delicate ear,



like the owls, are afflicted by the sounds that other birds find so agreeable.

The external nostrils in birds are usually placed on the sides and near the base of the upper mandible, in the form of simple perforations, which not unfrequently, through the deficiency of the cartilaginous partition, or *septum*, communicate from side to side. Sometimes the nostrils are protected by bristles; in the Rasores, by a scale. In the New Zealand apteryx, the nostrils are situated at the tip of the elongated upper mandible. As to the power of smell possessed by birds, a considerable difference of opinion exists. Some hold it absurd to believe that the crow can detect at a distance the odour of the powder in the sportsman's gun, and the kite or vulture scent the carrion he loves at several leagues off. It may be admitted, however, that several naturalists accept the latter statement as proved by numerous observations.

As regards taste, the birds are much below the level of the mammals. It is in a few species only, such as the parrakeets, that

we find a tongue which, by its softness and nervous organization, renders taste possible. In all other species the organ is so hard and rudimentary that it cannot produce the phenomenon of taste, inasmuch as no dissolution of the food takes place. As some prefer a certain kind of food, it is thought that this food pleases their palate more than any other. But one grave objection may be urged to this conclusion,—namely, that the birds swallow without masticating.

Touch, or tactile sensibility, is, as Nicholson remarks, very poorly developed in birds. Their body is entirely, or almost entirely, covered with feathers; the anterior limbs, being converted into wings, are useless as tactile organs; and the posterior limbs are clothed in feathers or horny scales. No doubt the tongue is an organ of touch, as well as of prehension; but being generally encased in a stiff, horny sheath, it cannot possess an acute sensibility. "In some birds, however, such as the common duck, the texture of the bill is moderately soft, and it is richly supplied with filaments of the fifth nerve; so that in these cases the bill doubtless constitutes a tolerably efficient tactile organ." And for the same purpose is probably used the "cere," or fleshy scale, found at the base of the bill in some species.

So far as general sensibility is concerned, the bird cannot be pronounced defective; and to external influences he is particularly sensitive. The ancients remarked what the moderns have confirmed: the accuracy with which atmospheric changes are felt and foretold by the bird. Thus Virgil says, as rendered by Dryden:—

"Wet weather seldom hurts the most unwise,
So plain the signs, such prophets are the skies:
The wary crane foresees it first, and sails
Above the storm, and leaves the lowly vales.....
The swallow skims the river's watery face.....
The crow, with clamorous cries, the shower demands,
And single stalks along the desert sands."

The reader cannot fail to have noticed the evident depression of birds during inclement weather, and the striking revival of their gaiety and liveliness when the sunshine returns:—

"Then thrice the ravens rend the liquid air,
And croaking notes proclaim the settled fair."

Then, round their airy palaces they fly
 To greet the sun: and seized with secret joy,
 When storms are overblown, with food repair
 To their forsaken nests, and callow care."



"THE SWALLOW SKIMS THE RIVER'S WATERY FACE."

"See," says Mr. St. John, an accurate observer, "how at morning time they hail the rising sun, and at evening faithfully congregate to watch it setting on our Scottish shores. Towards evening, the heath-cock, that he may see it all the longer, stands on tiptoe, and balances himself on the branch of the tallest willow." In connection with this subject, we cannot refrain from quoting a graceful little idyll, or idyllic episode, which occurs in Michelet's *La Peuple* :—

"'Light! more light!' Such were the last words of Goethe. This utterance of expiring genius is the general cry of Nature, and echoes from world to world. What was said by that man of power is said by God's humblest children, the least advanced in the scale of animal life, the molluscs in the depths of ocean; they will not dwell where the light never penetrates. The flower seeks the beam, and turns towards it; without it, sickens. Our fellow-workers, the animals, rejoice like us, or mourn like us, according as it comes or goes.....

"This summer, when walking in my garden, I heard and I saw on a branch a bird singing to the setting sun. He bent towards its rays,

and was plainly enchanted by their glory. I was not less charmed to watch him. Our pitiful caged birds had never inspired me with the idea of that intelligent and powerful creature, so little, so full of passion. I trembled at his music. He turned his head; his bosom swelled; never singer or poet enjoyed so simple an ecstasy. It was not that of love, for the season was past; clearly, it was the splendour of the dying day which fascinated him,—the magic of the beautiful sun!"

It is well known that the caged minstrel can be silenced at once by the expedient of throwing a cloth over his prison, so as to exclude the light which seems to inspire and call forth his song.

In a glowing picture of the daily aspects of a virgin forest in Brazil, Mr. Bates touches upon this sensitiveness to the influences of light and darkness. About noon, the birds, by their motions, proclaim the approach of a thunder-storm. The heat and electric tension of the atmosphere gradually become almost insupportable. A sudden blackness fills the eastern horizon; the sun is obscured; and a mighty wind rushes through the forest, swaying the tree-tops; a vivid flash of lightning—a crash of thunder; and down comes the deluging rain. The storm soon ceases, and as the face of heaven gradually clears, life revives again, and the ringing minstrelsy of the forest awakes in every tree, to be repeated by every echo. So also Mr. Bates speaks of the *carashué*—a species of thrush, but smaller and plainer-coloured than our English songster—as being silent during the thunder heats of noon, but resuming his melodious strains when the sky cleared later in the day.

A DAY IN A BIRD'S LIFE.

It has been justly said that no creature leads so active a life as the bird; that none so fully occupies all his time. The longest day is insufficient for him, while the shortest night is all too long. With the first glimmer of morning, he sings at heaven's gate; ever vivacious and restless, he refuses to give up half his existence to sleeping or dreaming; he desires to live all the span that is permitted to him.

The birds are very early on the wing. The majority cease to slumber when the first rays of the sun redden the horizon, when it is even yet difficult to distinguish day from night. Thomson is not more poetical than accurate when he writes:—

"The dripping rock, the mountain's misty top,
Swell on the sight, and brighten with the dawn.
Blue, through the dusk, the smoking currents shine;
And from the bladed field the fearful hare
Limps, awkward; while along the forest-glade
The wild deer trip, and, often turning, gaze
At early passenger. *Music awakes*
The native voice of undissembled joy;
And thick around the woodland hymns arise."



"AND THICK AROUND THE WOODLAND HYMNS ARISE."

At midnight the voice of the cuckoo has been heard; and only an hour later he resumes his song, to pass the entire day without repose. If we pass through grove or forest at early dawn, before the summer day has fully "gilded the mountain-tops," we hear already the music of the birds on every side, and we know it will not be hushed until after the setting of the sun. Some few hours in the night, some few

minutes in the day, are all that the birds consecrate to sleep. It is true that our domestic poultry return to roost before sunset, but they do not sleep immediately; and the shrill clarion of Chanticleer, ringing aloud before the night-shadows have been gathered up, makes known to us the fact that three hours' slumber suffice to recruit their energies. It is the same with the other birds. Joanna Baillie, in one of her graceful lyrics, sings—

“Up, quit thy bower! late wears the hour,
Long have the rooks cawed round the tower;”

and before the sun is above the horizon, the birds have begun their daily labours. The birds of prey, however, and more particularly the vulture, are not such “early risers.”

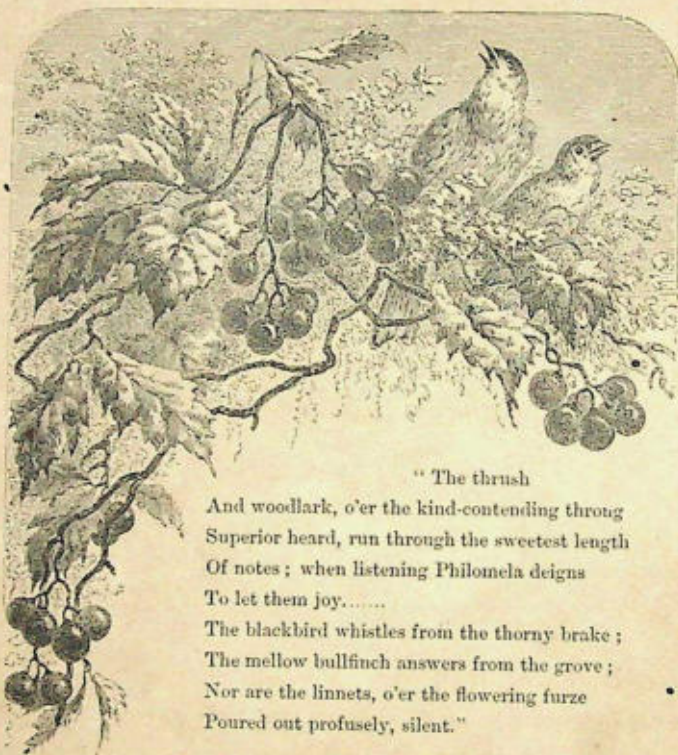
After his morning song is over, the bird sallies forth in quest of food. Most species feed twice a day; that is, in the morning and the evening; though there are exceptions to this rule among those birds which depend upon felicitous opportunities for a meal. The raptorial birds are satisfied with a single repast; and as those which feed upon carrion, and do not capture their own prey, cannot find the wherewithal to satisfy their appetite at will, they are frequently compelled to endure long periods of hunger. The South American Indians assert that the condor can fast for forty days; but this is undoubtedly an exaggeration.



The bird usually consumes every day the food he has fallen in with; but a few species lay up a stock of provisions.

The meal at an end, the bird proceeds to quench his thirst, and

performs his ablutions; or, when water is wanting, to cleanse himself with sand, or dust, or even snow. Then he indulges in a brief repose, and allows a few minutes for digestion; prunes his plumage; and once more takes to the wing. In the evening he returns to his accustomed perch, where he is rejoined by other individuals of his species. This is the time when Nature's songsters put forth all their powers, and endeavour to outvie one another in the variety and fulness of their strains.



"The thrush

And woodlark, o'er the kind-contending throng
Superior heard, run through the sweetest length
Of notes; when listening Philomela deigns
To let them joy.....

The blackbird whistles from the thorny brake;
The mellow bullfinch answers from the grove;
Nor are the linnets, o'er the flowering furze
Poured out profusely, silent."

It must be added, however, that bad weather interrupts the harmonious order of the bird's daily life; and that some of the singing-birds are comparatively silent in the latter part of summer.

The bird is everywhere: we meet with him on the very threshold of the Frozen World; we find him dwelling on the rocky cliff that overhangs the melancholy sea; he frequents the inaccessible precipices of the mountains; even in the heart of the sandy desert his presence and his song encourage the weary traveller. Still, for the majority, as

is the case with the mammals, their habitat depends upon the presence of vegetable life; and it is in the bosom of the forest that the bird appears in all his glory. The ocean-birds may be counted by thousands and tens of thousands; and when the mating-season arrives, they gather along the shores and upon the rocks in innumerable bands—a whole legion sometimes being composed of individuals of a single species. On land, and mainly in the forests, we meet with companies almost as numerous, and represented by the most diverse forms. The nearer we approach the Equator, the more the species multiply. In tropical lands, the conditions of existence are more varied than in our



sober, temperate climes; and so, too, are their physical aspects. Nature is more exuberant; life teems and swarms and runs riot. The greatest variety of species, however, does not occur in the virgin forests, but in those regions where alternate the woods and the fields, the mountains and the valleys, the arid table-lands and the reeking marshes. Wherever a river rolls its copious waters through the forest shades; wherever a morass is surrounded by a belt of trees; or wherever the inundated plains enclose an isolated patch of copse and thicket,—in such places the greatest number of species is met with, because in such places they find a more abundant nourishment than is elsewhere obtainable. On the facility with which they can secure their food

depends the presence of birds in any particular locality; and not unfrequently dire want compels them to abandon a neighbourhood, "it may be for years, it may be for ever!"

No animal, says Brehm, knows better than the bird how to effect a complete reconnaissance of his little territory. He inspects every corner, forces himself into every recess, and never overlooks anything that can be useful for his nest or as food. Many of the graminivorous birds—pigeons, for example—are content with picking up the meal duly prepared for them; others are dexterous enough to strip the seeds of their envelopes; hens dig up the roots and tubercles on which they feed. The frugivorous species collect berries and fruits with their beaks; some seize upon them while on the wing. The insect-eaters capture their victims in ever so many ways: they pluck them from the branches and leaves to which they adhere; they dart upon them in the course of their airy flight; they hunt them out of the flower-cups, the chinks and crevices in which they attempt to hide;—frequently, to discover them is a protracted and difficult task; in some species the tongue is so organized as to be able to follow the victims into their profoundest retreats.



EAGLE HUMMING-BIRD AND RUBY TOPAZ.—See Page 97.

IV.—THE HABITAT OF THE BIRDS.

IV.

The Habitat of the Birds.

A GENERAL RETROSPECT.

LET us glance at the character of some of the localities favoured by the birds.

In the forests of the Upper Amazon, the traveller may wander for days and see no birds; yet, in truth, the country is tenanted by some hundreds of species. But the frugivorous kinds are to be met with only in the season when the wild fruits are ripe, and then they congregate in the particular districts where these



FLAMINGOES.

are plentiful. The insectivorous birds are likewise gregarious, and assemble in localities infested by ants and other insects; numbers of distinct species, belonging to different families, combining in the chase or the search after food. Then the bushes and trees seem all on a sudden to swarm with wings. Hundreds are moving to and fro in a very passion of activity; "woodpeckers and *Dendrocolaptidæ* (from species no larger than a sparrow to others the size of a crow) running up the tree trunks; tanagers, ant-thrushes, humming-birds, flycatchers, and barbets flitting about the leaves and lower branches. The bustling crowd loses no time, and although moving in concert, each bird is occupied on its own account in searching bark or leaf or twig; the barbets visiting every clayey nest of termites on the trees which lie in the line of march."

On the weedy shores of some of the West Indian Islands, where the water lies shallow on mud-bank or sand-shoal, the red flamingo makes his home. There he and his fellows may be seen, standing in the water, and drawn up in long line, like the rank and file of a regiment, with sentinels on either side, whose trumpet-like call gives timely notice of

approaching danger. So Montgomery describes them:—

"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 waked the startled group,
That mounted like a glorious exhalation,
And vanished through the welkin far away."

Stranger locality for a residence is favoured by none than by the guacharo, which frequents two or three of the limestone caverns of Trinidad and the American Mainland, always in the neighbourhood of a profuse tropical vegetation. Thus Humboldt describes the Cave of Caripe as pierced in the vertical profile of a rock which is covered with trees of gigantic height. Plants with succulent stems, beautiful oxalises, and fanciful orchids, bloom in the driest clefts of the precipices; while creepers, waving in the winds, are wreathed in garlands and festoons before the mouth of the cavern.

The guacharo quits the cavern at nightfall, showing a marked preference for a moonlit night. He is almost the only frugivorous nocturnal bird of which our naturalists have any knowledge. Like the nut-cracker, he feeds on very hard fruits. Humboldt, who penetrated into the guacharo cave, says that it is difficult to form an idea of the terrible din produced by thousands of these birds in its dark recesses; a din comparable only to the croaking of the crows which, in the Northern pine-forests, congregate together and build their nests upon trees, the tops of which touch each other. Their shrill, ear-piercing cries strike upon the vaults of the rocks, and are repeated by the echo in the cavern's depth. The Indians, by attaching torches to the end of long poles, contrive to exhibit their nests, situated fifty or sixty feet above the ground, in funnel-shaped holes, so numerous that the roof of the grotto resembles a gigantic sieve. Each nest is nothing more than a round lump of mud, of the size and shape of a large cheese, with a shallow depression on the top to receive the bird's eggs.

Once a year the Indians, armed with poles, enter the guacharo cave, and destroy the greater part of the nests. Several thousands of birds are killed; and the old ones, as if to defend their brood, hover above the heads of the bird-hunters, giving vent to piteous plaints.

The young which fall to the ground are opened on the spot. "Their peritoneum," says Humboldt, "is extremely loaded with fat, a layer of which reaches from the abdomen to the anus, forming a kind of cushion between the legs of the bird. This quantity of fat in frugivorous animals not exposed to the light, and exerting very little muscular motion, reminds us of what has long since been observed in the fattening of geese and oxen. It is well known how favourable to this process are darkness and repose." Only in such localities as we have described is the guacharo found, and we believe that he is confined to the Spanish Main and the Island of Trinidad.

In a note to Mr. Gosse's delightful book, "The Naturalist in Jamaica," occur some very interesting particulars about the house-martin (*Hirundo pæciterna*). His favourite haunts are the silent solitary caverns in cliffs and rugged hills, where he excavates for himself and his family a tiny home of sand. When the spring equinox has blown over, with its fitful showers of rain, he takes advantage of the little puddles round about to collect the mud requisite for extending and patching the stucco-work of his grotto; relieving his toil by a low and hardly musical gossip with his mate. This subdued "twittering talk" he keeps up during the unwearied hours he spends by her side, and with her nurslings, throughout the summer. But in the gusty autumn season he changes his habits and his voice. Quitting his cave-retreat, he joins three or four of his kind, and, perched on the upper branch of some neighbouring tree, breaks into a loud, full song, so different in tone and character from his ordinary strain as to astound and perplex the hearer. His singing is then full of ecstatic cadences, which are continued and repeated with ever-increasing vehemence.

Each species to its peculiar habitat. In Jamaica, the glass-eye merle, with her rich protracted strain, and the solitaire, with sweet, mysterious, long-drawn melody, like the echoes of a solemn psalm, frequent the lone forests of the mountain-heights. In the dense green woods of the lower hills live the black shrike and the

cotton-tree sparrow; so alike in their musical calls, of four or five notes rapidly running up the scale and suddenly falling at the end, as to be scarcely distinguishable. These lower groves are also the resort of the hopping-Dick, and the red-eyed, white-eyed, and black-bellied flycatchers. From the green tussocks of the Guinea-grass fields rings out the curious, hollow-sounding voice of the tiehiero (*Cotumiculus texireus*); while the banana-bird, bright in his plumage of white and yellow and black, and the blue quit, a soft sweet warbler, delight to dwell among the custard-apple and other fruit-trees. From the topmost twig of mango or orange tree, where he seems quite at home, drop the tiny, pearl-like notes of that fairy minstrel, who should have been Titania's own court musician, the tiny vervain humming-bird.

THE MOCKING-BIRD.

The mocking-bird, justly entitled "the nightingale of the Western World," prefers to build his nest in a lonely thorn bush, an orange or a cedar tree, or a tangled thicket; but his range is wide—he does not confine himself so strictly as many birds do to a particular habitat. A warm climate, a low country, and the neighbourhood of the sea, Wilson speaks of as most congenial to



BLACK-BELLIED FLYCATCHER.

his nature; but in Jamaica he is found in almost all situations, from the mountain-peak to the sea-shore, though he shows a partiality to the orchards and gardens of the lowlands. He is less capricious in his fancies than his European rivals. In fact, he is found in America as far north as Virginia, and as far south as Brazil; and it is well that so charming a singer should be favourably distinguished by his catholicity.

And here we may be allowed to say something of his song. Is it equal to that of the nightingale? This is a question which Wilson says he cannot answer, having never heard the song of the latter; and we ourselves are unable to reply, because we have never heard the song of the former. But it is certain that his *own* strain is far inferior to that of our

"Sweet and plaintive Sappho of the vale,"

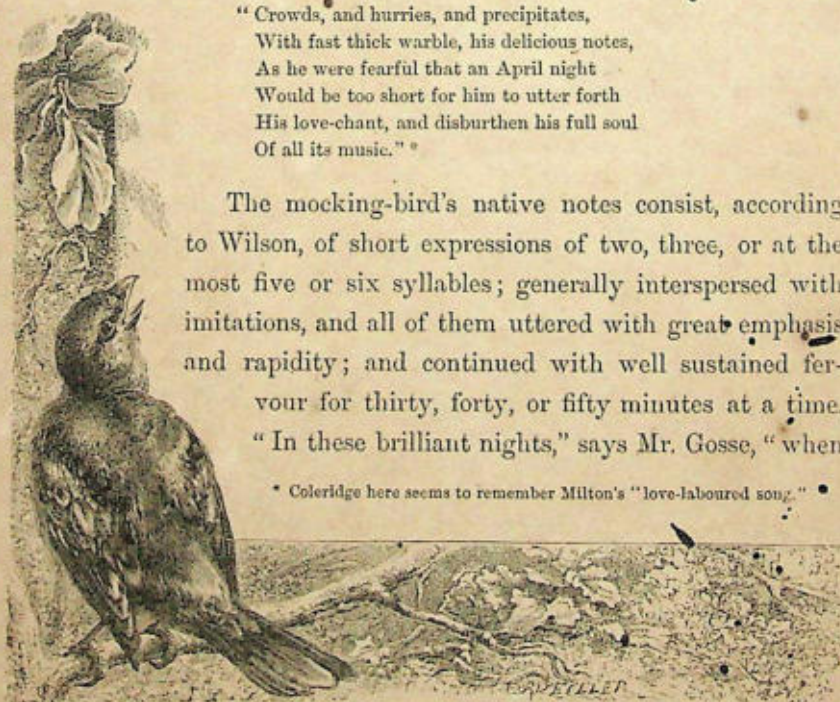
who, as Coleridge finely says,

"Crowds, and hurries, and precipitates,
With fast thick warble, his delicious notes,
As he were fearful that an April night
Would be too short for him to utter forth
His love-chant, and disburthen his full soul
Of all its music." *

The mocking-bird's native notes consist, according to Wilson, of short expressions of two, three, or at the most five or six syllables; generally interspersed with imitations, and all of them uttered with great emphasis and rapidity; and continued with well sustained fervour for thirty, forty, or fifty minutes at a time.

"In these brilliant nights," says Mr. Gosse, "when

* Coleridge here seems to remember Milton's "love-laboured song."



THE MOCKING-BIRD.

the full-orbed moon shines from the depth of the clear sky with such intensity that the eye cannot gaze upon the dazzling brightness of her face, shedding down on plain and sea a flood of soft light, how sweet, how rich, how thrilling are the bursts of melody that rise from the trees around, the serenades of wakeful mocking-birds!"

It is as an imitator that he excels. He is no vulgar copyist, however; but a true artist, reproducing the *expression* as well as the mechanical peculiarities of the birds he imitates and surpasses. He represents the warble of the thrush, and the quiverings of the canary, and the flute-like melody of the reed-bird, with such superior execution and effect as to mortify these astonished songsters into silence. He is an orchestra in himself; all the feathered musicians of the forest seem to have transferred their gifts to him.

His various taste and imitative skill, in the opinion of some authorities, injure his song. However this may be, they never fail to move the traveller's wonder and delight. His "personations" of the brown thrush are succeeded by imitations of Chanticleer which would convulse a Boxing-Night audience; and he mingles the warblings of the bluebird with the cackling of hens or the screaming of swallows. A moment, and our ears are filled with the simple melody of the robin. Yet another moment, and we are surprised by the shrill monotony of the whip-poor-will; to which succeed in turn, and with admirable fidelity, the notes of the kill-deer, the blue jay, the martin, the Baltimore oriole, the woodlark, the chaffinch, the blackbird. While thus displaying his extraordinary powers, the mocking-bird is in an ecstasy of enjoyment,—spreading his wings, expanding his tail, and giving himself up, like a true musician, to the full development of his wonderful gift.

BIRDS OF JAMAICA.

But to return to the birds of Jamaica. In enumerating its woodland songsters we must not forget the wild doves. In the depths of the mountain forests may be heard the plaintive cadences of the glossy-plumaged mountain witch, and the loud hollow calls of the ring-tail and the blue pigeon. The woods that clothe with luxuriant foliage the lower hills echo with the energetic strain of the baldpate, the

tender sob-like strain of the gentle white-belly, and the calls of the ground dove and the partridge dove.

While these birds seek the woodlands, there are others which prefer the cultivated plains, the low-lying fields, and the neighbourhood of man. Mr. Gosse speaks of the white-wing and the pea dove as essentially "lowland birds." Not that their voices are heard immediately around the homestead. It is noticeable that prudence keeps them silent when they venture into the open pasture in search of food; but from the adjacent groves and the mazes of the mangrove-swamps their loud yet tender cry comes pleasantly upon the ear. The pea dove's voice has an exquisite tenderness in it; especially in the evening, when the warm azure of the sky is deepening into the sapphire glow of night, and the stars come forth to keep their silent vigil, and a soft hush prevails over the face of nature. With the morning begins the louder and more energetic voice of the white-wing; though, says our authority, each season brings the notes of both birds, respectively characteristic of the quietude of the late and early hours.

"Nec tamen interea raucae.....palumbæ,
Nec gemere aëria cessabit turtur ab ulmo."—VIRGIL.

THE WEST INDIAN FOREST.

It is well that we should endeavour to place before the reader a picture of the wooded scenes where so many of the beautiful birds of the Antilles choose their habitat. If acquainted only with the sober groves of England, or the pine-forests of the North, he can form no idea of the profusion, the superabundant wealth, of the tropical forest, where Nature seems to revel in crowding new forms one upon another. Charles Kingsley declares that his first feeling on entering the high woods of Trinidad was "helplessness, confusion, awe,—all but terror." Without the aid of a compass, or the landmark afforded by some opening to or from which he can look, a stranger must be lost in the first ten minutes; so infinite is the variety. The trees and creepers close round him so closely, and inextricably, and confusedly, that he cannot discover any way out of them, either backward or forward. He wanders on aimlessly, helplessly, with a vague sense of "innumer-

able perpendicular lines, all straining, in fierce competition, towards the light roof above;" and next, of a mist or cloud of greenery, extending far above his head, and rising to an unknown height.

Around his knees, as he seeks to advance, crowd the creeping stems and fan-shaped leaves of the mamures;* and when he endeavours to extricate himself from these, he is entangled by a string or wire belonging to some other plant; and a glance above and around shows him a complex apparatus of wires, the slender branches of young trees, and the creepers and parasites that twine in and around them, and feed upon them, and link them together until they form an almost impenetrable network. The only simile that can be applied to it is that of the rigging of an immense armada, all intertangled, and floating in wild confusion; and through this coil of vegetable cordage the traveller is compelled to cut his way with lusty strokes from the axe he carries in his hand. He plunges next into a clump of strong, sedge-like sclerias, with leaves three to six feet high, as sharp as double-edged swords; anon he is brought up by a kind of rounded, smooth green pole, lying horizontally—which proves to be the leaf-stalk of a young cocorite palm,† the leaf itself being five-and-twenty feet in length. A blow of the hatchet affords a passage; but immediately the adventurer comes upon a "gray, lichen-covered bar," a couple of inches thick,—which proves to be entwined with three or four other bars, and rolls over with them in great knots and loops and festoons twenty feet high, and stretches right up into the dome of greenery overhead. One of them is a liantasse (*Schnella excisa*) measuring six or eight inches across in one direction, and three or four in another, "furbelowed all down the middle into regular knots, and looking like a chain-cable between two flexible iron bars." At another of the loops, a forester accustomed to the scenes and sights around him will leap right joyfully; severing it as far up as he can reach, and again below, some three feet down; then lifting the severed portion on high, he throws back his head, and down his thirsty throat pours a pint or more of pure cold water. "This hidden treasure is, strange as it may seem," says Kingsley, "the ascending sap; or rather the ascending pure rain-

* Carludovica.

† Maximiliana Caribaea.

water which has been taken up by the roots, and is hurrying aloft to be elaborated into sap, and leaf, and flower, and fruit, and fresh tissue for the very stem up which it originally climbed. And therefore it is that the woodman cuts the water-vine through first at the top of the piece which he wants, and not at the bottom; for so rapid is the ascent of the sap, that if he cut the stem below, the water would have all fled upwards before he could cut it off above."

The stranger's attention is next directed to the orchids; that is, as soon as in the apparent chaos before and around him he is able to distinguish one object from another. These are found on every tree; exquisite and fantastic forms, which fill the mind with a strange sense of wonder. Particularly do they affect the calabash,* with its slender, straight, intercrossing branches, and fringes of green leaves, and large greenish purple-streaked blossoms, and oval gourds in various stages of maturity. No other tree is "so great a nursery" of orchids as the calabash. You will find on it large masses of magnificent plants—as, for instance, the *Oncidium Carthaginense*, which is thus described: Large, thick, ovate leaves, a foot and a half long, and four or five inches wide, without bulbs, forming immense bunches on several of the principal branches and their forks, from the axils of which spring pendent flower-spikes eight feet or more in length—the flowers being of great size, and of a yellow colour, plentifully besprinkled with red dots. Mention may also be made of the *Angraecum funale*, which, leafless at all seasons, consists of a thick knot of contorted roots, long, slender, cord-like, and glaucous in tint, except at the tips, which are of a bright yellow-green. Most of these roots droop irregularly; but such as touch the bark of the tree grow to it, flattening themselves on the side which is in contact, and adhering so tenaciously that they cannot be detached without an effort that frequently breaks the root. This adhesive habit is characteristic of the roots of many orchids, and may be accepted as an evidence of design; the object being to provide the plant with a secure holdfast in situations, such as the smooth trunk of a tree, where it would otherwise be impossible. The *Angraecum* throws out its flowers all the year round; not in spikes or clusters, but

* *Crescentia cujete*.

singly, or by twos or threes. The blossom is of moderate size, and fair to look upon, with a pure snow-white lip, and sepals and lateral petals of a beautiful pale green.

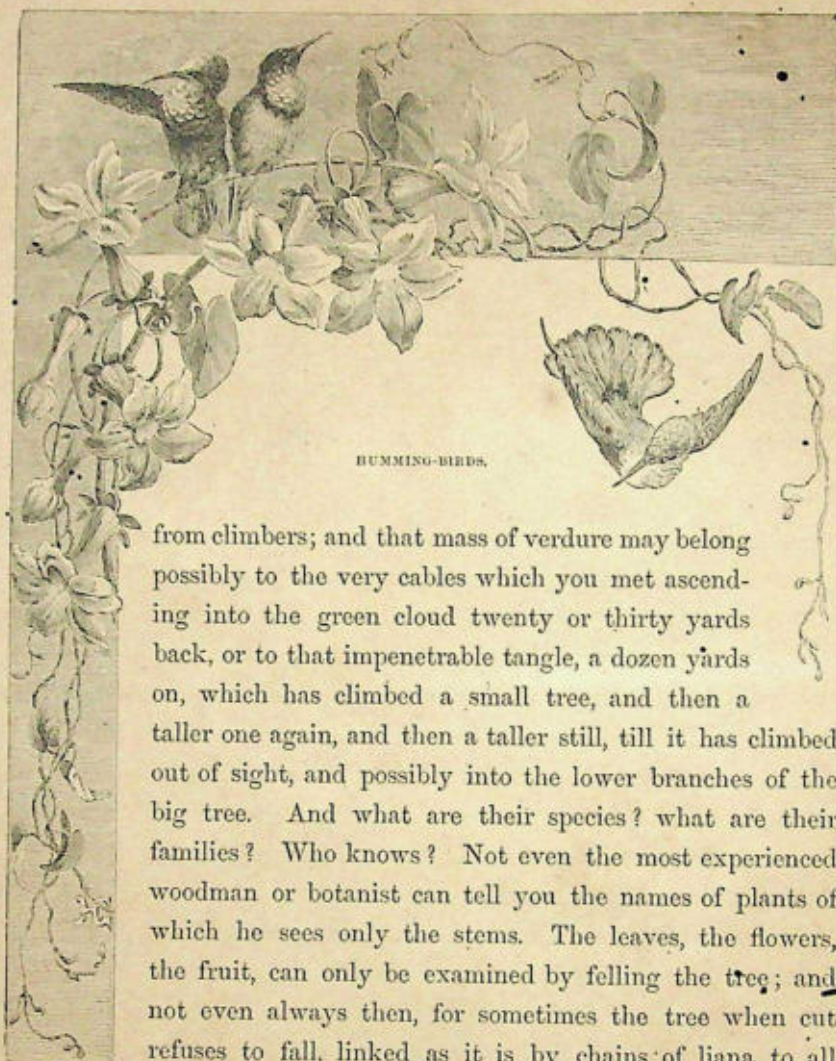
The humming-birds seem attracted by the orchids; at least, in such localities as we are describing they are very numerous, lighting up the greenery with flashes of brilliant colour, like the poetic fancies that sometimes enliven our work-a-day existence. How splendidly beautiful they are; and what images of airy grace and surpassing elegance they suggest! Thus, a traveller tells us of one of them, how the lovely little gem hovered around the trunk of a tree he was examining, and darted in and out of its leafy branches; now probing here, now penetrating there; its cloudy wings vibrating with a noise like that of a spinning-wheel, and its glowing breast for a moment all aflame with the sun's radiance; then apparently black, the light being wholly absorbed; anon, as it slightly turned, changing into a dark olive; and in an instant bursting forth again with emerald effulgence.

But of the humming-birds we shall have more to say. Just now we are concerned with the tropical forest; and a fine passage in Shelley reminds us of one of its most remarkable features. He says:—

"Like restless serpents, clothed
In rainbow and in fire, the parasites,
Starred with ten thousand blossoms, flow around
The gray trunks.....

The woven leaves
Make network of the dark blue light of day,
And the night's noontide clearness, mutable
As shapes in the weird clouds."

The parasites, climbing-plants, creepers, lianas—whatever you like to call them—lend a peculiar character to the tropical forest. The stranger, pushing further into it, comes upon scores of tenacious strings, some rooted to the ground, straight and tense; others dangling and waving in the wind at every height. Air-roots these, of wild pines, perhaps, or figs, or anthurineus—it matters not which—but there they are, clinging to the lofty branches of the lofty trees, and forming an aerial garden of vegetation. "You scramble round the tree to find whence it has sprung: you cannot tell. The trunk is smooth, and free



HUMMING-BIRDS.

from climbers; and that mass of verdure may belong possibly to the very cables which you met ascending into the green cloud twenty or thirty yards back, or to that impenetrable tangle, a dozen yards on, which has climbed a small tree, and then a taller one again, and then a taller still, till it has climbed out of sight, and possibly into the lower branches of the big tree. And what are their species? what are their families? Who knows? Not even the most experienced woodman or botanist can tell you the names of plants of which he sees only the stems. The leaves, the flowers, the fruit, can only be examined by felling the tree; and not even always then, for sometimes the tree when cut refuses to fall, linked as it is by chains of liana to all the trees around."

Another feature of the tropical forest is its variety. In Europe we have woods of fir and pine, groves of oak or beech, one particular family of trees being always dominant; but it is not so here. Species totally unlike each other stand side by side: an infinite mass of trunks—rough, smooth, or prickly; fluted, angular, or round; sloping or upright; branched, arched, jointed; with branches as diverse as the trunks, and leaves as diverse as the branches—seems to defy every attempt at

scientific classification. The variety of colour is not less surprising than the variety of form—copper, pink, gray, brown, green, marbled with lichens, furred with mosses, and enriched with delicate creeping, lace-like ferns. "Up this stem," to quote once again from Kingsley, "scrambles a climbing seguine, with entire leaves; up the next another, quite different, with deeply-cut leaves; up the next the cerinman spreads its huge leaves, latticed and forked again and again. So fast do they grow, that they have not time to fill up the spaces between their nerves, and are consequently full of oval holes; and so fast does its spadix of flowers expand, that an actual genial heat, and fire of passion, which may be tested by the thermometer, or even by the hand, is given off during fructification. Beware of breaking it, or the seguines. They will probably give off an evil smell, and as probably a blistering milk." The finely-cut fronds of the lygodium, a climbing fern, embellish the next stem; and up the next the so-called "griffe-chatte" is crawling rapidly, with its cat-like claws. The vanilla orchis twines round another, and fills the air with its delicious fragrance; and yet another is slowly dying in the close embrace of the matapalo, which has twisted itself about every branch, and is choking out its life.

Lastly, we would draw attention to the variety of foliage. The glossy leaves of the mulatto wood (*Bois Mulâtre*, or *Pentaclethra filamentosa*) are copper-coloured, like an African potentate. The large waving plumes of the cocorite palm, twenty and thirty feet long, are of a dark, dull green. And what is yonder spot of crimson flame, burning in the darkest recess of all, from an under bough of that low, weeping tree? A flower-head of the brownea, or rosa del monte. Above it rises the bright straw-coloured brush, three feet long, with a brown hood of the same length, of a cocorite; and above the cocorites a jangle, among leaves of every shape, ovate, cordate, palmate, acuminate, and the like—some fashioned like shields, others like hearts, others like eggs—the purple and yellow flowers of different kinds of lianas. "And through them," says Kingsley—it is our last quotation—"a carat palm, or sabal, has thrust its thin, bending stem, and spread out its flat head of fan-shaped leaves, twenty feet long each; while over it hangs, eighty feet aloft, the head of the very tree upon

whose roots we are sitting. For amid the green cloud you may see sprigs of leaf somewhat like that of a weeping willow; and there, probably, is the trunk to which they belong, or rather what will be a trunk at last. At present it is like a number of round-edged boards of every size, set on end, and slowly coalescing at their edges. There is a slit down the middle of the trunk, twenty or thirty feet long. You may see the green light of the forest shining through it. And above all, you catch a glimpse of a crimson mass of norantea; and, black as yew against the blue sky and white cloud, the plumes of a palmiste, which has climbed towards the light, it may be for centuries, through the green cloud; and now, weary and yet triumphant, rests her dark head among the bright foliage of a ceiba, and feeds unhindered on the sun." It is in and among these luxuriant forest scenes that the humming-birds and the cuckoos, the merles and the solitaires, pass through the phases of their blithesome lives.

THE VIRGIN FORESTS OF SOUTH AMERICA: THEIR BIRD-LIFE.

We cross now to the tropical forest of the Amazons, which differs widely in its character from that of the Antilles, and is the favourite habitat of numerous families of birds.

Through the labours of Edwards, Wallace, Herndon, Bates, Agassiz, and others, English readers have been made familiar with its aspects. They are acquainted with its giant trees, which rise to the height of one hundred and one hundred and fifty feet, and begin to throw off their first branches at an elevation exceeding the whole stature of our European forest-trees; colossal trunks,—vegetable Anakim,—which have been matured by centuries of abundant rains and glowing sunshine. These trunks, as everybody knows, are exceedingly diversified in form; some round and stately like an Ionic column, others angular and stooping, and others like an open network, through which the light passes in showers of golden arrows. The-girth of many is surprising. That of the lecythis or of the cratæva measures fifty to sixty feet at the point where it becomes cylindrical. Only one such tree can flourish in a given space; it usurps the whole domain, and none but individuals of much inferior size can gain a footing near it. The total height of the

massaranduba, stem and crown together, cannot be less than 180 to 200 feet: where it stands, its vast hemisphere of dark-green foliage towers above the surrounding forest-growth like the swelling dome of St. Paul's above the spires and towers of London.

A noticeable feature in these giant trees is the array of buttress-shaped projections around the lower part of the trunk. Their purpose is as obvious as that of the buttresses with which the medieval architects supported and strengthened their lofty cathedral towers. They are the roots of the tree, and have raised themselves ridge-like out of the earth; growing gradually upwards as the increasing height of the tree rendered necessary increased support. It is plain, therefore, that they are designed to sustain the huge crown and massive trunk in the crowded forests, where room is not to be found for a sufficient extension of the roots laterally.

As in the West Indian forest, the trees are woven about and linked together with a wonderful web of snake-like vines, which creep up the long branches, and spring from bough to bough; or hang suspended in mid-air; or have found their way to the ground again, and taken root, and thrown out their young arms to cling to the nearest support. Others there are which derive all their nourishment from the tree or the air. Their numbers can hardly be counted; their forms are as numerous as they are graceful; now resembling grasses, now lilies; now drooping in festoons, now gathering into coils. A dozen kinds will sometimes fasten on a single tree; and when, towards the end of the rains, they break into blossom, and garland the mossy trunk with flowers of every hue, it is easy to imagine how exquisite must be their appearance. At such a time the forest scene may well remind the traveller of an earthly paradise:—

"A happy rural seat of various view;
Groves whose rich trees weep odorous gums and balm;
Others, whose fruit, burnished with golden rind,
Hang amiable, and of delicious taste.....
Flowers of all hue.....
The birds their quire apply; airs,—vernal airs,
Breathing the smell of field and grove, attune
The trembling leaves, while universal Pan,
Knit with the Graces and the Hours in dance,
Lead on the eternal spring."

And eternal spring may almost be said to prevail in the Amazonian forest. Winter there is none; and, consequently, no interruption to Nature's process of growth. Trees ripen and decay, it is true; but each falls singly when its life is done. There is no uniform bareness, and nakedness, and desolation, as in the European woods. If Death be always busy, so is Life; fresh forms come and go in never-ending sequence. A tree that in the evening was one uniform mass of foliage, is seen by the morning to have developed into a great dome of flowers; and often, so pregnant is its vitality, and to such an extent is it stimulated by the tropical heat, fruit and blossom will hang from the same bough.

What is most impressive about the virgin forest is its silence and its solitude. The traveller may wander for days, and see and hear nothing: at least, the few sounds that fall upon his ear, such as the headlong crash of a decayed tree, or the far-off song of some wandering bird, do but render the prevailing silence all the deeper and more solemn. And at noon the feathered minstrels are still; even the insect hum is hushed; and all the sweet cadences which make our English woodlands cheerful are wanting. The result is a strange feeling of awe, which, as well as that of loneliness, weighs heavily upon the mind; and, until the traveller grows accustomed to it, prevents him from exercising fully his faculties of observation and inquiry. It is unfortunate for the virgin forest that it has had no poets. Otherwise, with what glorious shapes might its leafy depths have been peopled! What wild romantic legends would naturally have been associated with its colossal trees and its exuberant vegetation! Surely its spirits would have exceeded in marvel and beauty the oreads and satyrs and wood-nymphs of the tamer groves of Greece and Italy. What was Arcadia, what was Tempe, to the charmed glades, and stately avenues, and blooming garden-bowers of the forests of the Amazons?

An animated picture of the life that abounds on the threshold of the forest, in the neighbourhood of the creeks and streams that are thrown off from the great river, is furnished by modern writers: Birds, we are told, of brightest plumage, flutter and dart through the trees. The motmot repeats its two-syllabled name with astonishing rapidity.

Lone-sitting in her embowered nest, the trogon mourns the long absence of her mate. Tiny creepers, flashing with colours, run up and down the mossy trunks in search of their insect prey. In the fruit-trees the toucan is busy at his work of plunder, solacing himself meanwhile with the utterance of his monotonous song—*Tucáno, tucáno*. On every branch the chatterers are making merry. High up in the green cloud of foliage may be heard the woodpecker's steady strokes; and melodious thrushes are singing together in perfect harmony. Parrots are gossiping, and parroquets screeching. Wood-pigeons, the "birds of the painted breasts," coo tenderly in the deepest shades; while many a



"BIRDS OF THE PAINTED BREASTS."

pheasant rises from the brushwood with a whirr of its active wings. Most beautiful of all, the humming-birds, those "winged jewels," those "living gems," as they have been called in vain attempts to describe in words their beauty, the "beijar-flores" or "kiss-flowers" of the Brazilians, are continually sporting in the rays of sunshine that stream through the matted roof of foliage; now pausing in their swift flight to contend with some audacious bumble-bee, now stooping to extract the "nectared sweets" of some balmy flower.

Other forms of animal life are not wanting. Butterflies of a size unknown to temperate climes, and clothed in the rarest and richest hues, fill the air with coruscations like the play of pendent jewels; gaily-coated insects sparkle on every leaf; the lizard, equipped in green and gold, glides forth from his sandy burrow; legions of ants pursue their continuous march in spite of every obstacle; high up among the trees the monkeys are chasing one another in lively play; squirrels leap merrily from limb to limb, as if filled with fresh activity by the happy

influences of the blue sky and the unclouded sun; pacaas and agoutis venture boldly from obscure retreats; coatis gambol friskily among the soft brown heaps of fallen leaves; the silent sloths steal along the giant bough; while through the breezy glade the lightsome deer bound with free and nimble step.

The night aspect of the forest is necessarily very different. The flowers that bloomed by day, remarks Mr. Edwards, have closed their delicate petals, and, nestled in their leafy beds, are "dreaming of their loves." But a "sister-host" replace them, loading the cool fresh breeze with perfume; and a murmur, as of gentle voices, rises from their dainty depths. Here and there the moonlight steals through the overarching branches, or through the accidental gap made by a fallen tree, adding a beauty to the scene, so weird, so haunting, so unearthly, that words fail altogether to describe it. Huge moths, brightest denizens of the Insect World, have taken the places of the butterflies, and swarms of fire-flies never weary in their torchlight dance. Far down the road comes on a blaze, steady, streaming like a meteor. It whizzes past, and for an instant the space is lighted up, and dewy sparklets from the leaves throw back the radiance. It is the lantern-fly, seeking what he himself knows best, by the "fiery guide" upon his head. The air of the night-bird's wing fans your cheek; or you are startled by his mournful note, *Wac-o-row, wac-o-row*, sounding dolefully, by no means so pleasant as that of the whip-poor-will. The armadillo creeps carelessly from his hole, and at slow pace makes for his feeding-ground; the opossum climbs stealthily up the tree; and the little ant-eater is quietly marauding.

SOUTH AMERICAN BIRDS.

Of some of the birds which make their habitat in this gorgeous forest-world we shall now proceed to speak.

There is, for instance, the melodious carashué, or *Mimus lividus* of ornithologists; a smaller bird than our English thrush, but of the same family; with a song not so diversified, or loud, or well sustained, yet very sweet and plaintive, and producing an indescribable effect upon the listener when it echoes through the weird still glades at early dawn, and again at "even-tide." In some parts of Brazil he is called the

sabrah, and verses in praise of him are sung as commonly as in England our poets do honour to the thrush. His nest is a neat little fabric of dried grass and slender twigs, lined with a coat of mud; the eggs are coloured and spotted like, but smaller than, those of our well-known blackbird.



CRESTED ANT-THRUSH.

The bush-shrikes, both in species and as individuals, are abundant in the localities we speak of; and are remarkable for a peculiar falling note, loudly and suddenly uttered, and exchanged antiphonally between male and female. Generally, they hide themselves in the densest and most impenetrable bushes, rarely descending to the ground, and feeding upon the small insects and larvæ they discover about the bushes and twigs. They are small birds, with a long compressed bill, and loose, long silky feathers, prettily spotted or banded with black and white.



LYRE-TAILED GOATSUCKER.

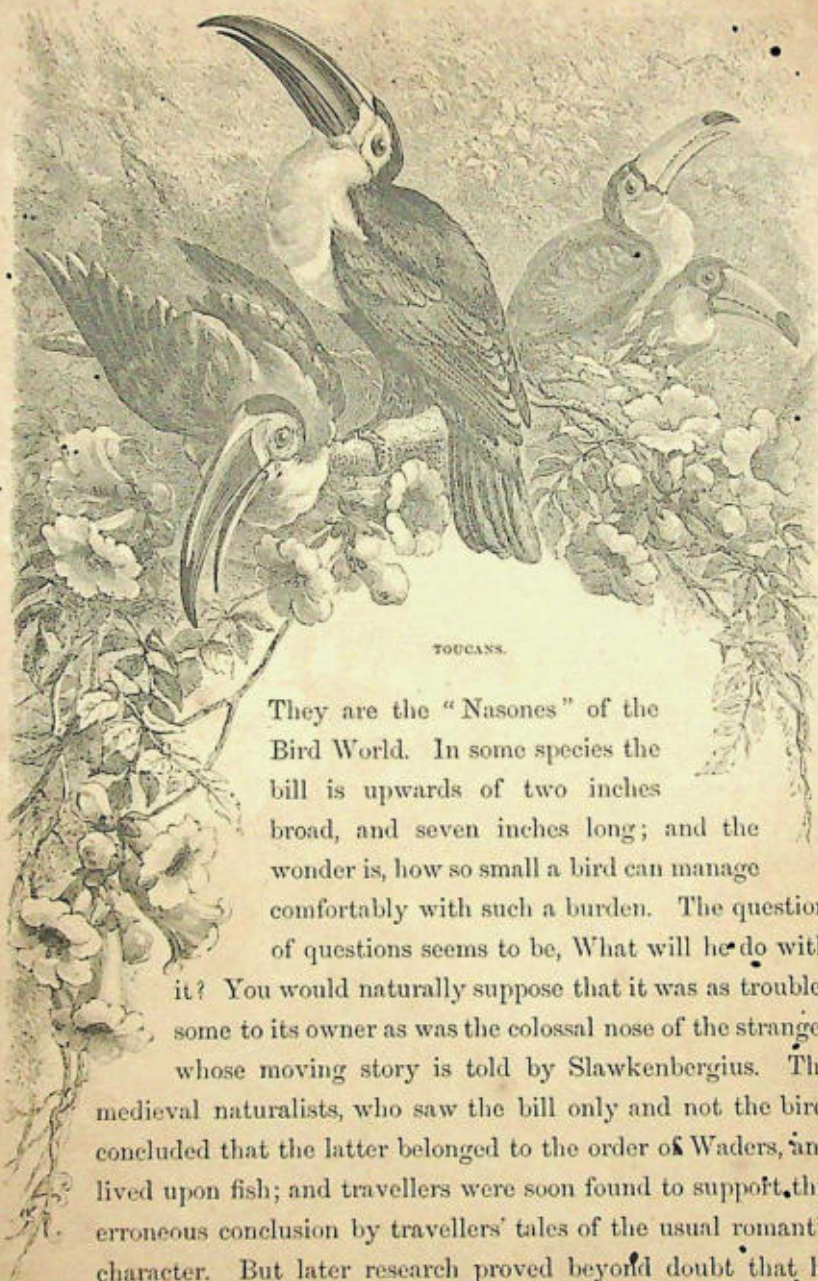
Closely allied to them, and not less numerous, are the ant-thrushes; only they have stronger legs, shorter tails, and walk more on the ground, picking up insects much in the fashion of our domestic poultry. As their name indicates, they are peculiarly partial to ants. The largest species is the crested ant-thrush, conspicuous by his feathery tuft.

Mr. Wallace, in speaking of these birds, is led to comment upon the details given in works on Natural History of the wonderful adaptation of animals to their food, their habits, and their localities. He thinks, however, that some other principle must regulate the infinitely varied forms of animal life. It must occur to every one that the numbers of birds and insects of different groups, with scarcely any resemblance to each other, which yet feed on the same food and resort to the same places, cannot have been so differently constructed and adorned for this one purpose. The goat-suckers, the swallows, the tyrant flycatchers, the jacamars, all feed on the same kind of fare, all procure it in the same manner,—they capture insects on the wing,—yet in structure and in their whole appearance how entirely different they are! The strong-winged swallows are

denizens of the air, and perform the longest journeys with the greatest apparent ease. The goatsuckers, nearly allied to them, but of weaker power, and with largely developed eyes, are semi-nocturnal in their habits; sometimes flying in the evening in company with the swallows, but more frequently settling on the ground, seizing their prey by short flights from it, and then returning to the same spot. Again: the flycatchers, which are short-winged but strong-legged birds, cannot vie with the swallow in ease and rapidity of flight. They generally perch on a bare branch, and bide their time until unwary insects veer within reach of a short swoop, when their broad bills and wide gape soon play havoc with them. The bills of the jacamar, on the other hand, are long and pointed, yet their habits are similar to those of the preceding; they sit on branches in open parts of the forest, from thence flying after insects, which they catch in their aerial courses, and returning to their former station to enjoy the results of their foray. The same is the case with the trogons, whose bill is strong and serrated; while the tiny humming-birds, though they generally seek their food in the dewy chalice of the flowers, often capture insects on the wing, like any other fissirostral bird.

All this is true; but still the fact remains that, in his choice of a habitat, the bird is necessarily guided by the character of the food it offers. Frugivorous birds are not found in sandy African deserts. The insectivorous birds of the virgin forests would starve in our English fields and pastures. And it seems equally certain that, on the whole, the structure of the bird is adapted to the food on which he lives. The bill of the jacamar may differ from that of the goatsucker, but both bills are fitted for the capture of insects; and both are wholly dissimilar to those of the parrots, the toucans, and other fruit-eaters. We may not, and we do not, know all the laws which govern the geographical distribution of animals; but certain leading principles are sufficiently obvious.

Mr. Bates, in describing the bill of a toucan, arrives at a very different conclusion to that of Mr. Wallace—seeing in it a remarkable illustration of perfect adaptation of means to an end. All the toucans are famous for the great size and lightness of their beaks.



TOUCANS.

They are the "Nasones" of the Bird World. In some species the bill is upwards of two inches broad, and seven inches long; and the wonder is, how so small a bird can manage comfortably with such a burden. The question of questions seems to be, What will he do with it? You would naturally suppose that it was as troublesome to its owner as was the colossal nose of the stranger whose moving story is told by Slawkenbergius. The medieval naturalists, who saw the bill only and not the bird, concluded that the latter belonged to the order of Waders, and lived upon fish; and travellers were soon found to support this erroneous conclusion by travellers' tales of the usual romantic character. But later research proved beyond doubt that he was an arboreal bird, and, like the parrot, the trogon, and the barbet, all belonging to the same group, a fruit-eater. This fact being

ascertained, Professor Owen suggested that the great toothed bill was useful in holding and re-masticating the food. Mr. Bates, however, explains its purpose in a much more satisfactory manner.

On the crowns of the great forest-trees of South America the flowers and fruit grow principally towards the extremity of slender twigs. Now, as these are incapable of sustaining any considerable weight, all animals feeding on fruit, or on the insects which dwell in flowers, must necessarily be provided with some means of reaching their food from a considerable distance. Monkeys employ, as we know, their long arms, and sometimes their tails. Humming-birds are gifted with splendid organs of flight, and a strong muscular development, so that they can sustain themselves on the wing before the blossoms, the treasures of which they seek to plunder. But the wings of the trogon are feeble, and he is of a lethargic temperament. He cannot take his food on the wing. What he does, is to take up his post on a low branch in the forest solitudes, contemplating the fruits on the surrounding trees; and when stimulated at last to action by his appetite, darting off to seize a mouthful, and, half exhausted, returning to his former quiet perch. But the toucan, on the contrary, remains seated, and employs his enormous bill to counterbalance the disadvantage he would otherwise experience through his awkward and reluctant movements.

The most curious of toucans, or aracarís, or arassarís, as they are variously called, is the curl-crested; so called from the little glossy curls of a hard horny substance, like metallic shavings, which cover his head. He appears in large flocks in the forests, when he has completed his moult, hopping from branch to branch among the lower trees, half hidden by the foliage. His notes are very singular, reminding one of the chorus of frogs in Aristophanes.

The varieties of toucan are numerous. When flying, their large beaks give them an awkward appearance; but they show no awkwardness in making use of them. Alighting on a tree, they choose one of their number to act as sentinel; and he proves his vigilance by constantly repeating the loud cry, *Tucáno*. The others disperse about the branches, climbing by aid of their beaks, and seizing the fruit. It has been said that they are in the habit of tossing up their food to a con-

siderable distance, and catching it as it falls; but in no science have credulity and exaggeration more signally prevailed than in Natural History. All they really do is to throw back the head, and allow the fruit to fall down the throat; a custom originated by the length of the bill and the stiffness of the tongue. While they are feeding, they assiduously maintain a hoarse chatter; and at intervals they join their sentry in a screaming concert, which can be heard a mile off. Their hunger satisfied, they lumber away into the deeper shades of the forest, and give themselves up to a tranquil siesta. Do they dream; and of what are their dreams made up? Of visions of the enchanted forest, perhaps, in which their little lives are spent; only of that forest freed from the presence of their enemies, and basking in a perpetual sunshine.

When tamed, toucans, according to Mr. Edwards, are familiar and playful birds, to whom you may teach as many tricks as to a parrot, except that they can never be made to talk. When turning about on their perch, they effect their object by one sudden jump. In roosting, they have a habit—birds, by the way, are the very creatures of habit—of elevating their tails over their backs. Their appetite is by no means fastidious, but they have a special fancy for meat.

The Bird World has its curiosities, and among them is the umbrella-bird, which is, like the toucan, a denizen of the Amazonian forest; at least of those portions of it which cover the swampy islands of the great rivers. In size and even in colour he is like a raven; but his feathers acquire a peculiar aspect from their being tipped along the edge or margin with a different shade of glossy blue. In his structure, also, especially in his feet and bill, he bears kinship to the crows. But he is distinguished from them, and from all other birds, by his peculiar crest. This is composed of feathers upwards of two inches in length, very closely set, and with hairy plumes curving over at the end. These, according to Wallace, who appears to have seen several individuals of the genus, and to have investigated their ways and means, can be laid back so as to be hardly visible, or else erected and expanded on every side until they form a hemi-spherical, or rather a hemi-ellipsoidal dome, covering the head completely, and reaching

even beyond the point of the beak; the individual feathers then stand out something like the downy seeds of the dandelion. Any bird might be satisfied with such an heraldic appendage as this; but the umbrella-bird has yet another distinction: on his breast he carries a large pendent plume or tassel of glossy feathers, which grow from a fleshy tubercle, as thick as a quill, and an inch and a half in length. This, too, can be expanded until it almost conceals the fore part of the body, or otherwise is pressed to the bird's breast until it is scarcely visible. As is generally the case, the female is a smaller and much plainer bird, and cannot boast of so finely developed a crest and neck-plumes.

The umbrella-bird is a fruit-eater, and makes his home among the tallest branches of the high trees. From the sonorous depth of his cry, the Indians call him *weramimbé*, or "trumpet-bird."

By a natural association of ideas we are led from the umbrella-bird to the sun-bird; or rather to his South American representative, a member of the sun-bird family (*Promeropidae*), the certhiola or pit-pit. This is one of those beautiful elfin creatures, with sparkling plumage and lively motions, which, like the humming-bird, would certainly have been promoted to a high place in Titania's court, had the poets but known of him. With the humming-bird he is frequently found in company; they visit the same flowers, and for the same purpose. But he does not hover in front of them like his splendid rival; on the contrary, he perches on the plant, and, leaping from branch to branch, thrusts his inquiring bill (the French class the certhiola among *les Investigateurs*,—*die Späher* of the Germans) into the recesses of the many-tinted corollas. Most interesting is it to watch the singular and various postures which he then assumes; at times he turns himself "head over heels," with his back downwards, while his sharp, curved bill and his pencil-like tongue are busily engaged in snapping up the tiniest insects. He generally builds in low bushes, side by side with the nests of the paper-wasps. It is noticeable that the same situation is sought by other birds,—whether from a sense that these formidable insects supply a means of protection, we cannot presume to determine.

The nest is constructed of cotton fibres and the down of plants, woven into a spherical form with a neatness and dexterity men may admire, but cannot imitate. The opening is lateral, and low down.

To the same sub-family as the certhiola or pitpit belongs the azure crebera or guit-guit, which is also a denizen of the great forest-region of America. During the period of incubation the creberas live in couples; afterwards they form little companies of six to eight, which feed upon fruits and insects, and frolic among the higher foliage. Restless as humming-birds, they are constantly moving from branch to branch and tree to tree, and probing blossoms in search of insects and honied juices. Their nests, made up of grass and fibres, are shaped something like a pear with a long stalk, and hang from the ends of slender twigs that seem all too frail for such a burden. The beauty of these birds is very striking, and suggests the question why creatures of such gorgeous plumage should have been located in the depths of impervious forests, remote from the usual haunts of men. Certainly the fact tends to contradict the old belief that everything on earth was created for our use or delectation. The prevailing colours of the guit-guit are blue, and velvet black, and dark green; these are so arranged as to contrast with one another very effectively.

Touching upon beauty of plumage, we are reminded of the trogons, a family of birds almost peculiar to Tropical America. A few species are met with in the East and in South Africa, but the most splendid members of the family are confined to the forest-shades of the great river-basins of the Amazon and the Orinoco. They differ greatly in size, from the trogon viridis, whose body is scarcely larger than many of our English sparrows, to the calurus auriceps (or curuquá grande), which is described as twice the size of a jay. All have long spreading tails, and appear larger than they are from the denseness of their brilliant plumage, which shines with glorious tints of lustrous green or azure, rosy red, delicate pink, and golden yellow. They are solitary birds; and at early morn, or late in the afternoon, may be observed sitting singly or in pairs, some species upon the tallest trees, and others a few feet only from the ground, with expanded but drooping tails, and eyes

keenly on the watch for passing insects. When they have satisfied their hunger, they devote the rest of the day to meditation; seeking the leafy shade, and giving vent occasionally to their feelings in a peculiarly mournful note, which the Indians syllable as *cu-ru-quá*. This habit would betray them easily to the hunters, but for their ventriloquial powers, which they exercise so cleverly that one thinks them at a distance when in reality they are just over one's head.

If all the insectivorous birds sought their food in the same way, we might imagine that the result would be a general *melée*. Only a limited number, however, catch their prey on the wing. The trogons possess no great powers of flight, and can do no more than make sudden sorties at a passing insect from their leaf-embowered perch. They are the sedentary philosophers of the Bird World; almost always "in session," their feet being of the feeblest construction, and useless for the purpose of climbing or walking. In the course of centuries they have learned to adapt themselves to circumstances, and they take to a sedentary life as if they enjoyed it. Perhaps, like Narcissus, they devote a good deal of time to the contemplation of their personal charms; and in extenuation of this weakness they may plead high examples. No doubt, they are as handsome as "fine feathers" can make them. We are told by travellers of trogons with brilliant green back and rose-coloured breast; of trogons with soft golden-green plumage, red breast, and orange-coloured beak (this is the *sumquá* or *curuquá grande* species); and of trogons with steel-blue breast, yellow belly, and back of a brilliant metallic green. All this gorgeousness may reconcile them, perhaps, to the aspersions cast upon their want of energy.

They may console themselves, too, with the fact that, by common consent, they are not so "stupid" as the jacamars. These tropical forest-birds are described as viciously sluggish of temperament; and Mr. Bates is quite severe upon their "stupidity in remaining at their posts, seated on low branches in the gloomiest shades of the forest." He adds: "I sometimes saw two or three together, seated on a slender branch, silent and motionless with the exception of a slight movement of the head. When an insect flew past within a short distance, one of

the birds would dart off, seize it, and return again to its sitting-place." They are great enemies of the butterflies, and the ground beneath their favourite resorts is frequently strewn with delicate gauzy wings. The green jacamar is the most numerous species, and he flashes upon the traveller like a thing of beauty, with golden-green breast, snow-white throat, and bright red tail. Sir Richard Schomburgk affirms that he will remain in the same place for hours, like a St. Simeon Stylites. His cry is strong, clear, and shrill, but not agreeable. He makes his nest in a rounded cavity, which he digs out on the bank of a running stream; the entrance measuring about an inch and a half in diameter. Some species build in the holes of trees.

Says the naturalist Swainson: "The motmots or momots are so named from their unvarying note, which may be heard morning and evening from the depths of the forest; but the bird is never seen except the hunter comes unexpectedly upon his retreat, which is generally some low, withered branch, completely shaded, and just at the edge of such paths as are made by the cavies or the Indians." He secures his food in the same way, perhaps, as the trogons and the jacamars, which frequent the same "nooks of greenery;" but being of a stronger build, he does not confine himself to insects,—travellers even asserting that, like the toucans, he devours the eggs and young of other birds. He is a silent, solitary, hermit-like personage, and quickens into a little vivacity only at feeding-time, when all animals display an unusual amount of interest and excitement.

Mr. Edwards, sketching a forest scene on the Upper Amazon, speaks of gentle hills and brooks of clearest water, of evergreens of different varieties and exquisite forms, of valleys clothed knee-deep in ferns, like Tennyson's "talking oak," in "Sumnerchace." Here the traveller's passage was interrupted by no cable-like lianas and climbers; but a thousand lesser vines draped the low tree-tops with myriads of new and charming flowers. Everywhere the delicious shades were traversed by paths,—some made by the hunters in their frequent rambles, others by wild animals resorting to the water; and along these it was easy to

pass quietly to the feeding-trees of beautiful birds. Here among the abundant foliage could be heard the plaintive tones of the trogons, who themselves were perched out of sight on lofty branches. Cuckoos of several species, with red gleaming plumage, flitted noiselessly to and fro in search of worms, their favourite food. Purple jays, in large flocks, like their blue cousins of North America, chattered and gesticulated on the fruit-trees. Motmots sat alone in drowsy melancholy; goatsuckers of exquisite plumage dozed and dreamed beneath the shade of melancholy boughs. Amaranth manakins, graceful and swift of wing, hovered in every bush; tanagers whistled, and warblers filled the air with soft sweet music. Flycatchers in endless variety pursued their unresting warfare against the insect race. With stately step, like that of the wild turkey, moved on the curassows, picking here and there some delicate morsel, and uttering loud peeping notes; while guaras, in parties of two and three, stripped the fruit from the lower trees, and betrayed their whereabouts by the repetition of their loud, harsh note.



THE AMARANTH MANAKIN.

The manakins above spoken of belong to the numerous family of the chatterers, which vie with the trogons and the sun-birds in brilliancy of plumage, and may be classed among the most active and restless of birds. They live in flocks, and hunt about ceaselessly in the dense but humid woods for the fruit and insects which form their food. Their cry is a shrill, quick repetition of the syllable *ket, ket, ket*.

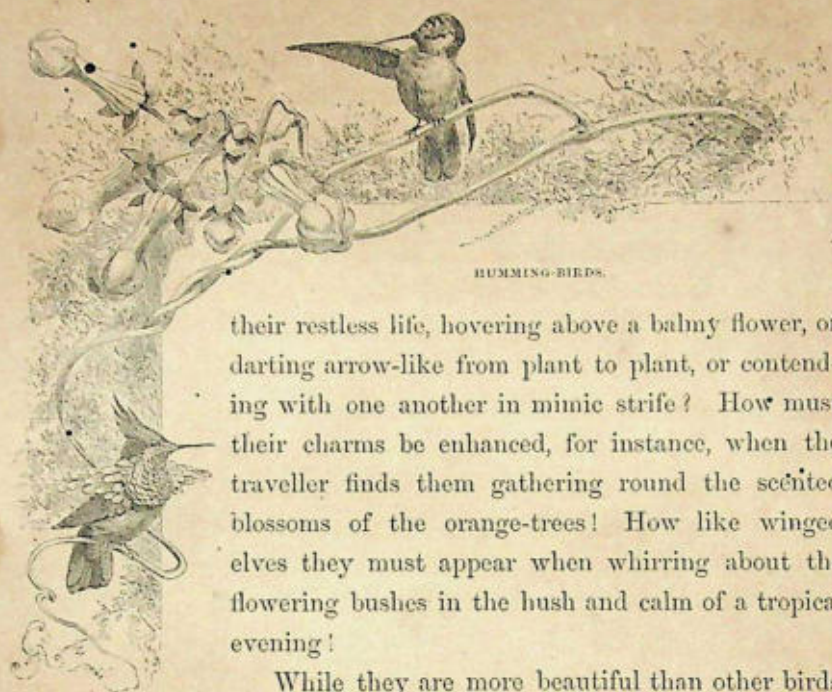
On the other hand, the tanagers belong to the finches, from which they are distinguished by a notch near the tip of the upper mandible. Their appearance against the dark background of the forest foliage is very striking; the splendour of their many-coloured plumage rendering

them conspicuous from afar. This external beauty is, however, their sole attraction; "*Ce sont des créatures silencieuses et ennuyeuses*," says a French naturalist. They live chiefly on berries and sugary or feculent fruits, with an occasional dish of insects. Their favourite haunts are the trees and bushes of the forest; but sometimes they swoop down *en masse* upon plantations, accomplishing no little mischief.

Two principal Brazilian species are the *Rhamphocelus jacapa* and the *Tanagra episcopus*. The females, in both cases, are dull of colour; but the male jacapa shines resplendent in a beautiful velvety purple and black plumage, while the male episcopus is as gay as a court page, in suit of pale blue, with silver-spotted wings. In South America they seem to fill the place of the common house-sparrow in Europe, being just as restless, bold, wary, vivacious. Their notes, too, are very similar, being chirping and inharmonious. These differ from many other species in their proneness to frequent the neighbourhood of man.

The scarlet and black tanager, *Ramphocelus nigrogularis*, is one of the handsomest of the tribe. In the valley of the Lower Amazon flocks may be seen disporting about the trees on the edge of the water, —their flame-coloured liveries illuminating the masses of dark-green foliage.

In the matter of beauty, however, all the Western birds must give way to the humming-birds, which, as they flash through the air like bits of rainbow, or anything else that is at once brilliant and tender, dazzling and graceful, inspire the spectator with a boundless sense of admiration. It is true that this admiration may partly originate in the circumstances under which the humming-birds are seen, —the dense leafy shades of the surrounding forest, with its varied forms and colours; the bland warm tropical air; the golden glow of the tropical sunshine; the presence everywhere of the novel and unaccustomed; —but still they have a special and transcendent beauty of their own, which would be recognized always and everywhere. They move us to wonder when we see them rigid and embalmed in the numbered compartments and on the labelled shelves of a zoological collection; what, then, would be our sentiments if we saw them in all the flush of



HUMMING-BIRDS.

their restless life, hovering above a balmy flower, or darting arrow-like from plant to plant, or contending with one another in mimic strife? How must their charms be enhanced, for instance, when the traveller finds them gathering round the scented blossoms of the orange-trees! How like winged elves they must appear when whirring about the flowering bushes in the hush and calm of a tropical evening!

While they are more beautiful than other birds, they differ from all other birds in their movements. The eye can scarcely follow them in their arrowy flights; when they pause before a flower, it is only for a moment. They poise themselves unsteadily, moving their wings with almost incredible swiftness; thrust their long sharp bill into the chalice sweets; and away they hasten to pastures new. They seem the very impersonations of caprice—embodiments of whim; now here, now there; skipping from one part of the tree to another, without any pretence at method or regularity. Sometimes a couple of males engage in open combat, mounting upwards as they fight, in the manner of insects when similarly engaged; and then suddenly thinking better of it, and returning to their work, which seems less work than play. They stop to rest sometimes; and yet when perched for a while, and apparently bent upon repose, will intrude their inquisitive bills into any flower which happens to bloom within reach. Are they birds, or are they insects, or something between the two? Physically, they belong to the feathered race; but the metallic gleam of their bright-coloured plumage, the lack of expression in their

eyes, the rapidity and sharpness of their motions, all connect them with the Insect World. And an insect there is so exactly resembling the humming-bird, that the Amazonian Indians may almost be pardoned for their belief that "the one is transmutable into the other." We refer to the humming-bird hawk-moth, which is perhaps a little smaller than the average humming-bird, but exactly resembles him in its mode of flight, and in its habit of poising itself in the air, and in its partiality for the nectar-cups of flowers. The likeness, in other respects, is very curious; and it is some time before the traveller learns to distinguish one from the other when on the wing. Even when both are examined in the hand, the resemblance is very noticeable. If they are held sideways, the shape of the head and position of the eyes are found to be nearly the same in both,—the extended proboscis of the insect representing the long beak of the bird. The brush of long hair-scales, like feathers, at the tip of the moth's body, answers, when expanded, to the bird's tail. Such points of resemblance are, of course, entirely superficial; yet between the two creatures a certain analogy—originating probably, as Bates suggests, in similarity of habits—can easily be traced.

The Amazonian region cannot boast of any great variety of humming-birds, but some of the species are eminently beautiful. They form two well-marked groups, differing considerably in form and habits. The forest species, *Phaethorninæ*, which, living in the forest shade, where flowers are scarce, live chiefly upon insects, which they pursue from leaf to leaf; and the *Trochilinæ*, which prefer the sunny, open places, but enter the forest wherever a tree is in blossom, and are also found in the blossomy forest dells. The individuals of the former group seem to be the more numerous in the Brazilian forests. They build their long purse-shaped nests, which are made of lichens and the vegetable fibres, closely interwoven, and lined with silk-cotton from the fruit of the samaüma-tree (*Eriodendron*), on the inner sides of the tips of palm-fronds.

MORE ABOUT THE HUMMING-BIRDS.

We have been struck by a passage in Mr. Gosse's pleasant book, "The Naturalist in Jamaica;" for it seems to sketch a condition of

existence far more agreeable than that of the lazy lotos-eaters of Tennyson, who, having lost the faculty of admiration, had lost also the faculty of enjoyment :—

“ Most weary seemed the sea, weary the oar,
Weary the wandering fields of barren foam.”

To men thus disconsolate it might be a source of happiness,

“ In the hollow lotos-land to live and lie reclined,
On the hills like gods together, careless of mankind.”

But most of us would desire some activity of life around us. Mr. Gosse paints a glorious picture of the palm-girdled heights of an island-mountain, the peak of which is densely covered with the finest ferns; scores of species and thousands of individuals displaying their graceful fronds among the herbage, and numerous others springing in feathery tufts from the crevices of the mossy trunks, or festooning the horizontal branches of the trees. But, he adds, as the ferns are eminently characteristic of the botany of this lofty elevation, so is the lively long-tailed humming-bird of its ornithology. “The velvet crest, and emerald gorget, and long streaming tail-plumes of this lustrous living gem, flit and flutter and hover about this shady lane all day long and all the year round; but it is especially numerous in the spring, when scores and even hundreds may be seen rifling the perpetually blossoming shrubs that are its denizens.” And now for a picture of earthly happiness. To sit in the cool, fresh shadow of the mountain palms, with beauty and fragrance around, listening to the musical voices of the minstrels of Nature, and watching the golden-gleaming humming-birds as they sip the sweets of the flowers above your head; this, says Mr. Gosse,—this is delightful.

But a charming sylvan landscape is drawn by Mr. Edwards; and as in it too the humming-birds figure, it is difficult to determine which pleases us the more. Let us cross again the haunted threshold of the virgin forest, and lo! wherever a creeping vine opens its fragrant clusters, or wherever a tree-flower expands to the warm rays of heaven, we shall see the glancing jewelled plumage of the humming-birds.

Over the shining brooks, and in the maze of vegetation composed of lianas and air-plants, they are darting about in ceaseless motion; of all sizes, from one almost as large as our English sparrow to the tiny hermit, whose body is not half the size of an ordinary bee. "Sometimes they may be seen chasing each other in sport with a rapidity of flight and intricacy of path the eye is puzzled to follow. Again, circling round and round, they rise high in mid-air, then dart off like light to some distant attraction. Perched upon a little limb, they smooth their plumes, and seem to delight in their dazzling hues; then starting off leisurely, they skim along, stopping capriciously to kiss the coquetting flowerets. Often two meet in mid-air and furiously fight, their crests and the feathers upon their throats all erected and blazing, and altogether pictures of the most violent rage. Several times we saw them battling with large black bees, which frequent the same flowers, and may be supposed often to interfere provokingly. Like lightning our little heroes would come down; but the coat of shining mail would ward off their furious strokes. Again and again would they renew the furious attack, until their anger had expended itself by its own fury, or until the apathetic bees, once roused, had put forth powers that drove the invaders from the field."

The humming-bird has one singular characteristic. What was erroneously said of the bird of paradise is true of *him*,—that is, he is never seen on the ground. He belongs to the air and the green branches of the woods; earth he scorns. Another characteristic is that which his English name indicates—the humming noise which is produced by the swift vibrations of his scythe-like wings. Again: he is distinguished by the rapidity of his movements. He never loiters, never takes life leisurely. His flight is sharp and direct as that of an arrow from a bow. You can scarcely see him until he arrives before a flower; and then you would think he was at rest, such is the "astonishing vibration" of his pinions. At rest! this "winged jewel" seems a very spirit of motion, and never seeks repose except for incubation or sleep.

The Old World has never a humming-bird; a great loss, it must be admitted. But he is a creature of the Tropics, and of the tropical regions of the Western Hemisphere. A few species wander into the

temperate clime, but return with the sun when it has reached the equator in its returning course. They belong to the torrid zone, says Waterton, and there alone can they find their nutriment in the winter months. It is in the torrid zone of the New World, he adds, that we are to look for the family of the humming-bird in all its species,—a family adorned with plumage of such amazing brilliancy as to compete with, if not surpass, the united splendour of our most precious stones themselves. Linden's helmet-crest, or black warrior, however, delights



LINDEN'S HELMET-CREST.

in the vigorous air of the mountain-top; being found among the heights of the Sierra Nevada of Colombia, upwards of 13,000 feet above the sea, where he enlivens the solitude with his beauty. His crest is white as the mountain-snow.

For the construction of his nest, the humming-bird's materials are gathered from trees, plants, and spiders' webs. Of course, the dainty builder requires a dainty home; but in the work of different species an interesting variety may be noticed. Some nests are formed of an

uniform interwoven stuff, not unlike brown tanned leather, and without any lining. Others are furnished with a lining as delicate and soft as the finest down. Some are attached to the tip of a pendent leaf by means of innumerable threads of spiders' web. Others are perched on the upper part of a horizontal branch, and so encrusted with the lichen found on the tree that the nest can hardly be distinguished. Neither saliva, glue, nor any viscous substance, is used by the tiny architect.

Both Asia and Africa possess minute birds of dazzling colouring; but the reader should notice that the legs of these are of sufficient length to enable them to walk on the ground. The legs of the humming-bird, however, as already stated, are not available for "ambulatory purposes." On this point Mr. Waterton remarks that there is a proportional length of leg in all the small birds of the Old World, useful when on the ground; but that, for want of this proportional length of leg in the humming-birds of the New World, the legs become useless when accident has brought down the bird from his aerial domain.

It remains to be added that all the humming-birds exhibit the same form of wings (with a slight variation in some of the primary feathers), legs, and feet, but that the bills in certain species differ slightly; in some it is short and quite straight, in others it is curved downwards like a cobbler's awl. Whether they sing or not is doubtful; but they certainly chirp. Mr. Gosse, however, says of the little humming-bird, the "Tom Thumb" of the family, that he has a real song. His description of this species is interesting:—"I have sometimes," he says, "watched with great delight the evolutions of this little species at a moringa-tree. When only one is present, he pursues the round of the blossoms soberly enough, sucking as he goes, and every now and then sitting quietly on a twig. But if two are about the tree, one will fly off, and suspending himself in the air a few yards distant, the other presently shoots off to him; and then, without touching each other, they mount upwards, with a strong rushing of wings, perhaps for five hundred feet. They then separate, and each shoots diagonally towards the ground, like a ball from a rifle, and wheeling round, comes up to the blossoms again, and sucks and sucks as if he



TYRANT FLYCATCHER AND FORK-TAILED
FLYCATCHER.

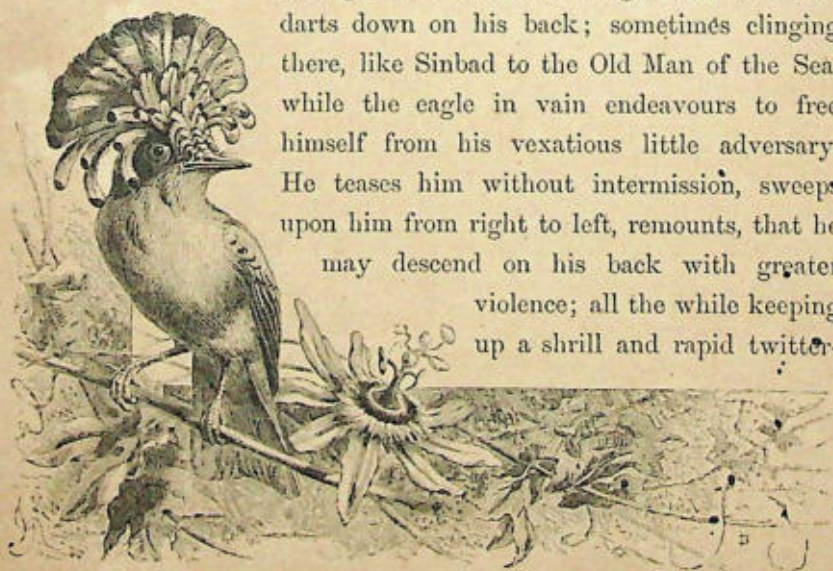
had not moved away at all. Frequently one alone will mount in this manner, or dart on invisible wing diagonally upwards, looking exactly like a bumble-bee. The nest is a minute cup-shaped structure, placed upon or between the twigs of trees. It is composed of silk-cotton (the down of the bombyx), and ornamented externally with fragments of lichen. The spirit of curiosity is manifested by this little bird as well as by the larger species: when struck at, he will return in a moment and peep into the nest, or hover just in one's face."

THE FLYCATCHERS.

Along with the humming-birds are frequently found the flycatchers; which, as their name indicates, feed almost entirely upon

insects, capturing them while on the wing. They include several sub-families—the mourners, the alecrones, the becards, and the tyrants. The last are very numerous in the warm forest-regions of the New World, and the fork-tailed flycatcher is seldom found further north. Their flight is rapid, and they secure their prey by descending on it with a sudden swoop. Though insects form the staple of their food, they live also on berries, small fish, and reptiles. They rank among the most courageous of birds, especially in the breeding season, when they will gallantly sally forth against crow, hawk, or eagle if he approach their nest; and by their pertinacity generally compel him to seek safety in a prudent retreat. This chivalrous valour attains its climax in the species known in the United States as the king-bird, the tyrant flycatcher, or *Tyrannus intrepidus*; and hence, during the season of incubation, his life is a continued series of “broils and battles.” Hawks and crows, the bald eagle and the great black eagle,—he attacks them all, and all equally dread his attacks. No sooner does he perceive one of them approaching his home, which is cunningly built on the branch of a tree, and composed of small twigs and dried flowers, than he launches out into the air to meet and defy him.

Rising to a considerable height above him, he darts down on his back; sometimes clinging there, like Sinbad to the Old Man of the Sea, while the eagle in vain endeavours to free himself from his vexatious little adversary. He teases him without intermission, sweeps upon him from right to left, remounts, that he may descend on his back with greater violence; all the while keeping up a shrill and rapid twitter.



KING-TODY, OR ROYAL GREAT CREST.

ing, and prolonging the encounter,—sometimes for more than a mile,—until relieved by some member of his tribe, not less ready than himself for combat. The tyrant, however, abandons this warlike mood at the close of the breeding season.

He is a songless bird,—his call being confined to a shrill twitter. His mode of flight is remarkable. The vibrations of his broad wings, as he sails slowly over the fields, resemble those of a hovering hawk; and his object is probably the same—to look out for passing victims, either in the air or among the blossoms below him. His eye moves restlessly around, traces the flight of an insect for a moment or two, then that of a second or even a third, until he perceives one to his taste; then with a shrill cry he pursues, seizes and devours it,—returning to his former station to watch for another prey. He frequents, moreover, the neighbourhood of the bee-hive, making sad work among its inhabitants; though some naturalists contend that, with a fine instinct, he spares the working bees, and confines his depredations to the drones.

THE WOODS AND PRAIRIES OF NORTH AMERICA.

The traveller in the United States is not long in making the acquaintance of one of the most celebrated and interesting of the goatsuckers; the species known, in allusion to its peculiar cry, as the whip-poor-will. At least, such are the syllables which his shrill and rapidly-reiterated notes seem to articulate; the first and last syllables being uttered with great emphasis, and the whole in about a second to each repetition. If two or more males meet, however, their "whip-poor-will" altercations grow swifter and more incessant, each being engaged apparently in an ambitious endeavour to silence or "out-crow" his companions.

His general name of "goatsucker" alludes to the calumny that the bird is accustomed to suck the milk of goats during the night; a story not less absurd than the old zoological fable of the barnacle goose which grew in some mysterious way out of a well-known shell-fish. No doubt he hovers about the flocks of goats and sheep, and frequents the neighbourhood of the patient kine. But his object

is a benevolent one; he preys upon the nocturnal insects that would otherwise torment these animals.

Glen, mountain, pasture, farmyard,—all places are alike to the whip-poor-will, when the shadows of the gloaming fall upon the hushed earth. But during the daytime he retires to the deep solitude of the woods, and reposes there in silence. If disturbed by rash intruder, he rises for a few feet, sails low and slowly through the leafy glades, and again settles on a low branch or on the ground. The female builds her nest in the most inaccessible nook she can find, but always in a dry situation, and generally on a heap of fallen leaves. In traversing the woods one early day in June, along the brow of a rocky declivity (we are quoting from Wilson, most genial of American ornithologists, and most ornithological of Paisley weavers), a whip-poor-will rose from his feet, and fluttered along, sometimes prostrating herself, and beating the ground with her wings, as if quite expiring. Aware of her purpose, the naturalist stood still, and began to examine the space immediately around him for the eggs or the young, feeling certain that one or the other must be near at hand. But, to his mortification, after a long search he could find neither; and he was about to abandon the spot, when he perceived a slight mouldiness apparently among the withered leaves. On stooping down, he discovered it to be a young whip-poor-will, seemingly asleep, as its eyelids were nearly closed; or perhaps this was only to protect its tender eyes from the glare of day. He sat down by it on the leaves, and proceeded to make a sketch of it. While he was thus engaged, it neither moved its body nor its limbs, and only half opened its eyes; and Wilson left it as he found it. After walking about a quarter of a mile from the spot, he returned to look for a pencil he had dropped: the young bird was gone. As it was scarcely a week old, it must have been removed by the mother; but how?

BIRDS OF THE UNITED STATES.

Painting the autumnal aspect of the woods, when a spirit of beauty pours its mellow richness on the clustered trees; when the gentle wind, like a sweet but impassioned wooer, kisses the blushing leaf,

and quickens with fresh life the solemn groves of silver beech, deep-crimsoned ash, and yellow-leaved maple, Longfellow does not forget their feathered inhabitants. "Through the trees," he says,

"The golden robin moves. The purple finch,
That on wild cherry and red cedar feeds,
A winter bird, comes with its plaintive whistle,
And pecks by the witch-hazel, whilst aloud
From cottage roofs the warbling bluebird sings."

And again, in his Indian poem of "Hiawatha," he says:—

"In the thickets and the meadows
Piped the bluebird, the owaissa;
On the summit of the ledges
Sang the opechee, the robin."

The robin, our familiar winter-guest, the bird whom men love best, who figures in all our poetry, and in so many of our childish traditions, needs no description here; his habitat is as well known as his quaint little ways. But the bluebird holds no such place in English hearts. In the United States he is one of the earliest heralds of spring,* showing himself in the barn, the orchard, or the garden; disappearing for a time if frost and snow return; and then reappearing with his mate about the middle of March, to put in order the last year's nest—or, if that has been destroyed, to build a new one. Soon afterwards, another sociable little migrant, the house-wren, comes upon the scene,—and finding the hollow in the apple-tree already occupied, gives vent to his irritation by popping inside, when the owner is absent, and pulling out a twig or two; taking care to decamp immediately the mischief is done.

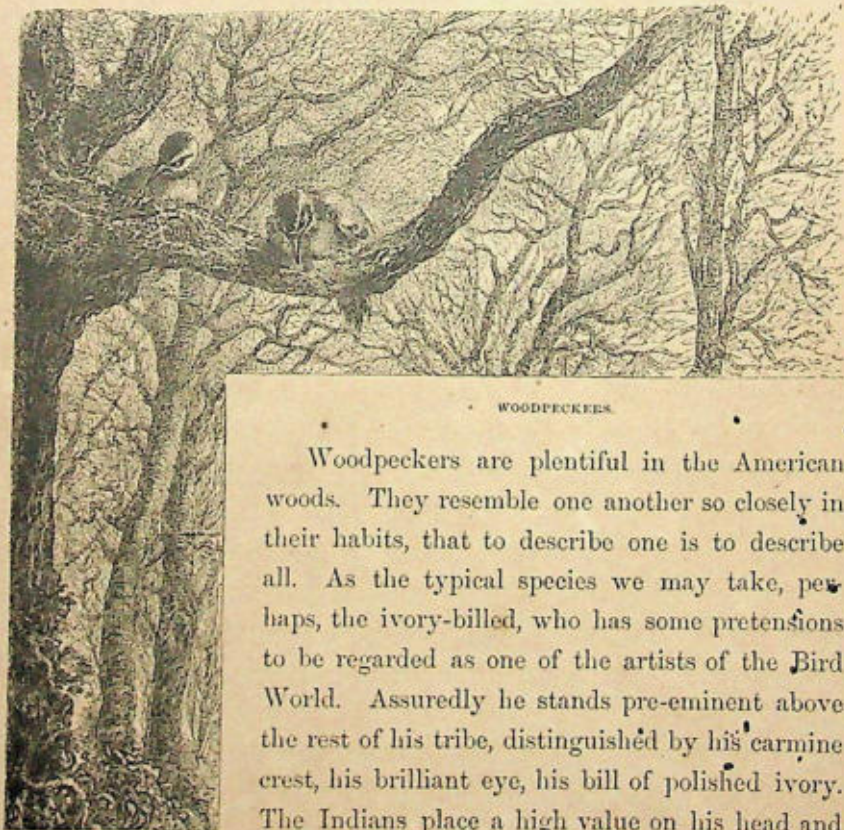
The bluebird is one of man's allies and friends; waging continual war against the insect-plagues, particularly against large beetles and other "hard-shelled" species. In the autumn, when insects fail, he turns to the berries of the sour-gum, and afterwards to those of the red cedar. Before winter comes, and its scarcity, he is off and away to "the still-vest Bermoothes," or the Bahamas, Jamaica, and Cuba; and

* So Bryant:—

"The bluebird chants, from the elm's long branches,
A hymn to welcome the budding year."

still further southward, to Guiana and Brazil. The farthest journey is nothing to this swift-winged bird, who accomplishes a mile per minute.

His song in spring and summer is a sweet, low, oft-repeated, and agreeable warble, which wins upon the ear. In his motions and general character, especially his goodwill to man, he greatly resembles our English robin. And now for a description of him. Fancy a gentle, graceful creature, six inches and three-quarters long, with wings very full and broad; clothe all the upper part of the body in a rich sky-blue livery, dashed with gleams of purple; paint the bill and the legs black; the shafts of the wing and tail feathers black; the throat, neck, breast, and sides, chestnut; colour the tips of the wings a dusky black; the under part of the body white. Such is the renowned bluebird, a great favourite with the American poets.



WOODPECKERS.

Woodpeckers are plentiful in the American woods. They resemble one another so closely in their habits, that to describe one is to describe all. As the typical species we may take, perhaps, the ivory-billed, who has some pretensions to be regarded as one of the artists of the Bird World. Assuredly he stands pre-eminent above the rest of his tribe, distinguished by his carmine crest, his brilliant eye, his bill of polished ivory. The Indians place a high value on his head and

bill, wearing them not so much for purposes of ornament as from a belief in their talismanic properties. It is a fancy of the Indians that the head, skin, or even feathers, of certain birds possess the property of endowing the wearer with the admirable qualities of these birds; and the woodpecker is esteemed for courage and mettle. The receipt for making an Indian hero would seem to be curiously simple!

The woodpecker feeds exclusively on insects and their larvæ, which he industriously hunts up in the trunks of venerable trees. He seeks the giants of the forest; seeming, says Wilson, particularly attached to the cypress swamps, where each colossus stretches its bare and blasted or mossy arms midway to the skies. In these almost impenetrable recesses the echoes repeat his trumpet-like notes and the loud repeated strokes of his powerful bill. His favourites are readily



"TAPPING THE HOLLOW BEECH-TREE."

known by the memorials of his industry. Heaps of bark may be seen lying at the foot of the huge pine-trees, and chips of the trunk in such quantities as to suggest to the traveller the idea that he has suddenly come upon a place where a company of woodmen have been at work. The body of the tree is also cut up into cavities so numerous and so large that it seems impossible to believe they have been effected by a woodpecker's bill. Yet such is the case. Not that all this industry of his has been directed against the vitality and well-being of the forest-trees. On the contrary, he has sought to deliver them from the insect-plagues which would silently but surely undermine their vigorous life.

Of the energy and persistency of this bird Wilson furnishes an interesting illustration. At some distance from Wilmington, in North Carolina, he caught an individual which he had slightly wounded in the wing. On finding himself a captive, he uttered a loudly repeated

and most piteous note, exactly resembling the violent crying of a young child, and most distressing to hear. Wilson carried his prize under cover to Wilmington. As he passed through the streets the bird's doleful sounds surprised every person within hearing; particularly the women, who hurried to doors and windows with anxious and sympathizing faces. On reaching the hotel where Wilson intended to put up, he was accosted by the landlord and other persons who happened to be present, all expressing their alarm,—which was much increased when the naturalist demanded accommodation for himself and his baby. The landlord looked foolish; the bystanders stared, astonished. After enjoying their discomfiture for a few moments, he removed the cover, and revealed his feathered captive. "I took him upstairs," says Wilson, "and locked him up in my room, while I went to see my horse taken care of. In less than an hour I returned, and on my opening the door he set up the same distressing shout, which now appeared to proceed from grief that he had been discovered in his attempts at escape. He had mounted along the side of the window, nearly as high as the ceiling, a little below which he had begun to break through. The bed was covered with large pieces of plaster; the lath was exposed for at least fifteen inches square, and a hole large enough to admit the fist opened to the weather-boards; so that in less than another hour he would certainly have succeeded in making his way through. I now tied a string round his leg, and fastening it to the table, again left him. I wished to preserve his life, and had gone off in search of suitable food for him. As I reascended the stairs I heard him again hard at work, and on entering had the mortification to perceive that he had almost entirely ruined the mahogany table to which he was fastened, and on which he had wreaked his whole vengeance. While engaged in taking a drawing, he cut me severely in several places; and, on the whole, displayed such a noble and unconquerable spirit, that I was frequently tempted to restore him to his native woods."

It is in the construction of his nest or home that the woodpecker displays his artistic powers. With his ingenious bill he shapes a cavity in the trunk of the selected tree that is truly remarkable for its finish. In his labours he is at times relieved by his mate, and

they encourage one another by coveted caresses; never desisting from their efforts until the new home is rendered secure, convenient, and of sufficient dimensions. They continue, at their toil day after day until a late hour in the evening; and their rapid strokes, like those of a hammer, may be heard long after Nature's minstrelsy is hushed for the night. The burrow or tunnel is carried diagonally into the solid timber for some six or eight inches, and then driven perpendicularly downwards. This tunnel is only just large enough to admit of the passage of the bird's body, but it terminates in quite a spacious chamber.

Ingenious as is this construction, it does not preserve the little architects against all enemies. The common house-wren, fully appreciating its comfortable character, takes possession of it, and by his unconquerable audacity repels all attempts of the woodpeckers to recover their own. A yet more dangerous foe is the black snake, which watches the departure of the parent birds in quest of food, then slides up the tree, makes its way into the temporarily deserted nest, banquets on the eggs or the callow youngsters, and makes itself entirely at home. *Sic vos non nobis!* This unprincipled usurpation of the results of another's industry is not unfamiliar to workers in the realms of art and literature.

One of the most graceful of the later poems of William Cullen Bryant is dedicated to the bob-o'-link, Robert of Lincoln, rice-bird, reed-bird, or rice-bunting,—for by all these names he is known,—which in spring and summer ranges over the United States as far as the Illinois and the banks of the broad St. Lawrence, and in winter confines himself to the warmer regions of Mexico, Central America, and Brazil. Let us take the poet's description of him:—

“ Merrily swinging on brier and weed,
Near to the nest of his little dame,
Over the mountain-side or mead,
Robert of Lincoln is telling his name:
Bob-o'-link, bob-o'-link,
Spink, spank, spink;
Snug and safe is that nest of ours,
Hidden among the summer flowers!
Chee, chee, chee.”

Bob-o'-link's strain is very characteristic. It consists of a kind of chime of short variable notes, repeated with so much rapidity and such apparent confusion, that to the un instructed listener half-a-dozen different birds seem singing in different keys. It has been suggested that an idea of his song may be obtained by striking the high keys of a piano haphazard, singly and quickly, with as many sudden contrasts of high and low notes as possible. His volubility is said to border on the burlesque, but the general effect is very pleasing, and Robert of Lincoln is a decided favourite in the States as a cage-bird. Out of his varied accents have been shaped the syllables *bob-o'-link*, and these have been humorously accepted as the contraction of the sonorous designation of "Robert of Lincoln." He builds his nest on the ground, generally among the thick high grass; externally it is composed of coarse grass and dry leaves, woven together into a sufficiently stout texture, while the inside lining consists of fine stalks and fibres.

"Robert of Lincoln is gaily drest,
Wearing a bright black wedding-coat;
White are his shoulders and white his crest.
Hear him call in his merry note:
Bob-o'-link, bob-o'-link,
Spink, spank, spink;
Look, what a nice new coat is mine!
Sure there was never a bird so fine!
Chee, chee, chee."

The bob-o'-link changes his coat according to the season. In the spring his plumage beams with many colours: black, on the upper part of the head, wings, tail, sides of the neck, and all the lower parts; creamy white, on the back of the head; black, varied with brownish yellow, on the back; pure white, on the scapulars and tail-coverts; bluish white, lower part of the beak,—the legs being of a brownish flesh tint, and the bill like bluish horn. In the month of June he gradually assimilates his garb to that of the female, which is marked by a brownish yellow on the upper and a dull yellow on the lower parts of the body; and by the beginning of August the one can scarcely be distinguished from the other.

" Robert of Lincoln's Quaker wife,
 Pretty and quiet, with plain brown wings,
 Passing at home a patient life,
 Broods in the grass while her husband sings.....

" Modest and shy as a nun is she;
 One weak chirp is her only note.
 Braggart and prince of braggarts is he,
 Pouring boasts from his little throat:
 Bob-o'-link, bob-o'-link,
 Spink, spank, spink;
 Never was I afraid of man;
 Catch me, cowardly knaves, if you can!
 Chee, chee, chee."

If he *did* feel some timidity, however, he might well be excused, for man pursues him incessantly with snare and gun. As soon as the oat-fields are ripe, swarms of bob-o'-links descend upon them; and enjoying daily abundant meals, they grow extremely fat, and are supposed by American connoisseurs to be little inferior in flavour to the celebrated ortolans of Europe. As a natural consequence, everybody who has a gun hastens to provide himself with so luscious a dish. The report of musketry along the reedy shores of the Delaware and the Schuylkill is described as almost incessant, and as resembling a running fire. At this season the markets of Philadelphia exhibit proof of the results of this wholesale gunnery-practice in the strings of reed-birds which ornament almost every stall.

" Six white eggs on a bed of hay,
 Flecked with purple, a pretty sight!
 There as the mother sits all day,
 Robert is singing with all his might:
 Bob-o'-link, bob-o'-link,
 Spink, spank, spink;
 Nice good wife that never goes out,
 Keeping house while I frolic about.
 Chee, chee, chee."

According to Wilson, the female lays only five eggs, which are of a bluish white, spotted irregularly with blackish brown.

" Soon as the little ones chip the shell,
 Six wide mouths are open for food;
 Robert of Lincoln bestirs him well,
 Gathering seeds for the hungry brood.

Bob-o'-link, bob-o'-link,
 Spink, spank, spink;
 This new life is likely to be
 Hard for a gay young fellow like me.
 Chee, chee, chee."

His *aliases* of the rice-bunting and the rice-troupial point to the damage which Robert of Lincoln commits in the rice plantations. To his appetite for oats we have already alluded. But, in truth, he is monstrously indiscriminating in his diet. The young lush stalks of the early wheat and barley please his palate mightily, and render him very obnoxious to the farmer; but, on the other hand, he sweeps away the destructive May-fly and voracious caterpillar by the hundred. On other insects he is also content to make a meal; and he shows himself partial to the young ears of the maize, and the seed of the wild oats,—or, in Pennsylvanian dialect, reeds,—which grow so plentifully along the marshy shores of the great rivers.

"Robert of Lincoln at length is made
 Sober with work, and silent with care;
 Off is his holiday garment laid,
 Half forgotten that merry air:
 Bob-o'-link, bob-o'-link,
 Spink, spank, spink;
 Nobody knows but my mate and I
 Where our nest and our nestlings lie.
 Chee, chee, chee.

"Summer wanes; the children are grown;
 Fun and frolic no more he knows.
 Robert of Lincoln's a humdrum crone;
 Off he flies, and we sing as he goes:
 Bob-o'-link, bob-o'-link,
 Spink, spank, spink;
 When you can pipe that merry old strain,
 Robert of Lincoln, come back again.
 Chee, chee, chee."

In the month of October our musical friend visits the island of Jamaica, where his plumpness procures him the sobriquet of the butter-bird.

IN THE AMERICAN WOODS.

Continuing our tour in the American woods, we meet with many birds in respect to which we would gladly gossip with our

readers, though they belong to families also represented in Great Britain. Why it is we know not, but the American species generally display a liveliness and an ingenuity in which our own are deficient. Perhaps this difference is due to the difference of *locale*. In England excessive cultivation has brought down everything to the level of commonplace. The wider area and the greater freedom of America enable the birds to retain their characteristic vitality; though a rapidly advancing civilization may be expected to tame, limit, and oppress them there in turn, as it has done in the "old country." It is necessary to add, however, that a considerable proportion of the American birds are migratory, and, like several of our British species, disappear at the approach of winter. Such is the case with the beautiful purple martin, which in the month of May adventurously pushes northward to the very borders of the great Frozen Ocean. He is a great favourite with the American people, as Hawthorne somewhere remarks. In the villages and farms they prepare accommodation for him as the epoch of his annual avatar draws nigh; and an American would as soon shoot one of these little familiar creatures as an Englishman would shoot a robin. Like his half-cousin, the king-bird, he is the terror of crows, hawks, and eagles, which he attacks on all occasions with the greatest alacrity of spirit, and with so much of the Jack-the-giant-killer audacity and perseverance, that he invariably puts them to flight. This is a fact well known to the poultry and the lesser birds, though how they have learned it, we do not pretend to explain,—unless, indeed, they possess some power of association of ideas,—and whenever they hear by the shrill impetuous cry of the martin that he has sallied forth to the combat, they hasten out of harm's way, leaving the chivalrous little hero to win his victory as best he can.

Not inferior to him in warrior-qualities is the American shrike or butcher-bird, which is also to some extent a spring and autumn migrant. There is little if any expression in a bird's face, generally speaking; yet we fancy that the butcher-bird has an expression of pugnacity, such as might be traced in the countenance of the late Lord Palmerston. He has a sharp, powerful beak, a broad

head, and muscular neck; and in defence of his mate and their young he will resolutely offer battle to the largest hawk or eagle—which, however, is too prudent to take up the gage. He has a peculiar habit of storing the surplus food he does not eat,—impaling grasshoppers and other insects, and even small birds, on thorns or the prickly branches of trees; thus giving rise to a fanciful German notion that he catches and impales nine grasshoppers a day. Hence he is sometimes known as the *neun-tödter*, or nine-killer.

Another immigrant, coming up from the warm sunny south at the first suggestions of spring, is the cat-bird, a member of the thrush family, which loves the bramble thickets and the fragrant recesses of dells and copses, green with briers. His name he owes to the peculiarity of his cry, which a stranger, unacquainted with it and with the bird, would certainly suppose to be the doleful complaint of some wandering and bewildered kitten. In passing through the Western woods, you have but to imitate the cheeping of young birds, and immediately the cat-bird will make his appearance; and as you continue your imitation, his distress and anxiety will increase, for he believes that his offspring are in danger. To and fro he hurries, with open mouth and wings drooping, repeating his call louder and still louder, faster and still faster, until his apprehension finds vent in a regular scream. It is said that he repeats his lamentations with an intensity of pathos which is truly affecting. All the feathered community are actuated by a common emotion; they hasten to the place to inquire into the cause of so unusual an ebullition of suffering, and flutter about in obvious sympathy, until their household cares compel them to withdraw.

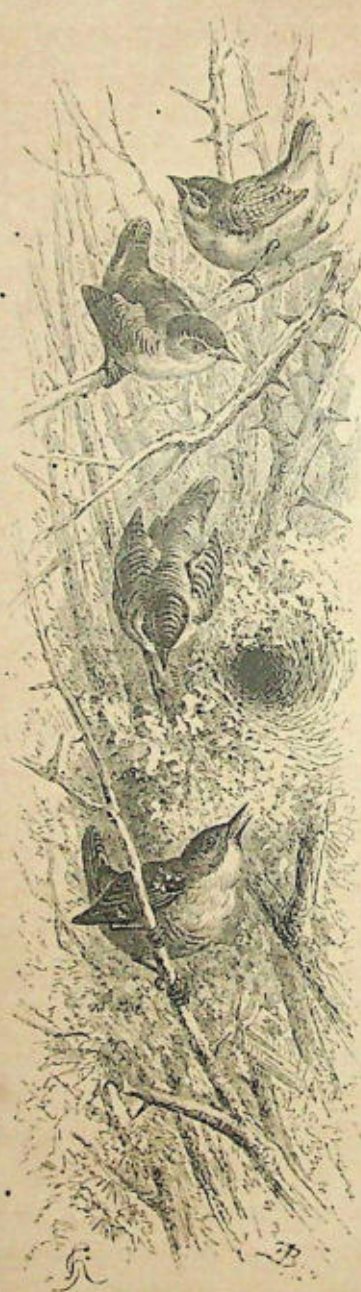
The American warblers are found everywhere. As, for instance, the yellow-rump warbler among the cedar and myrtle groves which line the American coast; the restless black-and-yellow warbler among the glorious magnolias of the Mississippi. The large May warbler seems to prefer the maple swamps, salt marshes, and sea-islands of New Jersey. The blue-eyed yellow warbler is partial to the willows, snowball shrubs, and poplars of the gardens and shrubberies. Of meek and modest disposition, the Maryland yellow-throat confines himself to the luxuriant leafiness of briers, brambles, alder-bushes, and other plants which grow

in low and watery situations. The more aspiring Blue Mountain warbler delights in the silence and solitude of the breezy heights. To the upper branches of the maple woods the black-poll warbler betakes himself; while the wanderer in the Kentucky "barrens," and on the borders of the open plains, is cheered by the regularly-repeated notes of the prairie warbler. The pine-creeping warbler is found, as his name indicates, in the piny woods, murmuring with mysterious voices, of the Southern States. So numerous are the species; and so different, are the "local habitations" which they affect.

TROGLODYTES.

The wrens, too, are birds of passage. With the fresh green beauty of the spring they come; the diminutive golden-crested wren, the familiar house-wren, the great Carolina wren, the marsh-wren, and others of the well-known and always welcome tribe. The scientific generic name is *Troglodytes*; and if the reader asks, Why troglodytes? we reply, Because of old, as Herodotus tells us, on the shores of the Red Sea dwelt a wild race of people, sheltering themselves in caverns. Hence they were called troglodytes, from their partiality to such gloomy retreats (*τρώγλη*). When the wise men of France were called upon to baptize a charming little bird, distinguished by his affection for human society,—an affection springing, we fear, out of ignorance!—and his habit of exploring holes and corners, they resorted for a name to the aforesaid savage race; bestowing it at the same time on a very large family of apes. The reader may not, at first, understand why the designation appropriate to an orang-outang should also be applied to a little bird; but the word *troglydytes* is Greek, and Greek always sounds well in nomenclature. And what would become of science, if it were compelled to explain all its reasons to ordinary mortals?

The wren is not simply insectivorous; he is a great slayer of caterpillars. We are told that a couple of wrens will carry to their family a hundred and fifty-six caterpillars for a day's supply. It is the wren's custom to forage everywhere; to pry into all the chinks and hollows of walls, decayed trees, and wood-work generally.



COMMON WRENS.

There is something mouse-like in his evolutions, and in his manner of coming and going, appearing and disappearing. He is lively, restless, always in a hurry, always with an air of business; and goes about with tail erect, like a domestic cock. The minute inspection to which he subjects old posts, the arches of bridges, and mouldering walls, is for the purpose of discovering the larvæ of insects which find shelter, late in the year, in the crevices of the bark and the fissures of the cement. As winter draws on apace, and the temperature lowers, the wren abandons the groves and hedges, and frequents the neighbourhood of the farms; in the dark winter-days he will penetrate even into inhabited rooms, and make booty of the gnats and flies which have sought there an asylum.

The nest which he builds is cup-shaped, something like that of the titmouse; with an exterior coat of green moss and a lining of feathers within. It may often be found among the briers, rose-bushes, brambles, in the forks of trees, the corners of walls, the mossy trunks of venerable oaks; but more generally in the perforated beams of barns, thatched roofs, holes of walls, underneath the tiles, among wood-heaps. The number of the eggs

laid by the mother-wren varies from six to twelve.

Be it remembered that the wren appeals to our sympathy and protection, not only by his familiar and gentle ways, but by the sweetness of his song. In the whole insectivorous tribe a finer musician can scarcely be found, though this is by no means generally known. But what says Bishop Mant?—

"The quick note of the russet wren,
Familiar to the haunts of men;
He quits, in hollowed wall, his bower,
And through the winter's gloomy hour
Sings cheerily; nor yet hath lost
His blitheness, chilled by pinching frost;
Nor yet is forced for warmth to cleave
To caverned nook, or straw-built cave.
Sing, gentle bird! sing on, designed
A lesson for our anxious kind;
That we, like thee, with hearts content,
Enjoy the blessings God hath sent,
His bounty trust, perform His will,
Nor antedate uncertain ill!"

The strain is loud, shrill, not very varied, but exceedingly agreeable; and as the wonder was, with respect to a certain celebrated personage, that one small head could carry all he knew, so it is a marvel that so diminutive a bird can pipe so loud and clear a strain. When the snow is lying deep upon the moorlands, and the gray shadows on the face of heaven indicate a coming storm, and the wind sobs in the distance like one in pain, and the bare branches of the trees are white with rime, and all the sweet sounds of nature are hushed and still, nothing pleasanter can be imagined than the blithe music of the wren, which seems to convey to the heart of man a lesson of hope and encouragement.

Toussenel writes of this bird as only a French naturalist can. This creature, he says, of talent so great and of proportion so small, is not less richly gifted in the qualities of the heart than in those of the voice. He is the bravest of the brave, *un brave des braves*; something like a second edition, a diamond edition, an *alter ego* of the robin redbreast. It is beautiful to see him attack the owl! The troglodyte, a lion in battle, disdains manœuvres. No sooner does he hear—or imagine that he hears—the cry of the hated enemy, than he forces his way

into his retreat to peck at his eyes; and great is his disappointment if he find a man where he hoped to encounter an adversary.

It may be presumed that our tiny hero's reputation for bravery was well established among the ancients, since Roman history dwells on the analogy between him and Julius Cæsar. It is recorded that on the eve of the day when the world's dictator received his two-and-twenty wounds at the foot of Pompey's statue, a king wren was similarly attacked in the public place by a score of other birds; and this event, which seemed a bad omen for the new "king," produced a deep impression on the minds of his friends, and induced them to believe that a conspiracy was meditated.

"Brave as Cæsar;" such is the evidence which Roman history bears to the wren's heroic qualities. Is it not obvious that the very name of *Regulus*, in French *Roitelet*, was given to him in honour of his brilliant courage, and his likeness in many respects to the illustrious prisoner of Carthage,—him who returned to certain death rather than break his plighted faith? As Toussenet remarks, this etymology is quite new, and must be taken for what it is worth; to which may be added, that the *regulus* (or kinglet) belongs to the *Luscinidæ*, not, as the wren does, to the *Certhiidæ*.

The wren possesses too many of the virtues of the redbreast not to have some of his defects. He is too great an artist not to be jealous (are all great artists jealous? Was Michael Angelo jealous of Raphael?); he sings too well not to love to sing alone; he is too brave not to be somewhat too fond of fighting. For those of his own species, therefore, he is a scourge; provoking now this one, now that, to single combat, in confinement as in freedom, and not unfrequently slaying his opponent. But the prime misfortune of our troglodyte is his smallness. Like all dwarfs, he is passionate, and much given to exaggerate his capacity in everything. Veracious history relates that a wren one day wagered he would fly higher than the eagle; and he won his wager by an ingenious but not honourable stratagem. To fly higher than the eagle, nothing more was necessary than that he should climb upon his back, and install himself there without being perceived by the king of birds. This was successfully accomplished; and when the bird of Jove, soaring into the

clouds and seeking below and around with flashing eye for his audacious competitor, expressed his surprise that he could not see him, the little "Tom Thumb," suddenly lifting his head out of the Ogre's plumage, sounded in his ear a song of victory, which surprised him still more. As this species of trickery is not generally a characteristic of heroes, Toussenel finds it difficult to admit the absolute authenticity of the foregoing legend. He gives as his reason for reproducing it, that it is a proof of the opinion which, in a remote antiquity, all serious observers had formed respecting the characteristic tendencies of the troglodyte.

THE TANAGER AND THE TIT.

But from this pleasant gossip we must turn to more serious matters. We pass over the nut-hatch, and the snow-bird, and the chat, and the bunting, to glance for a moment, before we travel further north, at the tanager and the titmouse.

One of the gayest of birds is the scarlet tanager. He is dressed in the richest scarlet, relieved by jetty black, and really makes a very handsome appearance. Seen against a background of dark-green foliage, he presents "a bit of colour" which artists know how to appreciate. The favourable impression which he thus produces is not lessened upon closer acquaintance. He is not a musician of any special merit; but his song is by no means disagreeable. Then, as to his individual character, he is modest, gentle, inoffensive. The husbandman has no reason to dread his visits, for he renders him considerable assistance by waging war against noxious insects, such as wasps, hornets, beetles. He has a weakness for fruit; but this may well be pardoned in consideration of the services he renders.

The female is not so daintily attired as her mate. She goes about in sober plumage, green above and yellow below, the wings and tail brownish black, edged with green. The young birds, in their first season, are similarly coloured; a circumstance in which, as the great American ornithologist remarks, we must recognize a wise provision of the Creator. The garb worn by the mother and her offspring is peculiarly suitable for concealment among the foliage at a time when the weakness of the latter, and the frequent visits of the former to her nest, would imperil their mutual safety.



THE BEARDED TITMOUSE.

As for the tit or titmouse, he is a vivacious little bird; almost as restless as the wren, and scarcely less courageous. He has the same antipathy to the owl, which he attacks with surprising boldness; darting at him, and endeavouring to peck at his eyes. In some respects he is not unlike the shrike; he has a fondness for carrion, and will prey upon small or sickly birds, which he kills by frequent blows of his hard, strong-pointed bill upon the head. There are several species,—the blue-cap, the black-cap, the long-tailed, the bearded,—but they are all alike in their habits. The bearded is distinguished by the tuft of feathers beneath his chin. The long-tailed has a “caudal appendage” as long as his body. The black-cap ventures as far north as the bleak shores of Hudson Bay; and, indeed, cold seems to agree with him, as he is always liveliest when the thermometer is near 32°.

The tits are usually seen during autumn and winter, when they quit the green depths of the murmurous woods and approach the cultivated fields. Then their sprightly song may be heard among the evergreens; and little companies of six, eight, or more, attended by the nut-hatch, the brown creeper, and

the small spotted woodpecker, roam about in search of insects and their larvæ, berries, and seeds. Their long, soft, downy plumage



LONG-TAILED TITMOUSE

enables them to brave the winter cold of the far Northern lands with as much indifference as an Arctic explorer.

ABOUT THE EAGLE.

We must now direct the reader's attention to "larger game." As everybody knows, the eagle has been adopted as its heraldic emblem by the great American Republic. The particular species thus honoured is known as the bald-headed American eagle; and to persons acquainted with his character the choice does not seem felicitous. So thought Benjamin Franklin. "I wish," he says, "the bald eagle had not been chosen as the representative of our country. He is a bird of bad moral character; he does not get his living honestly. You may have seen him perched on some dead tree, where, too lazy to fish for himself, he watches the labours of the fishing-hawk; and when that diligent bird has at length taken a fish, and is bearing it to his nest for the support of his mate and young ones, the bald eagle pursues and takes it from him. With all this injustice, he is never in good ease,

but, like those among men who live by sharpening and robbing, he is generally poor.....Besides, he is a rank coward; the little king-bird, no bigger than a sparrow, attacks him boldly, and drives him out of the district [reminding one of the way in which Drake and Frobisher, with their small but nimble barks, assailed the great heavy galleons of the Armada, and forced them to retreat]. He is, therefore, by no means a proper emblem for the brave and honest Cincinnatti of America."

Even Audubon is unable to give a much more favourable account of him, though he vaunts him as a noble bird, well known throughout the civilized world, and extols his great strength, daring, and cool courage. To these qualities did he add a generous disposition towards others, he might be looked up to as a model of (republican) nobility; but then he ever and anon displays "a ferocious, overbearing, and tyrannical temper."

His favourite haunts are the neighbourhood of the sea, and the shores and cliffs of the great lakes and rivers of North America. He is found in considerable numbers at the Falls of Niagara. While feeding on the flesh of deer, bears, squirrels, and other animals, he evinces a strong preference for fish; and in procuring these, displays all the energy and daring of his disposition. Elevated on the high dead limb of some huge tree that overlooks the neighbouring shore and wide expanse of rolling waters, he seems to survey with majestic indifference the movements of the various feathered tribes that pursue their busy avocations below: the snow-white gulls slowly winnowing the air; the busy sand-pipers coursing along the beach; trains of ducks oaring their way through the dark-green waves; silent, watchful cranes, intent and wading; noisy crows; and all the winged multitudes that subsist through the bounty of the prolific ocean. High above all hovers one whose action immediately arrests his whole attention. By his wide curvature of wing, and sudden suspension in air, he knows him to be the fish-hawk settling over some devoted victim of the deep. At the sight his dark eye lights up, and balancing himself, with half-opened wing, on the branch, he eagerly watches the result. Down, swift almost as a bolt from heaven, descends the rival



THE IMPERIAL EAGLE.

bird of prey, the roar of his wings filling the air as with a clang and a clash he disappears in the deep. Now, indeed, the eagle is all ardour; and he levels his neck for flight as the fish-hawk once more emerges, contending with his prey, and rising in the air with loud exultant screams. The signal is sufficient. Launching from his perch, the eagle gives chase, and speedily gains upon the fish-hawk; each using his most strenuous exertions to rise above the other, and engaging in evolutions which are not less sublime than graceful. The eagle gains upon his rival, and is just on the point of closing with him, when the latter, with a scream of rage and disappointment, drops his fish. Then see the triumphant brigand-bird, poising himself for a moment as if to take a more certain aim, descend with a rush and a whirl, seizing the prey before it reaches the water, and carrying it off in silence to the woods.

Such is Wilson's description of a scene which is of common occurrence along the sea-border of the States. Audubon sketches it in very similar terms.

The eagle is not fond of a solitary life; and the mutual attachment of a pair seems to endure from the moment of their first union until it is broken by death. Side by side they hunt for food, and side by side they devour it. Their connubial season begins in December, and is indicated by a good deal of noisiness on either part. You may see them on the wing together, rending the air with their hoarse screams, wheeling through space with swift and powerful wings, sometimes playfully contending with each other, and then retiring to the branches of the tree where they have made their abode. Early in January the female begins to lay. The nest is rudely made up of sticks three to four feet long, of clods of grass, and pieces of moss and lichens; the whole being from five to six feet in circumference. The eggs are two or three in number—rarely four; of a greenish white, with a granular shell, and of equal dimensions at both ends. The period of incubation does not exceed four weeks; and the young eaglets, when they make their appearance, are covered with a reddish down. As their beak and claws are of a most disproportionate length, they are by no means "things of beauty." They are not allowed to

fly until their plumage is complete; and, meantime, their parents provide them plentifully with all kinds of food.

There are eagles—and eagles. The osprey is sometimes called the fishing eagle, but, more correctly, the fish-hawk. *Pandion haliaetus* is rightly described as a formidable and strong-winged bird, which preys on the finny tribes that teem in the American bays, creeks, and rivers; securing his prey by his own activity, skill, and industry; and apparently resorting to the land only as a resting-place, or in the usual season, for the purposes of incubation. He builds his nest usually on the top of a dead or decaying tree, at elevations varying from fifteen to fifty feet above the ground. Wilson says that the fisher-folk have remarked that the most vigorous tree perishes in a few years after the fish-hawk has taken possession of it. Whether this be attributable to the fish-oil, or the bird's ordure, or the wet salt materials of which its nest is composed, or to all three causes combined, the reader may determine for himself. Externally it is built up of large sticks, from half an inch to an inch and a half in diameter, and two or three feet in length, piled up four or five feet high, and two or three feet broad; and so intermixed with sea-weed, corn-stalks, clods of wet turf, stems of mullein, and dry sea-grass as a lining, that the whole forms a mass conspicuous half a mile off, and sufficient to prove a considerable load for a horse.

The flight of the osprey, his manœuvres while in search of fish, and his mode of capturing his victim, deserve particular attention. So Wilson tells us; and he had closely studied the "physiology" of the bird. When he leaves his nest, he generally makes direct for the sea; then in graceful curving lines, and moving as on a pivot, sails round and round, apparently without the slightest effort or any stir of his wings. The elevation to which he gradually rises varies from one hundred to two hundred feet, or even more; yet he is still able to keep a watchful eye on the surface of the great deep. All at once he pauses as if fixed in air, flaps his wings, and directs his gaze to a particular object. This object, however, he abandons; that is to say, it has disappeared; and he resumes his easy, sailing motion. Again



EAGLE AND FISH-HAWK.

his attention is arrested, and he descends with great rapidity; but, before reaching the waves, diverges in another direction, as if mortified that he has lost a second opportunity.

He now sails for a while at a short distance above the surface, and by a zigzag descent, and apparently without dipping his feet in the water, seizes a fish; which, after carrying a short distance, he probably lets fall, and rises up in the manner already described to the higher regions of the atmosphere, where he glides to and fro with majestic facility. Suddenly from the keen aerial height he swoops downward like a perpendicular torrent, plunging into the sea with a loud, rushing sound, and with unerring certainty. A few moments, and he reappears with his struggling victim in his claws, carrying it always head foremost; when a few feet above the surface, he shakes himself like a dog on coming ashore, and makes straight and swift for the land. If the wind is blowing strongly, and his nest lie in the quarter whence it comes, it is amusing, says Wilson, to observe the activity and judgment with which he beats to windward, not in a direct line,—that is, *in the wind's eye*,—but making several successive tacks to gain his purpose.

A BATTLE IN THE AIR.

Aerial combats are not uncommon; and the Scotch naturalist, Thomas Edward, in the "Life" recently compiled by Mr. Smiles, furnishes a very graphic narrative of an encounter between a crow and the daring little *Falco aesalon*, or merlin. While roaming along the sea-braes one morning, he heard a tremendous clamour of rooks and jack-daws; and advancing a few steps, found them engaged in a united attack upon a little merlin. It might have been thought that such a host would have smothered the little creature "in a twinkling." But not so: the crows did not assail him all at once, nor yet singly; but three, four, and as many as seven, would assail him at a time, the main body at a short distance encouraging them apparently with their cawings. After a while one of these storming-parties would retire, and another would sally forth to the charge. The merlin, however, being swifter of wing and of lighter mettle, managed with singular dexterity to elude their blows; now rising, now descending, now

turning in a zigzag direction, first to one side, then to the other; and, while doing so, generally succeeding in administering to one or other of his adversaries a severe peck, which sent him away screaming. At last, however, a crow with more courage than the rest dashed against the merlin with a fury which threatened to precipitate him into the sea. But the gallant merlin withstood the shock, and delivered a thrust at his adversary as he approached and passed him. Then he rose considerably higher, followed only by this solitary opponent, who with augmented rage returned to the combat. "Up, up they soar, fighting as they go. They close, they scream, they grapple, and their feathers fly like dust. Down they come, locked in deadly embrace. I run to catch them both. But no! See! they part, mount again and again, scream, close, and, as before, fall, but not this time to the earth; they part and mount again. But 'tis now their last time; for the hawk, rising several yards above his bold and venturous antagonist, rushes down upon him with a yell such as hawks alone, when irritated, know how to utter, and with such force that both fall right down into the sea, above which they were then fighting. I looked to see them rise again; but they did not. After a little splashing all was over with the crow, but not with the hawk. He was still alive, although in a very precarious situation, from which he made several unsuccessful attempts to rise, but could not. It would seem that in dealing the death-blow to his tormentor he somehow or other got himself entangled; perhaps by his talons entering some of the bones of the crow, from whence he could not extract them. Both met with a watery grave; for on my leaving the place they were both fast drifting seaward, a breeze blowing off the land at the time, with the crows hovering over them and still cawing."

The merlin, so famous in the days of chivalry, when lord and lady, knight and gentleman, carried the noble bird upon their wrists, is sometimes called the stone-falcon from his preference for stony localities, and his habit of building his rudely-constructed nest upon the ground among pieces of rock. He is the smallest of the falcons, not exceeding eleven inches in length; but, like other members of the Bird World, he makes up in spirit for what he lacks in size.



A HAWK IN THE POULTRY-YARD.

THE HAWKS OF THE WESTERN WORLD.

The hawks are well represented, in North America. Bold of heart, and fierce of temper, and swift of wing, they command our admiration, though we recoil from their sanguinary propensities. One of the most graceful in form is the swallow-tailed, but this species seldom ranges further north than Pennsylvania. In the Southern States he is on good terms with the farmers, owing to the forage he makes against a certain troublesome kind of *Acrida*, or locust. He feeds also upon snakes, lizards, and grasshoppers; and such being his principal food, he is naturally attracted to the prairies as the most abundant feeding-grounds.

The sparrow-hawk is found all over the United States,—building his nest generally high up in a hollow tree, and frequenting indifferently the fields, the woods, and the neighbourhood of human habitations. He preys upon leverets, young rabbits, field-mice, and all kinds of small birds; in truth, he is a wholesale murderer, a brigand of the air; and his ill repute can hardly be forgotten even in our recognition of his graceful form, spirit, agility, and daring. The members of his tribe are generally distinguished for their keenness of sight; but the sparrow-hawk's range of distinct vision cannot, as Macgillivray remarks, be very great, nor does he appear to observe birds in a hedge or field at the distance of some hundred yards, while his low flight—at an elevation of only eight or ten feet—indicates a correspondingly short extent of sight. But then the quickness of his perception is wonderful; for when rushing along at full speed he marks any object favourably situated for capture.

• The intrusion of a band of armed desperadoes into a peaceful community does not produce a more general alarm than the appearance of a sparrow-hawk in a poultry-yard,—or, to take a more picturesque example, in a grove frequented by the smaller birds. As if by some electric touch, they all become aware of his presence, and a sudden hush of apprehension falls upon them. The sparrows out in the open breathe quiet sounds of warning, and retire to what shelter they can

find; the thrushes arrest the full flow of their melody; the skylark ceases his strain of exultation, and descends tremblingly from his aerial



"ALL REPEAT THE CRY OF ALARM."

flight. Buntings, linnets, finches, all repeat the cry of alarm, and seek... to conceal themselves in the depths of the thickest foliage. For a minute or so the intruder remains perched on some point of vantage;

suddenly he quits his post, and dashes arrow-like into the heart of the grove, pounces upon the nearest victim, and disappears as quickly as he came. But it is some time before the little society recovers from its panic, and resumes its previous avocations.

FALCONS AND FALCONRY.

Sir J. Richardson records that, in his journey across the desolate wildernesses which lie between Canada and the shores of the Frozen Sea, he was attacked by a pair of gyrfalcons, while climbing in the neighbourhood of their nest, which was situated on a precipitous cliff rising sheer from the waters of Point Lake, in lat. $65^{\circ} 30' N$. They flew in circles, screaming loudly and harshly, and alternately swooping downwards with such velocity that their motion through the air produced a loud rushing sound. They struck their claws within an inch or two of the adventurer's head. By keeping the barrel of his gun close to his cheek, and suddenly raising its muzzle when they were in the act of striking, he sought to ascertain whether they had the power of instantaneously changing the direction of their swift flight; and he found that they invariably rose above the obstacle with the quickness of thought, showing equal sharpness of vision and power of motion. It is among the dreary precipices and wind-swept cliffs that these birds delight to dwell; within hearing of the roar of the waters which beat against the icy walls of Iceland and Greenland, and within reach of the sea-birds which supply them with food. A hundred feet from the base of the rocks they build their nest; and from this elevated post they sweep their glance far and wide over the dark-rolling main. Audubon tells us that while hunting in Labrador he frequently saw these birds ranging high in the air over an island where multitudes of puffins were breeding. On several occasions he watched them descend "like a streak of lightning," pounce on a victim, and carry it off in their talons. Their aerial course resembled that of the peregrine falcon, but was more rapid, elevated, and majestic. They rarely sailed when travelling to and fro, but used a constant beat of their wings. When high in the air above the hapless puffins, they would hover almost motionless, as if watching for the proper moment to close

their pinions; and when that arrived, rushing almost perpendicularly on their heedless prey.

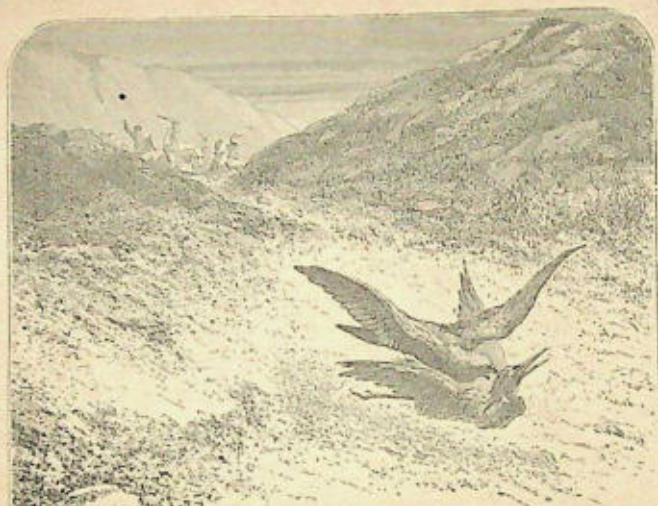
Their cries also resemble those of the peregrine falcon, in their loudness, shrillness, and penetrating quality. Now and then they alight on some of the tall stakes placed along the shore as landmarks for the adventurous fishermen who visit the storm-beaten coast, and stand for a few minutes, not erect like most other hawks, but in the position of a tern; after which they return to their ordinary pursuits, and pounce upon a puffin, while the poor bird stands on the ground at the very mouth of his burrow, apparently quite unaware of the approach of his formidable persecutors. It does not seem that they are in any way impeded by their burden. After rising in the air, they simply shake themselves as if to arrange their plumage,—just as the osprey does when he rises from the water with a fish in his talons.

Our reference to the peregrine falcon will at once carry back the reader's memory to the "olden times" of chivalry, before the schoolmaster and the policeman combined had swept the Romantic clean from the face of the earth. On the darker aspects of the feudal *régime* we are not inclined to dwell, when the song of the poet lifts us above the ordinary level of commonplace, and the horn of the hunter, as it rings through the merry greenwood, awakens bright recollections of all that was so picturesque and graceful. We shut our eyes to the reign of cruelty and the harshness of despotism; to the burgher heavily taxed by arbitrary prince; to the peasant labouring under a grievous oppression; to the absence of order and the feebleness of law; and we open them only to gay scenes in luxurious medieval courts, to the movement and parade of the festival and the tourney. We see the castle-gate thrown wide, and issuing forth, a fair procession of knights and ladies, bright with nodding plumes and waving scarfs, caracole towards the neighbouring forest to enjoy the pleasures of the chase. The pastime was suited to an unlettered and restless age, when, to the rich and powerful, as yet but imperfectly versed in the arts and culture of peace, leisure must have been an intolerable burden. But the



HORN-OWL ATTACKED BY A FALCON.

good and the evil,—the latter heavily predominating over the former,—the good and the evil of the ancient chivalry have passed away, leaving behind few memorials—except the “tassel gentle” or “peregrine falcon,” in whose honour Barry Cornwall sings a lively song:—



“HE STRIKES THE TREMBLING BIRD.”

“The falcon is a noble bird,
And when his heart of hearts is stirred,
He'll seek the eagle, though he run
Into his chamber near the sun.
Never was there brute or bird
Whom the woods or mountains heard,
That could force a fear or care
From him, the Arab of the air.

“To-day he sits upon a wrist
Whose purple veins a queen hath kissed,
And on him falls a tender eye
That he can face where'er he fly;
Though he scale the summit cold
Of the Grimsel vast and old,
Though he reach yon sunless stream
That threads the forest like a dream.”

The favour with which this bird was regarded by the huntsmen of old was not undeserved. His strength, his courage, and his swiftness

of flight are equally admirable. Like the gyrfalcon, he frequents the sea-washed cliffs, the wind-swept promontories, and the mountain-spurs that strike down to the sea-coast; always seeking the solitude and the silence of Nature, and building his eyrie on the rocky ledges of the inaccessible heights. He is a bitter enemy of the water-fowl, which manifest an intuitive dread when the shadow of his broad wings falls upon the air. They immediately cease in their flight and hasten to the water,—remaining there until he has passed by, and diving the moment he draws near them. It should be observed that he seldom, if ever, strikes over the water, unless it be frozen, because he is intuitively aware that it would be difficult to secure his quarry. Not unfrequently he attacks the great ash-coloured horn-owl, of which Audubon gives so vigorous a description.

In the breeding season, according to Wilson, he and his mate retire to the gloomy recesses of the cedar-swamps, where they build their nest on the lofty trees, and rear their young without let or hindrance. In these sombre wilds, abounding in obstacles almost insuperable to the foot of man, the screams of the falcon, mingling with the hoarse tones of the heron and the ominous hootings of the owl, resound through the dreary loneliness, and fill the imagination with the most impressive images of desolation and gloom. We have spoken of him as an enemy to the water-fowl: he attacks also the heron in his reedy haunts; and when he penetrates inland, preys upon grouse, partridges, leverets, and rabbits:—

“The partridge springs,
He makes his stoop; but wanting breath, is forced
To chanceler; then with such speed, as if
He carried lightning in his wings, he strikes
The trembling bird, who even in death appears
Proud to be made his quarry.”

THE HERON AND HERONRIES.

It is in the loneliest and obscurest recesses of the cedar-swamps, or among the dwarf oaks which flourish on the low banks of rolling rivers, or among the rustling, murmurous reeds of the marshes, that the heron makes his home. In the solitudes of the cedar-swamps which form



HERON ATTACKED BY A FALCON.

so characteristic a feature of the American coast from New York to Florida, he will build his nest, if undisturbed, for years. These swamps measure from five to six miles in length, and from half a mile to a mile in breadth, and apparently occupy the choked-up channel of some sea-creek, river, lake, or stream. To the stranger they present an array of tall, straight trunks, rising to the height of fifty or sixty feet before they throw off a branch, and with their crests so closely woven together as to exclude the day, and throw over the whole scene the shadow of a perpetual twilight. On approaching nearer, he sees that they spring sheer out of the water, which, with the fallen leaves and intertangled roots, has assumed a tawny hue. In among them lie the ruins of a desolated forest. The roots, the prostrate trunks, the reft boughs, even the pools of water, are deeply encrusted with green mantling moss; while an undergrowth of laurel, fifteen to twenty feet high, fills up every opening, and increases the chaotic character of the scene. A death-like silence prevails here in calm weather; and a few chance shafts of light penetrate the wilderness, only to show how sombre and how desolate it is. In such a scene as this the heron stands, with head bent downwards in an attitude of brooding contemplation,—the very personification of a morose melancholy!

They are not courageous birds, these herons. Animals ever so little stronger than themselves they dread, and endeavour to avoid by timely flight; and towards the weak they never show that generosity which should be a characteristic of strength. They live principally upon fish, though the smaller species, by the way, are to a great extent insectivores; and of all it may be said that they will prey on any creatures which they can master, such as small mammals, young birds, almost every kind of reptile, molluscs, worms, crustaceans. Their long claws and light body enable them to stalk through the most fluid mud, and in this way to forage in all the swamps, pools, and water-courses. They take their prey by surprise. With the neck retracted, the head resting on the shoulders, the lower bill on the fore part of the neck, they wade into the water, advancing slowly and silently, lending an attentive and mistrustful ear to every sound, and carefully surveying the scene before them; then suddenly, with the swiftness of a light-

ning flash, the neck is stretched forward, and the hard bill strikes the unhappy victim. A heron will frequently remain motionless for several minutes in the same place, absorbed, apparently, in a kind of Buddhist abstractedness; to all above and around he seems absolutely indifferent; but the moment a prey appears, be it fish or aquatic reptile



"IN SUCH A SCENE AS THIS THE HERON STANDS"

or bird, he awakes from his reverie and deals the fatal blow. His mode of attack is very like that of venomous serpents; he displays the same craft, vigilance, and promptitude.

The heron's unsocial habits, as they are called, result, we may suppose, from the timidity and suspiciousness of his disposition; and

this, too, is the reason that he accomplishes his journeys under cover of the night—betaking himself for the purpose of repose to the woodiest recess in the deepest wood he can find. His custom of fishing on dull and dreary days must not be attributed, according to some authorities, to any natural love of the sombre or depressing. His intelligence is active here. All anglers know that fish, and especially the salmon and the trout, easily take fright at shadows upon the water. They object to approach even a motionless shadow; but when disturbed by one in movement, they dart away in a panic of terror, and do not return to the spot until after a considerable interval. The heron is aware of this important fact, and regulates his conduct accordingly. He fishes generally in the absence of the sun, when no shadow can fall athwart the water to scare his intended prey. And we have somewhere read a still more forcible illustration of the heron's intelligence. When a river has overflowed the neighbouring country, it leaves, after once more subsiding within its basin, a number of little pools and basins of water stocked with fish. Now, in these the heron angles without heed of light or shadow; knowing, it appears, that whether his victims are terrified or not they cannot escape.

"O'er yonder shining lake the while,
What bird about that wooded isle,
With pendent feet and pinions slow,
Is seen his ponderous length to row?
'Tis the tall heron's awkward flight,
His crest of black and neck of white,
Far sunk his gray-blue wings between,
And giant legs of murky green."

So says Bishop Mant, in that breezy, wholesome volume of his, "The British Months," which contains so many admirable sketches of land and water scenery, and so much exact observation of the aspects of Nature, animate and inanimate.

Not long ago there was—and there may be still—a heronry in the beautiful Cobham Woods, near Gravesend. There is also, we believe, a heronry at Parham, in Sussex; and a few others are scattered about over the country. Lonely as the heron is for the greater part of the year, he grows lively and fond of his kind at the breeding season;

and the birds then assemble in a little republic, called a heronry—regularly taking up their abode in the same place year after year, if left undisturbed. England, however, is growing too busy and too populous for the heron. His solitudes, his sylvan retreats and bowery nooks of seclusion, are every year growing fewer; and soon, if a man wish to play the hermit, or a heron to indulge his natural love of retirement, he will be driven to the remote recesses of the Cumbrian hills or the Scottish Highlands. Probably, therefore, no one of our readers will have fallen in with the singular and interesting spectacle a heronry presents. The following description of an Hungarian one, borrowed from Baldamus, will possess the attraction of novelty:—

It is the early part of June; the whispering reeds are six to seven feet high, and overspread the gloomy waters of the morass. Wherever the eye ranges it sees only an immense plain, without a single conspicuous landmark to arrest the gaze. But upon this boundless expanse of green and blue are visible certain forms, superbly varied with white, yellow, gray, black: egrets, purple herons, ash-coloured herons, spoonbills, gulls, terns, ibises, cormorants, geese, pelicans. On the willows and poplars which rise here and there, the herons have built their nests. One of the colonies occupies a space of several thousand feet in diameter, and the nests are distributed among one hundred to one hundred and fifty willows; several of the trees bearing ten to twenty nests each. On the strongest branches of the tallest willows are found the nests of the ash-coloured herons; then, side by side, and frequently in actual contact with them, those of the night-herons; higher up, on the weaker branches, rest those of the black cormorant; while the lowest boughs support those of the ardetas.

In such a scene it is entertaining to watch the various habits of the birds. Now the night-herons descend from the tree-tops to their nests; they have this or that to arrange, and the position of their eggs to alter. They return home from excursions in all directions, opening wide their capacious red throats as a menace against any intrusive neighbour, and filling the air with their hoarse, grating cries. Next come the garzettas, with silent wing; one carrying in his bill a dry twig, another leaping from branch to branch to gain her bower.

Almost simultaneously, the handsome crab-hunters, with rust-red plumage, and flight as noiseless as that of an owl, make their appearance; and last come the most cautious and the wariest of them all, the common ash-coloured herons. What a stir—what a tumult! The air resounds with incessant voices, harsh, shrill, piercing; while the eye of the spectator is dazzled with a whirl of forms—black, gray, yellow, white. At length the noise dies away, and a sweet tranquillity prevails. Most of the birds are at rest; a few are still on the wing, however, fetching and carrying materials or food, while others have mounted guard in the neighbourhood of their homes. But suddenly a night-heron is seized with the fancy that a particular blade of grass or a straw in his neighbour's nest is better than anything in his own;



FLIGHT OF HERONS.

and the uproar recommences. Another hush succeeds; a hush, but not a profound silence. Hark! whence proceeds that sudden clang? A kite, whose eyrie is some fifty yards distant, is tranquilly bearing off in his talons a young heron. The mother quits her nest, threatening and growling; but she allows the ravisher to escape with his victim, though a single blow of her formidable bill would have slain him. Some of the night-herons pursue their enemy, screaming loudly; but are recalled by a fresh and louder turmoil. For, see! a magpie here, and a crow there, are busily engaged in stealing their eggs. The neighbours of the plundered unfortunates raise a tremendous outcry; while other brigands profit by the disturbance to make a descent on the temporarily deserted nests, and depart with their booty. Voices of grief and vengeance are heard all around, when a shadow seems to

fill the sky; a murmur of mighty wings is heard; and immediately all is still. Who comes here? Who but the king of the air—the majestic eagle; and see how stately he sails to and fro above the terrified community! Let us leave him to exact the tribute which in this world the weak are too often compelled to pay to the strong.

The carrion crow is a great enemy of the heron; and Thomas Edward, the Scottish naturalist, relates with much liveliness an episode illustrative of this animosity of which he was himself a witness:—

One summer day, while loitering about the sea-side hills, he saw a heron flying heavily along, pursued by a carrion crow, and followed at some distance by a couple of magpies. Soon afterwards, the pursuit was taken up by two hooded crows. By this time the heron had reached an open space between two woods, and it seemed as if his adversaries intended to keep him there until he had satisfied their demands. So long as the affray lasted, or nearly half an hour, they would not suffer him to proceed above a few yards in any direction, and forced him into ascending and descending alternately, in order to elude the attacks levelled at him. Most skillfully conducted was the entire manœuvring of the crows with the heron. Each seemed thoroughly to understand his position, and the one never interfered with the other's point of attack. Rising higher than the heron, one shot down upon him like a dart, aiming generally at his head; another at the same time pecked at him sideways and in front; the third made his attack from beneath and in the rear. The last-mentioned seized hold of the bewildered bird's feet, which were stretched out at full length backwards, with the result each time of turning him over; a result welcomed by a general outburst of exultation "among the three black rogues," as evidenced by their louder cawings and whimsical gesticulations,—“no doubt laughing (if crows can laugh) at seeing their opponent turning topsy-turvy in the air.”

During one of his somersaults the heron disgorged something, but, unfortunately for him, none of the crows observed it. When it fell to the ground, the magpies seized and devoured it. Not relieved by what

he had dropped, and still pressed close by his pertinacious foes, he again disgorged what appeared to be a small fish. This was seen by one of the hooded crows, who swiftly descended, picked it up, and flew off with it, leaving his two companions to continue the battle. "The heron, having now got rid of one of his pursuers, determined to fly away in spite of all opposition. But his remaining assailants, either disappointed at the retreat of their comrade or irritated at the length of the struggle, recommenced their attack with renewed vigour. So artfully did they manage, that they kept the heron completely at bay, and baffled all his endeavours to get away. Wearied at last of the contest, he once more dropped something, which from its length seemed to be an eel. On its being observed by his opponents, they quickly followed it. In their descent they fell a-fighting with each other. The consequence was that the eel, falling to the ground, was set upon by the magpies. The crows gave up fighting, descended to the ground, and assailed the magpies. The latter were soon repulsed. Then the crows seized hold of the eel with their bills, and kept pulling at it until eventually it broke in two. Each kept hold of his portion, when they shortly rose up and flew away amongst the trees. In the meantime the heron was observed winging his way in the distance, sick at heart, because he had been plundered by thieves, and robbed of the food which he had intended for his family."

The daytime is not the heron's period of activity. At intervals he stretches his wings by short flights in various directions, but his chief occupation from sunrise to sunset is to muse and dream—if herons *can* dream—on the bank of a stream or the branch of a tree, frequently with one leg drawn up under the body in a most picturesque fashion. But as soon as twilight gray has with its sober livery all things clad, the heron grows as anxious and as restless as—to use Waterton's comparison—a London alderman half an hour before the Lord Mayor's festive dinner. Up and down the bank he stalks; or he moves actively from branch to branch, every now and then stretching out his wings, and making known by his various gesticulations that he is on the point of beginning his nocturnal peregrinations in quest of food. One loud harsh cry, frequently repeated, is a sign that the

heron is on the wing, and directing his course to some distant river, swamp, or creek.

One of Christopher North's finest descriptions will help us now. Into the still twilight of many a wild rock-and-river scene, he says, beautiful and bewildering as the fairy work of sleep, will the naturalist find himself brought who knows where to seek the heron in all his solitary haunts. "For often, when the moors are storm-swept, and his bill would be baffled by the waves of tarn and loch, he sails away from his swinging tree and through some open glade dipping down to the secluded stream, alights within the calm chasm, and folds his wings in the breezeless air. The clouds are driving fast aloft in a carry from the



THE HERON AT WORK.

sea, but they are all reflected in that pellucid pool, so perfect the cliff-guarded repose. A better day, a better hour, a better minute for fishing could not have been chosen by Mr. Heron, who is already swallowing a par. Another, and another,—but something falls from the rock into the water, and, suspicious though unalarmed, he leisurely addresses himself to a short flight up the channel, round that tower-like cliff standing strangely by itself, with a crest of self-sown flowering shrubs; and lo! another vista, if possible just a degree more silent, more secluded, more solitary, beneath the mid-day night of woods!"

Such, indeed, is one of the favourite resorts of the lonely heron; or we may think of him as retreating to a scene not unlike that which

Tennyson puts before us in the *Morte d'Arthur*, where we see Sir Bedivere

"Stepping down
By zigzag paths, and juts of pointed rock,"

and so arriving at

"The shining level of the lake ;"

and are made to hear

"The ripple washing in the reeds,
And the wild water lapping on the crags."

It is from Christopher North, however, that we borrow our final glimpse of the heron. Apostrophizing him, he exclaims: "It is fortunate for thee, folded up there as thou art, as motionless as thy sitting-stone, that at this moment we have no firearms; for we have heard of a fish like trout in that very pool, and this, O Heron! is no gun, but a rod. Thou believest thyself to be in utter solitude,—no sportsman but thyself in the chasm,—for the otter, thou knowest, loves not such very rocky rivers; and fish with bitten shoulder seldom lies here,—that epicure's tasted prey. Yet within two yards of thee lies couched thy enemy, who once had a design upon thee, even in the very egg. Our mental soliloquy disturbs not thy watchful sense, for the air stirs not when the soul thinks, or feels, or fancies about man, bird, or beast. We feel, O Heron, that there is not only humanity, but poetry, in our being. Imagination haunts and possesses us in our pastimes, colouring them even with serious, solemn, and sacred light; and thou assuredly hast something priest-like and ancient in thy look, and about thy light-blue plume robes, which the very elements admire and reverence,—the waters wetting them not, nor the winds ruffling; and, moreover, we love thee, Heron, for the sake of that old castle beside whose gloom thou utteredst thy first feeble cry!"

THE GREBE.

•• The pools near the sea-coast, the immediate neighbourhood of lakes and rivers, and the reedy depths of the marshes, are the favourite habitat of the grebe; a vigorous and handsome-looking bird, closely

related to the ducks and the divers, which is found in most parts of the world. She swims and dives famously; lives upon fish and aquatic plants; and builds her nest among the rushes, so that it floats, or seems to float, upon the water. The foremost member of the family is the crested grebe; the feathers of which, as our lady-readers know, are much in request for muffs and other articles of feminine use or adornment. The prevailing colours are brown and white; the ruff and crest, with its elongated tufts, being of a rich deep brown,—the neck and back and wings and tail of a lighter and almost grayish brown; and all the rest of the body a match for the purest snow that ever fell upon a mountain-peak.

" Her glossy breast
Sleek plumes of satin white invest,
Wave-proof; and hangs her shoulders down,
Down back and wings, of dusky brown
A mantling tippet."

So says Bishop Mant, with his usual accuracy; and not with less accuracy does he describe the bird's swift motion in lake, pool, or river:—

" Unused aloft to soar, but fleet
With oarage of the handlike feet,
Most apt the liquid mass to strike
With powerful stroke, direct, oblique;
See! where across the lake she rows
Her crested form; and, as she goes,
Full of maternal fears and cares,
Lodged on her back her nestlings bears."

Mr. C. A. Johns comments on the graceful movements of this bird in the water, declaring that she vies with the swan, while she claims pre-eminence as a diver. On dry land her form is by no means a graceful model, but she was never intended to figure as a feathered pedestrian. See her in her native element, however, and own that she is peerless. The legs, compressed until they are quite sharp-edged, cut the water with a minimum of resistance; the webbed feet are placed so far backwards that they fulfil the double office of rudder and propellers. The shape of the body is conical; and the sheeny plumage throws off water as easily as does the fur of the otter. "The long neck



CRESTED GREBES.

tapers to exceedingly narrow dimensions, and terminates in a small head produced into a slender beak. The conformation of the greyhound is not better adapted for running than that of the grebe for rapid diving after the fishes that constitute her ordinary food; the loon, however, will likewise feed on frogs, tadpoles, or any small animals that come in her way. She frequents fresh water during the summer months; but on the approach of winter resorts to the sea, not, it would seem, from any desire to vary her food, but simply to avoid being frozen up."

Other species are the red-necked grebe, the eared grebe, and the little grebe, all of which are visitors of our coasts, and resemble each other in their habits. The eared is distinguished by the peculiar shape of his bill, which is depressed at the base, and curves upwards slightly at the extremity. He is less addicted to betake himself seaward than the other species, his principal food being small fishes, aquatic insects, and seeds. The most expert diver of all, and, indeed, of all water-birds the most skilful in this art, is the little grebe, or dabchick, or didapper, or little ducker, as he is variously and not altogether euphoni-ously called. He seems most thoroughly to enjoy the antics he performs in the water, and goes through them with an evident ease and jollity that delight the spectator. He builds his nest on the reed-fringed marge of lake or stream, with the rustling reed-flowers bending over it to conceal its two or three eggs from the vulgar eye. The male bird is about ten inches in length; the female somewhat shorter. The dominant colours of the plumage are brown and black, with grayish tints and white markings on the wings.

THE CALIFORNIAN QUAIL.

The quails are a very numerous family, with certain points of resemblance to the partridges, and fond, like them, of localities where bushes or thick hedges afford a ready covert. One of the most remarkable species is the crested quail of California; and certainly it is one of the handsomest. It is said to have been first discovered during the voyage of discovery of the frigate *La Pérouse*.

This beautiful bird, we are told, is common throughout California,

a land which is rich in the wonders as well as beauties of Nature. In winter he and his congeners gather in numerous bands, composed, according to the localities, of a thousand individuals and upwards. Unlike the common quail, he is found as frequently in the forest as in the plain. Owing to the speed with which he runs, and the skill with which he hides, he is not easy to capture; and when perched on a tree is not readily detected, his olive-brown plumage blending easily with the later tints of the foliage.

A writer asserted, some years ago, that the naturalist desirous of studying the physiology of the crested quail must make up his



CRESTED QUAILS OF CALIFORNIA.

mind to abandon the luxuries of an orderly, civilized life, and plunge boldly into the Californian interior, towards the Rocky Mountains. There he will find himself in a district still overrun by the Apaches Indians; a district which presents the characteristics we usually associate with the desert. The soil is furrowed by yawning chasms, by deep valleys and ravines, which intersect the gigantic mountain-masses; and everywhere the eye rests upon huge blocks of lava, ejected in prehistoric days from volcanoes which have long since become extinct, and even unrecognizable. There are streams; but the traveller might perish of thirst while following up their waterless beds; the vast plains

are covered with a dry hard herbage, with low bushes, and suffers perpetually from the curse of drought. The country we are describing is, however, a country of the most marvellous contrasts. The mountains of wildest aspect enclose charming valleys, well-watered, and always green and fertile; great forests of pine and cedar alternate with desolate fields of lava; the hill-slopes bloom with oaks, mezquitos, and manzanitos; while along the banks of rippling water-courses run long lines of walnut trees, poplars, and willows, intermixed with an apparently impervious network of wild vines, thorns, roses, and other climbing plants.

This is the home of the crested quail.

"Beautiful to see," exclaims the enthusiastic naturalist, "soft to touch, sweet to smell, succulent to the palate, he is, in very truth, a ravishing bird. I have admired him from the day when I saw him first, impaled upon a plank; but now that I have been able to observe him living, and in his native home, I admire him still more: and, in my opinion, no American bird equals him in beauty. His full and rounded forms exclude all idea of heaviness; he has a long neck and tail; his head is small; the feathers which crest it, elegantly bending backward, invest him with an incomparable grace. His gait is light and easy. The male bird, which moves majestically, with head raised, eyes glittering, and crest agitated, is a superb sight; and not less so when he mounts on the prostrate tree, under which his family lie concealed. Such a bird has equal attractions for the naturalist, the artist, the hunter. But he has yet another advantage,—the agreeable savour and pleasant flavour of his flesh render him dear to the gourmand."

The common quail has no pretensions to vie with his Californian congener in beauty of shape and plumage, but, whether he be the "quail" of Scripture or not, he is excellent eating. He is a graceful little creature, not much larger than a lark, and in shape and colouring very like a partridge. The Greeks esteemed him for his sweet voice, though his song is little more than a somewhat shrill call, like the notes of a flageolet. One of our old dramatists refers to him:—



"HE IS A GRACEFUL LITTLE CREATURE."

"Master, my royal sire, do you hear who calls you? Love, my Demetrius!" "These are pretty quail-pipes; the cock will crow anon." The quail is a migratory bird, and seldom visits our British shores until late in May. A few individuals, however, seem to reside here,—chiefly in the northern counties.

In China, Assam, Burmah, the Eastern islands, and in some parts of Australia, is found the dwarf quail, now regarded by naturalists as a distinct genus, and distinguished by a shorter and more rounded wing. The colouring of his plumage is very striking,—olive-brown, and reddish brown, and black, and white, and gray mingling together in

admirable harmony. His favourite habitat is the bush-covered plain, where he leads a solitary and silent life. He seldom makes use of his wings, but runs with great rapidity. His love-call is very sweet; loud at first, and gradually melting away, like a musician's well-executed *diminuendo*.



DWARF QUAILS.

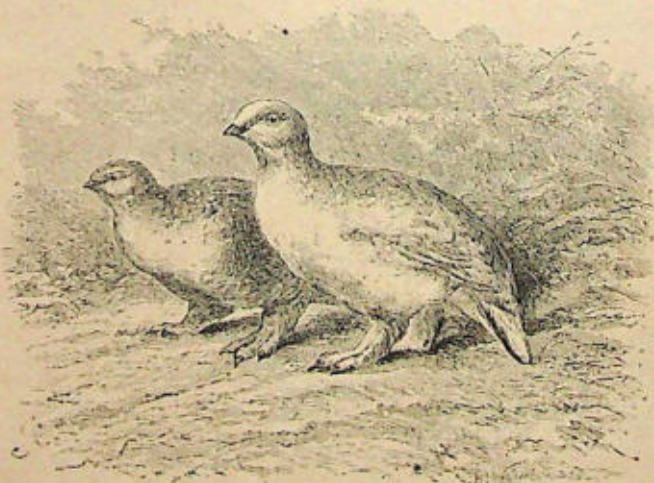
It would be unpardonable to omit all reference to the British sportsman's favourite bird, which attracts him to the breezy moors of Scotland when the 12th of August comes round. It may be doubted whether any feathered game yields to the lords of the soil a more liberal revenue than the grouse. For the sake of the "sport" they afford, scores of English gentlemen rent barren tracts of heath and moorland at sums which seem strangely disproportionate to their real value. Grouse-shooting, indeed, has become one of the recognized pastimes of our wealthier classes; and the moor-cock and the moorhen have been immortalized in song. What says Burns?—

"Now westlin' winds and slaught'rin' guns
Bring autumn's pleasant weather,
The moor-cock springs, on whirring wings,
Among the bloomin' heather."

And again :—

“The heather was bloomin’, the meadows were mawn,
 Our lads gaed a-hunting one day at the dawn,
 O’er moors and o’er mosses, and many a glen;
 At length they discovered a bonny moor-hen.
 I rede you beware at the hunting, young men,
 I rede you beware at the hunting, young men;
 Take some on the wing, and some on the spring,
 But cannily steal on a bonny moor-hen.”

The red grouse, or moor-fowl (*Tetrao Scoticus*), is found in Ireland, among the Welsh mountains, in Northumberland and Cumberland, but chiefly in Scotland. When full-grown, the cock is clothed in a rich dark brown plumage, streaked and mottled and relieved with various lighter tints, except on the belly, where the brown deepens almost into black. The legs are purely or nearly white; and over each eye is a scarlet patch or spot, the distinctive mark, it may be said, of the grouse family. The colouring of the female is somewhat paler. The moor-fowl feed on berries, and the sprays of heather, and other moorland plants,—occasionally visiting the farmer’s stacks, or the corn-field, if such lie near their haunts.



ALP GROUSE.

Among the Alpine and the Pyrenean heights, and in the mountains of the North, the Alp grouse makes his home; with plumage



GROUSE

snowy white in winter, and relieved by tints of brown and red and black in the warm months of the year. He chooses the most open places, where not even a bush affords a scanty shelter. His flight is like that of the ptarmigan, from which he differs in almost every other respect.

Another species of grouse, the blackcock (*Tetrao tetrix*), ranges further south, being met with in the New Forest, on Dartmoor and Exmoor, and in the wilder parts of Cheshire and Staffordshire; while in the rugged Highland glen and the fragrant depths of the pine-wood dwells the famous capercaillie, or cock-o'-the woods, the largest of all the native wild birds of Great Britain. In those romantic ravines and wooded recesses of Caledonia stern and wild where the stag breathes the breezy air in freedom, or gives up his life to the murderous bullet of the deer-stalker,—where the eagle soars high above the dark waters of the loch, and the winds seem laden with mysterious voices of forest and mountain,—there the capercaillie perches on the pine-bough, and makes the echoes ring with his love-call to his wandering mate.

BIRDS AND OMENS.

The auguries and auspices drawn from the movements and cries of birds would furnish material for an amusing volume. No doubt, some of them are the result of long experience, and are justified by the instinct of the creatures; but others it is difficult to regard as anything more than the freaks of a wayward imagination. As far back as the days of Aristophanes, seamen, always a fanciful and superstitious race,—as might be expected of persons accustomed to the dreary wastes and strange weird sounds of ocean,—regulated their course by the omens they drew from the Bird World.

Προερεῖ τιστ' αἰ τῷ θρνίθῳ μαντινομένῳ περὶ τοῦ πλοῦ,
 Νυνὶ μὴ πλεῖ, χεῖμῶν ἔσται· νυνὶ πλεῖ, κέρδος ἐπέσται.

That is:—

From birds in sailing men instructions take,—
 Now lie in port, now sail and profit make.

Coming down to modern times, we find a writer asserting that “sea-mews, early in the morning, making a gagging more than

ordinary, foretold stormy and blustering weather." Another tells us of "ducks, mallards, and all water-fowls," that "when they bathe themselves much, prune their feathers, and flicker, or clap themselves with their wings, it is a sign of rain or wind." And, he adds, it is the same with "cormorants and gulls." Barry Cornwall has immortalized the old fancy respecting the stormy petrel:—

"O'er the deep! o'er the deep!
Where the whale, and the shark, and the sword-fish sleep,
Outflying the blast and the driving rain,
The petrel telleth her tale in vain;
For the mariner curseth the warning bird
Who bringeth him news of the storms unheard.
Ah! thus does the prophet of good or ill
Meet hate from the creatures he serveth still!
Yet he never falters. So, petrel, spring
Once more o'er the waves on thy stormy wing."

Macgillivray remarks that the several species of stormy petrels—so called because they seem to walk upon the water, like the Apostle Peter—are confounded by mariners under the general name of "Mother Carey's chickens;" and that they are held in abhorrence by sailors,—being supposed to prognosticate stormy weather, especially when they fly around a vessel or in her wake. The circumstances under which they approach ships are not correctly stated. According to some authorities, they come up before a gale for shelter; their rapidity of flight enabling them to outstrip it. Others allege that, in calm or rough weather, before a calm and before a gale, they equally make their appearance; with the simple object of picking up the fragments of food raised by the agitation of the water, or such as are thrown overboard.

The Wiltshire rustics were accustomed to say,—probably they are wiser now,—

"When dotterel do first appear, it shows that frost is very near;
But when that dotterel do go, then you may look for heavy snow;"

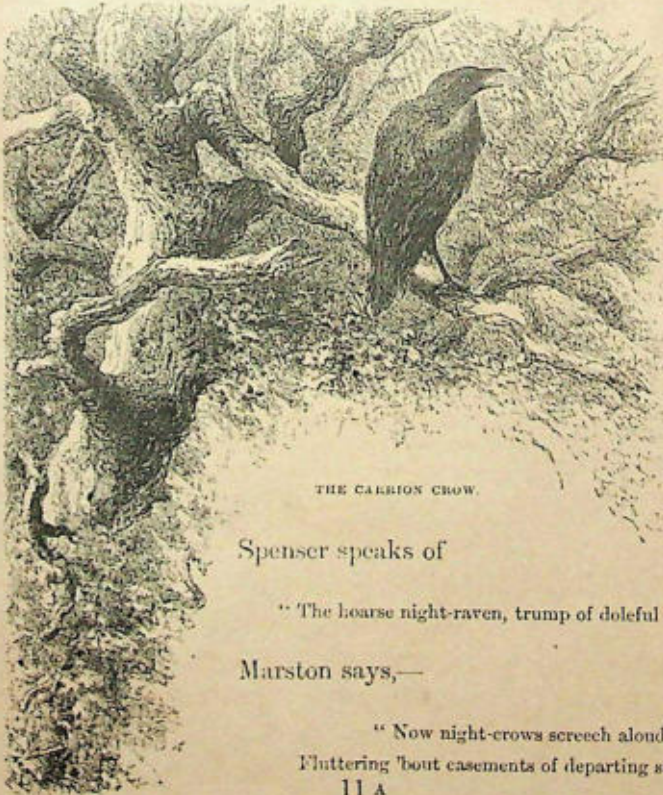
a couplet which may be understood as expressing a certain amount of "seasonable" truth. Pennant records that "the great auk," a bird now extinct, "is observed by seamen never to wander beyond sound-



CAPERCAILLIE.

ings; and according to its appearance they direct their measures, being then assured that land is not very remote." The classic myth which invests the halcyon, or kingfisher, with a certain poetic charm survived to a comparatively late period: "Halcyon," says Willsford, "at the time of breeding, which is about fourteen days before the winter solstice, foreshows a quiet and tranquil time, as it is observed about the coast of Sicily, from whence the proverb is transported, the *halcyon days*."

Hitherto we have confined ourselves chiefly to sea-birds, but, if the reader will pardon the digression, we may go further a-field, and remind him, for example, of the grisly character borne by the carrion crow,—supported by the insatiable appetite with which it preys on the dead and dying animal,—and the superstitions which have so long been connected with the raven.



THE CARRION CROW.

Spenser speaks of

"The hoarse night-raven, trump of doleful dreer."

Marston says,—

"Now night-crows screech aloud,
Fluttering 'bout casements of departing souls."

And Shakespeare:—

“ Oh, it comes o'er my memory
As doth the raven o'er the infected house,
Boding to all.”

It seems to have been a general belief that both public and private calamities, sickness and death, war and rebellion, were portended by this most ominous bird. Quaint Alexander Ross is of opinion that He who employed a raven to feed the prophet Elijah, may employ the same bird as a messenger of death to others,—which seems but indifferent reasoning. He adds that Cicero was forewarned, by the noise and fluttering of ravens about him, that his end was near at hand. It is this eery character of the bird that lends so much gloomy force to Poe's poem of “The Raven.” Had he chosen any other, the same impression would not have been produced on the reader's imagination. In Ainsworth's “Rookwood” he is made to play an important part, and in many a legend he figures in association with death or disaster. It would be interesting to know why and when he attained to this melancholy distinction. No doubt he is clad in suit of sable; but his eye is bright, and his bearing bold, and we see nothing in his appearance to justify the evil words that have been hurled at him for centuries.

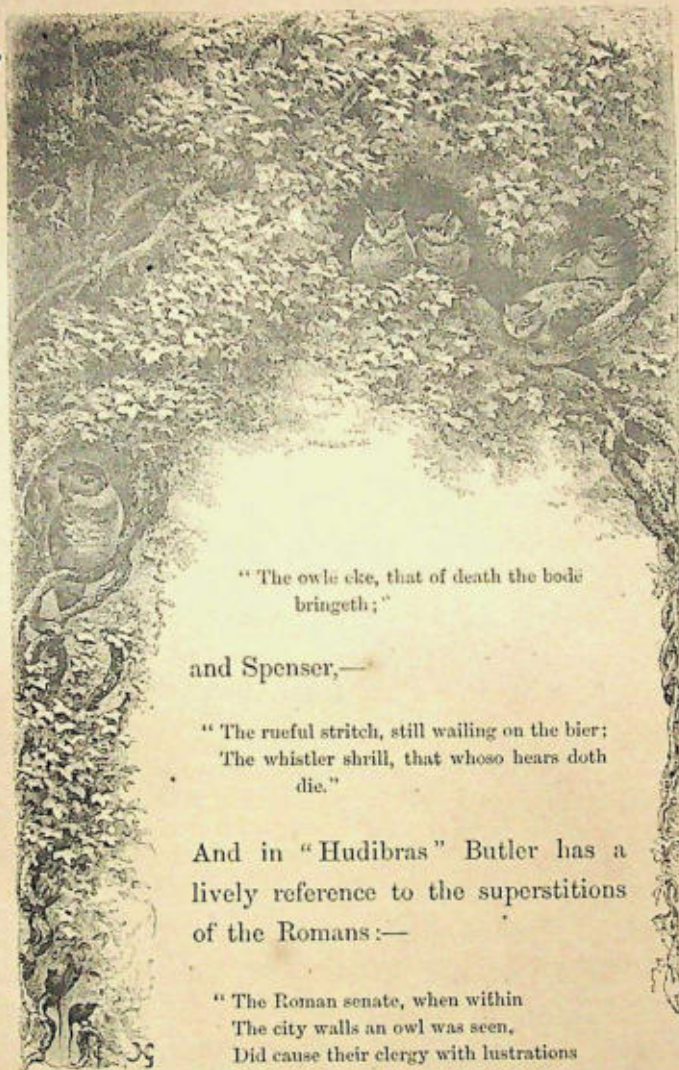
In his marvellously fine picture of “The Haunted House,” which it is difficult to read without a shuddering sensation, Hood tells us that

“ The startled bats flew out—bird after bird—
The screech-owl overhead began to flutter,
And seemed to mock the cry that she had heard
Some dying victim utter.”

It is a question whether, with our forefathers, screech-owl or raven bore the worse character. As Bourne justly observes, an owl was reckoned a most abominable and unlucky bird; and when it sent forth its hoarse and dismal voice, everybody regarded it as a presage of some dire calamity and terrible misfortune. Thus Chaucer speaks of—



CARRION CROWS AND THEIR PREY.



"The owle eke, that of death the bode
bringeth;"

and Spenser,—

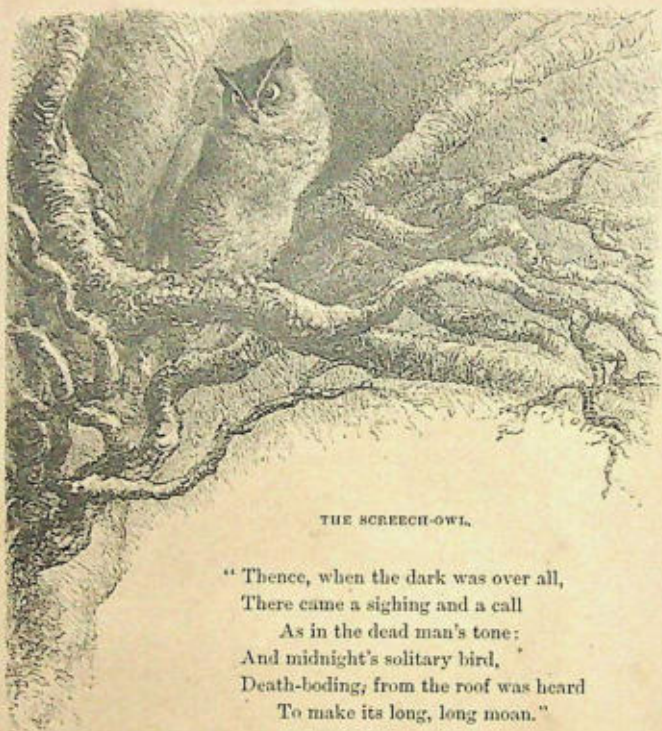
"The rueful stritch, still wailing on the bier;
The whistler shrill, that whoso hears doth
die."

And in "Hudibras" Butler has a
lively reference to the superstitions
of the Romans:—

"The Roman senate, when within
The city walls an owl was seen,
Did cause their clergy with lustrations
(Our synod calls humiliations)
The round-faced prodigy t' avert
From doing town and country hurt."

But from the days when Romulus and Remus agreed that a flight of birds should decide the possession of the infant Rome, ornithomaney—as Ennemöser calls it—was held in great esteem by Roman philosophers, statesmen, warriors, poets, and citizens. Virgil consecrates in a tenderly-beautiful passage the popular belief in the prophetic character

of the owl. When Dido, shortly before her death, stands in front of the altar in the marble temple of her ancient spouse, she hears the voice of omen:—



THE SCREECH-OWL.

“Thence, when the dark was over all,
There came a sighing and a call
As in the dead man's tone:
And midnight's solitary bird,
Death-boding, from the roof was heard
To make its long, long moan.”

Among other portents before the death of Valentinian, an owl sat upon the roof of the pavilion where he generally bathed, and could not be driven away even with stones. So, too, prior to the decease of the Emperor Commodus, an owl was observed to take up his position on the top of the imperial palace, both at Rome and at Lanuvium. Xiphilinus, discoursing upon the prodigies that preceded the death of Augustus, asserts that the owl screamed on the top of the Curia; and that the Actian war was prefigured by the flying of owls into the Temple of Concord. On the other hand, the Athenians always looked upon the appearance of the owl as a fortunate sign. Hence the proverb, γλαῖξ ἵπταται, “The owl is out,” signified, “We have good luck.” In England, however, this view of the

owl has never obtained. To most persons the aspect of the bird is repellent, and seems to justify all kinds of wild weird notions. The "ink-faced owl," therefore, has become "death's dreadful messenger;" and, as Addison says, a screech-owl at midnight will awaken more alarm than a band of robbers. To this day do we not all feel that a certain ominous and sombre tone is given at the outset to Keats' "Eve of St. Agnes" by its significant opening line,—

"The owl, for all his feathers, was a-cold"?

MORE WATER-BIRDS.

The bold, wind-swept headland, the lofty cliff resounding with the thunder of incessant waters, and the craggy islet, are the cormorant's favourite habitat. In such localities he is found in great numbers; for in such localities he can supply himself with abundant food. When the tide has ebbed, you may see him and his comrades standing idly on the rocks, some with wings expanded, to dry them in the warm sunshine; others reposing, with the head sheltered under one of the grayish brown wings, or directed forwards on their retracted neck. At the approach of a boat they immediately take flight, launching in a curved line, and flying low over the water, moderately swift, but always soberly and in silence. They nowhere alight on land, except on rock; and owing to the structure of their feet and body, their motions in walking are exceedingly awkward. On the sea they alight heavily, and sit deep in the water; and when alarmed they sink deeper and deeper still, until they are almost invisible. The ease and swiftness with which they swim is extraordinary; and so is their dexterity in diving. They make a sudden dart or dash, not opening their wings until they are below the surface, when they employ them, as well as their feet, to propel themselves. They move forward several yards, when they rise from the water into the air; and apparently, before they can fly freely, considerable exertion of the wings and feet is necessary.

The cormorant lives upon small fishes, up to the size of a herring; whether living or dead, matters nothing; and his voracity has made his name proverbial. He is found on almost every rocky coast, where he may be seen perched on a wind-beaten tree, or on a weather-worn

crag, occasionally uttering a low, hoarse croak, which the dwellers by the sea regard as an omen of storm and evil.

We do not know why this mention of the cormorant should suggest to us thoughts of the bittern, except it be that the booming voice of the latter, like the croak of the former, was at one time associated with superstitious fears. Thus Bishop Hall, in his "Characters of Virtues and Vices," speaking of the credulous man, remarks that "if a bittern fly over his head by night, he makes his will."

The bittern, the bird of desolation of Scripture, is always associated with the waste places of the earth and the shattered ruins of human glory. Her home is in the rushy and reedy growth of the wilderness, and by the pools of water. Mudie gives a very graphic description of her customary haunt. "Keep," he says, "if you would track her to her home, the line of the rushes, for a thick tuft of those sturdy plants provides a safe foot-fall in any bog. You may start on your way the suspicious lapwing or the lively wagtail; and should there be a breadth of clear water, you will see, perhaps, the wild duck, with her young brood, sailing statelily out from the depths of the rustling reeds; or, should the pool be smaller, the brown and yellow snipe gliding through the herbage on the bank with a stealthy movement.

"In the tuft of tall and close herbage, not very far from the firm ground, but yet so placed near or in the water that you cannot very easily reach it, the bittern may be close at the time, wakeful, noting you well, and holding herself prepared to 'keep her castle'; but you cannot raise her by shouting, or even by throwing stones, the last of which is treason against Nature in a place solely under Nature's dominion. Wait till the sun is down, and the last glimmer of the twilight has got westward of the zenith, and then return to the place where you expected to find the bird.

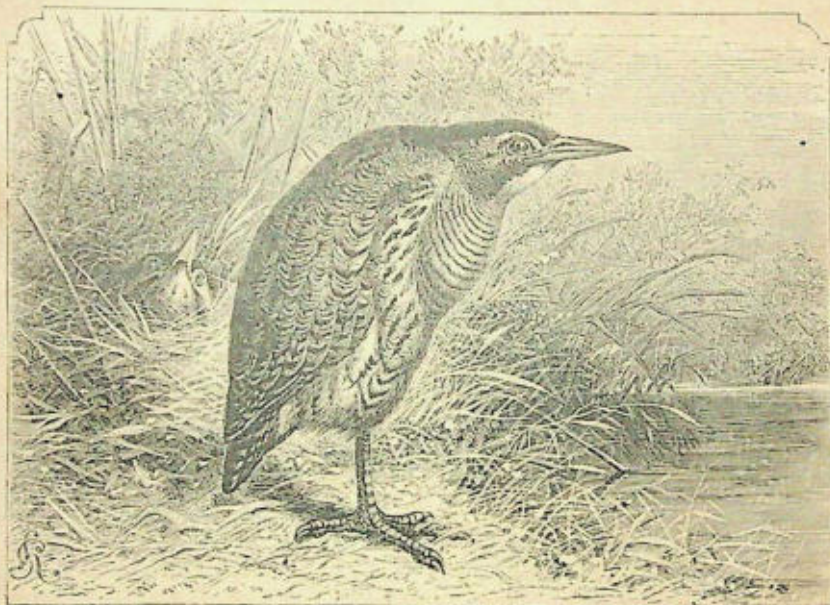
"The reeds begin to rustle with the little winds, in which the day settles accounts with the night; but there is a shorter and a sharper rustle, accompanied by the brush of rather a powerful wing. You look round the dim horizon, but there is no bird: another rustle of the wing, and another, still weaker and weaker,



FLIGHT OF CORMORANTS.

but not a moving thing between you and the sky around. You feel rather disappointed—foolish, if you are daring; fearful, if you are timid. On, on, a burst of uncouth and savage laughter breaks over you, piercingly, or rather gratingly loud, and so unwonted and odd, that it sounds as if the voices of a bull and horse were combined, the former breaking down his bellow to suit the neigh of the latter, in mocking you from the sky."

This, we are told, is the bittern's love-song; but we are fain



THE BITTERN.

to think that its character is somewhat exaggerated. No doubt it has a loud booming sound, like the far-off report of a heavy gun; but it does not deserve to be stigmatized as a "burst of uncouth and savage laughter." It resembles rather the bellowing of an ox, and is audible at a considerable distance. This bellowing is based on one principal note, which a German naturalist expresses by the word *uproumb*. On approaching nearer, you catch another sound, like that which is produced by striking the water with a stick.

The nest of the bittern is always hidden among the reeds in

a locality well concealed and difficult of access. Its structure varies considerably, according to the conditions under which its builder works. Generally, it rises above the surface of the water, perched upon the withered stems of bended reeds; sometimes it rests on a little islet of rushes or a mound of earth; and sometimes the water cradles it softly. At times it is a rude but capacious heap of divers materials; at other times, of smaller size and better construction, composed externally of reeds, dry leaves, and rushes, and lined with dry grasses and reedy tops.

The bittern receives from Brehm anything but a favourable character. Idleness, sluggishness, timidity, wariness, cunning, and maliciousness; such, we are told, are his predominant qualities. He lives for himself only, and seems to hate all the rest of animal-kind: the lesser creatures are his prey, and he kills them; the greater are his enemies, and if they approach him too closely, so as to threaten the sanctity of his Lares and Penates, he attacks them. Before an adversary much stronger than himself, he beats a retreat as long as possible,—well! and has not Falstaff said that discretion is the better part of valour?—but, when pushed to an extremity, pounces upon him with incredible fury, and deals his blows with equal strength and skill. Man himself is compelled to be on his guard, if he would avoid very serious wounds. Captivity does not modify his instincts; young bitterns, carefully trained, exhibit all the defects of their free congeners. Their fantastic attitudes and bearing are unable to overcome the antipathy which they are not slow in awakening.

This is severe criticism; and one would like to hear what the bittern has to say on the other side of the question!

In the beautiful lochs of Scotland, as well as in its streams and pools, and in the streams and pools of the less frequented districts of England,—wherever the water-lily spreads its broad green leaves, or the banks are fringed with flags, and sedges, and rushes, the coot leads a merry life,—swimming to and fro in search of the molluscs, insects, and succulent blades of grass on which he

feeds. "Sometimes," says Macgillivray, "he makes excursions into the neighbouring fields, where he walks and runs in precisely the same manner as the water-hen, and with equal ease; but he is not quite so ready as that bird to quit his safe retreat on the waters. He is extremely shy and vigilant, instantly betakes himself to flight when approached, but very seldom flies off unless one comes suddenly upon him, or a shot be fired at him,—when he rises at a very low angle, splashing up the water with his wings and



HAUNT OF THE COOT.

feet, proceeds but to a short distance, and alighting, conceals himself among the reeds or equiseta, and remains there until the danger be over."

The coot dives with ease and grace, and in summer gives utterance to a loud abrupt call, not unlike the note of a trumpet.

BIRDS OF THE ISLES.

We have hitherto confined our wanderings to the mainland. The reader may now be not unwilling to accompany us on an excursion to

"the isles of ocean," in order that he may make acquaintance with the peculiar habitat of many species of birds as yet unnoticed.

The coasts and shores of Great Britain and its isles are the haunts of legions of ocean-birds. Thither they come from the far, far North,—at least, those species which are not permanent inhabitants,—and blur every cliff and headland, every stretch of ribbed sand and pebbly beach, with moving wings. The chalk-cliffs of Kent and Dorsetshire, the bleak iron-bound coasts of Cornwall, the low and marshy shores of the fen-counties, the granite walls of Argyleshire, the massive Northumbrian and Yorkshire ramparts, the wild wave-worn islands of the Hebrides,—all these are haunted by birds innumerable, so various in their species and their habits that volumes might be devoted to a description of them. We can but glance at a few, either of the birds or their favourite localities.

Off castled Bamborough lie the Farne Islands, associated with the memories of St. Aidan and St. Cuthbert, and of one not unworthy to be named with them, Grace Darling,—

"The maiden gentle, yet at duty's call
Firm and unflinching as the lighthouse reared
On the island rock, her lonely dwelling-place;
Or, like the invincible rock itself, that braves,
Age after age, the hostile elements,
As when it guarded holy Cuthbert's cell."

These, like St. Kilda in the north-west, and many another rocky isle and islet, offer a rich field of inquiry to the ornithologist. Mr. White, narrating a visit to them, says, "The nearer we came to the outer group the more numerous did we find the birds. Thousands," he adds, "were swimming in the water; young broods, learning how to take care of themselves, under the eye of their parents." Landing on Staple Island, he and his companions were soon among the eggs, and had to tread warily, for, lying anywhere upon the turf, and without any appearance of a nest, they might easily be crushed. But where were the young birds; had they all taken wing? No; with a stick and a shout the awkward-looking creatures were started from their hiding-places, where it was easy for the inexperienced eye to miss them, from the

resemblance of their colour to that of the ground. Meanwhile, the old birds flew; wheeling and screeching, over the heads of the intruders; at intervals settling down upon some hummock or ridge at a little distance, whence they could survey the field of action.

Speaking of the cliffs, Mr. White informs us that every nook and ledge, and every projection and vantage-point, have their occupant. Here and there lies an egg, and you marvel it does not roll off into the sea; but, on examining one, you find that it is conical in shape, with straight sides, not bulging like eggs laid in a nest,—and hence their tendency to glide down a slope is neutralized. At another place sit three or four youngsters in a row, their yellow bills and white downy breasts contrasting pleasantly with the dark-coloured rock; motionless these, and silent, while those on the summit jerk their heads up and down incessantly, and fill the echoes with their loud chattering and screeching. There are gulls and gannets, terns and guillemots, mews and kittiwakes, and many another. At times we catch sight of a puffin, or coulter-neb, easily recognized by his curious beak, commemorated in the old rhyme,—

"Tammie Norie o' the Bass
Canna kiss a pretty lass."

Their notes, as is the case with all sea-birds, are by no means plaintive or musical, but harsh and discordant. If they are the voices of the sea, it is of the sea in its angriest and most churlish moods.

We have already spoken of the cormorant, but we cannot resist the temptation to accompany Mr. White on a visit to one of his haunts. The surface of North Wawms is rugged in the extreme; patches of peaty soil, ridges and slopes of rock, fissured and split in all directions, and frequently intersected by deep gullies. Here the eider-duck breeds, differing in her peaceful habit from the noisy tribes that frequent the island, and retaining still the gentleness of disposition first bestowed upon her, as the monkish chroniclers say, by St. Cuthbert, who loved the eider-duck with a special love, and trained her to build near his oratory. As for the gulls, the puffins, and the sheldrakes, the air rings with their clang and clamour. Mr. White tells us that "it was curious

to see how they rose at our approach, and settled down once more as we advanced, so that we had a flock of birds always behind and before us on the ground, and one attending us with wild shrieks in the air. Anon, we saw a range of black objects sitting, as it seemed, on thick cushions, and were aware of a noisome smell of fish. They were the cormorants on their nests; and, as we came nearer, one after another flapped its wings, rose sullenly, and flew circling over us, now and then sweeping down on a sudden close to our heads, and mingling their harsh croaking cry with the general din."

There is—to us, at all events—a peculiar attraction about the Islands. They seem to be the natural haunt and home of fair Romance. Old-world legends and poetic fancies invest their shores with "the consecration and the poet's dream." Aphrodite, the divinely beautiful, was worshipped in an island. Ariadne, when deserted by her perfidious lover, was left to mourn in an island-solitude. Theocritus, chief of pastoral poets, was born in an island. Poetry and History both claim the islands as their own. Think of Ægina and its heroes; of Capri and its imperial splendours; of Scio, Homer's birthplace; of Rhodes, where the Christian knights withstood so gallantly the onset of the Moslem; of Cyprus, with its recollections of Richard the Lion-hearted; of Ischia, the retreat of Vittoria Colonna; of that island in the blue Ægean where Haidee and young Juan loved not wisely but too well; of Madeira, discovered by an Englishman and his fair bride; of that fair, palm-fringed isle in the Pacific, where Enoch Arden heard the chimes of the marriage-bells; of Pitcairn Island, and its Arcadian community; of that island in the Caribbean Sea which loomed on the rapt gaze of Columbus after his long voyage across the unknown deep; of Calypso's island, with all its magical beauty; of Prospero's isle, with its "sweet noises" and its tricky Ariel. Think of—but have we not proved our case? Is it not true that with the islands, whether smiling under a Southern sun or opposing with strong cliffs the violence of Northern waters, much that is best and brightest in the world's history and the world's romance has ever been associated? And is it not from an island, compassed by the inviolate sea, that the

race of men have gone forth who have bound India, and Canada, and Australia in a common allegiance?

"Grave mother of majestic works,
From her isle-altar gazing down,
Who, god-like, grasps the triple forks,
And, king-like, wears the crown."

Fairest among islands are those of the South Pacific,—those clusters of Eden-isles "lying in dark-purple spheres of sea," which the enterprise of a Cook, a Carteret, a Wallis, a Bougainville revealed to the enraptured West. It is impossible to exaggerate the charm of the wooded slopes that rise gently from the water's edge into a translucent atmosphere; of the shadowy vales, with their profusion of tropical vegetation; of the groves of the cocoa-nut and bread-fruit trees, with their varied and shining foliage; of the white-gleaming coral-reefs, which the ocean spray besprinkles with flashing diamonds. Their leafy shades, however, are comparatively silent.* The rich songsters of Europe and America are there unknown, and it is chiefly the wild sea-birds which resort to their surf-beaten shores.

The gannet and the frigate-bird, the tern and the mew,—these are the birds of the Pacific archipelagoes. The gannet, we may note, is a famous fisher. Soaring high up in the air, he marks his prey beneath him, and, closing his wings, drops downwards with a tremendous "header;" and after a semicircular dive of five or six yards, emerges with a goodly fish lodged safely in his throat. The frigate-bird is not so much a fisher himself, as a depredator on the spoils of other fishers. With his grand sweeping wings he pursues the smaller terns,—not to eat them, but to eat what they have captured. A traveller describes the plaintive shrieks of the tern when he is being chased—indicative of his agony at the prospect of having to surrender his own hard-earned dinner, or the supper he is carrying to his famished nestlings—as heart-rending. He records a curious incident which he one day saw. A frigate-bird was hard pressing a small tern, and would soon have taken possession of the result of his day's fishing, when a larger

* The only singing-bird on Elmeo, for instance, is a kingfisher. His song is something like that of the thrush.

bird of a different species interfered and drove off the pirate, flying away afterwards on his own affairs with the serene satisfaction of having done a good deed.

The tropic-birds are frequently met by voyagers far out at sea; but it is believed that they return every night to dry land, roosting and breeding on the rocks and reefs of the warm Southern seas. Linnaeus conferred on them the generic name of *Phaeton*, or Birds of the Sun; either from the circumstance that they are confined to tropical regions, or because they rise to great elevations in the glare of a tropical sun. The red-tailed tropic-bird is a thing of beauty, with sheeny plumage, elegant form, and both power and facility of flight. From the loudness of the shrill cry which she utters when on the wing, our seamen have nicknamed her "The Boatswain." A distinguished ornithologist more poetically alludes to her as "the fairy of the ocean." At all events, no one who has watched her as a stationary speck, elevated as far as the eye can reach, and defined against the cloudless azure of the sky; or suddenly descending like a falling star, and as suddenly checking her course to hover for a while over the passing vessel; or darting like a meteor, with two long projecting tail-feathers streaming in the air, straight down upon a shoal of flying-fish; or, again, gracefully soaring upwards with her prize, to rest, as it were, in the calm heights above,—no one can refuse to her a tribute of admiration.

The first impression which the tropic-bird produces on the observer is not exactly that, says Tschudi, of a bird of ocean; he is rather inclined to see in her a denizen of land, wandering astray in the infinite wastes of the sea. According to Pöppig, no bird equals her in gracefulness of flight. She seems to swim, to cradle herself in the air. Without any apparent movement of wing or body, she rises to "prodigious altitudes," or nestles upon the aerial waves as upon a solid surface. It is only when engaged in fishing, or in following a vessel, that she is seen to pass from this state of repose into one of rapid and facile motion; descending in a succession of wide sweeps, and continuing to fly round and round the ship. Often she soars so high that an untrained vision is unable to distinguish her; and then, as she basks in

the full glory of the sun, she deserves the significant name which she owes to the fancy of the great Swedish naturalist. Even the careful and sober Bennett is stirred into enthusiasm by this "fairy of the ocean." She is unquestionably, he says, one of the handsomest of the sea-birds, and excites general admiration when the sunshine plays on the beautiful hues of her plumage. Her habits are as gentle and amiable as her flight is graceful, and to watch her evolutions is a genuine pleasure. Ships seem often to attract the attention of her and her companions; they approach and fly round them, descend from on high in regularly contracting spirals, hover for a while at a certain elevation, and occasionally, but rarely, perch upon the yards. When not disturbed, they will accompany the vessel for days, until the latter passes beyond their usual sphere of flight, or some other cause necessitates their departure. They display, when fishing, all their power of movement. Like the sea-swallows, they poise above the same point, keeping a vigilant eye upon everything passing beneath them, and swooping suddenly, with wings unfolded, and almost perpendicularly, down upon the water; using such force and impetuosity that they sink to a depth of several feet, and thus lay on themselves the necessity of violent exertion of their wings and legs in order to recover their balance. Nuttall affirms that they are frequently seen in pursuit of the flying-fish; while Bennett has found in their stomach the remains of cephalopods.

The Earl of Pembroke, in his amusing book, "South Sea Bubbles," furnishes some interesting particulars of these birds, which occur in great numbers on the island of Tubai. He says: "We began shooting the tropic-birds as they flew over us; but we soon gave it up, for two reasons. First, that we found that if we got a rocketter, the chances were ten to one that we cut the scarlet feathers out of his tail; and secondly, because we discovered that by diligent peering under the bushes we might pick up as many live, uninjured specimens as we liked. I never saw birds tamer or stupider; which tameness or stupidity may be accounted for by the extreme smallness of their brain, which is really not larger than that of a sparrow. They sat, and croaked, and pecked, and bit, but never attempted to fly away.

All you had to do was to take them up, pull the long red feathers out of their sterns, and set them adrift again. On Tubai you may pick up tropic-birds as easily as a child picks up storm-worn shells on the sea-shore."

Whether they deserve a character for stupidity or not, it is certain that they are remarkably inquisitive; and it is this inquisitiveness which draws them towards a passing vessel. They want to know what it means, that "speck upon the boundless blue;" and hence their frequent wheeling flights around it, and the persistency with which they follow in its course. The Earl of Pembroke remarks that in their mode of fishing they resemble the terns; but he noticed that they had a way of hovering perpendicularly, with the bill pressed against the breast, which he had never observed but in one other bird, the black and white kingfisher of the Nile. When the "Boatswain" has sighted his prey in this position, he turns over with indescribable dexterity, and goes down straight as a gannet, and up to his neck. "No farther," adds the Earl; which is contrary to Mr. Bennett's statement.

Our voyager found not only the full-grown tropic-birds, but their eggs and young. The former, about the size of a hen's egg, prettily splashed with reddish brown, and laid on the bare sand, under cover of a bush. The latter, handsome little creatures, about the size of a herring-gull, finely marked, like a falcon, with black and white, and with a black bill, which changes to red as the bird grows older. "When you find your young friend under a bush, he is ensconced in a small basin of coral dust, without any nest at all; and his surroundings show him to be a cleanly thing. When you come upon him suddenly he squalls and croaks, and wabbles about, and is as disconcerted as a warm city man when you try to drive a new idea into him unconnected with money. But he sticks stoutly to his dusty cradle, and never attempts to escape; saying plainly enough, 'My mother told me to stop here till she brought me my supper, and here I am going to stay.'"

With reference to two other birds of the sea, the albatross and the Cape pigeon, which both belong to the ocean-region we are now

surveying, the Earl of Pembroke writes amusingly enough. He speaks approvingly of the feeling amongst sailors which induces them to resent the wanton shooting of sea-fowl from the deck. The smallest Cape pigeon becomes a welcome companion in a long voyage, and gives a sense of life and friendliness to the "waste of waters." No one is justified in shooting sea-birds except for scientific purposes or food. They are killed far too easily to admit of any real amusement or display of skill. But it is fair enough, thinks the earl, to *fish* for albatrosses and Cape pigeons; though, in the case of the former, what is it for a man to set his wit against so foolish a bird? This fishing, though the expression may be *more Hibernico*, is a strictly legitimate sport. You gage your intelligence against theirs, and they have no right to grumble, if they lose the game, at paying the stakes. The Earl forgets, however, that they are enticed into playing by crafty lines. Even if you win your game, he continues, you can throw it overboard again, not much damaged, and have a fresh deal. "It is not uncommon for an albatross to be caught, thrown overboard, and caught again, in a very few minutes."

Compared with albatross-fishing, Cape pigeon-catching holds the same relation as trouting to salmon-fishing. Wary and sharp are the little spotted beauties, and fine tackling and delicate handling do they require. The best apparatus is a small gut roach-hook, baited with an infinitesimal portion of fat; while top-baiting with shreds of fat or crumbs of bread is by no means amiss. The albatross cares nothing for the coarseness of the line; but certain rules must be observed even with him,—not because he is cautious, but because he is clumsy and foolish. There seems to be no foundation for the common report that he pounces on his prey, and will with formidable beak split the head of a man overboard. No bird has less "picking up" or "striking power" when on the wing. "I never yet," says the Earl, "saw an albatross which did not sit down soberly and calmly to his dinner; and even then he was as likely to miss it as to get it. Bits of fat, small, and floating from the passing ship, or the fragments of squid from the whale's jaw, are what he seems to be in quest of; and very hard work he seems to have to find them. When an eligible morsel appears, there

is no lack of *convives*,—pecking, cawing, and barking, whilst the sharp little Cape pigeon deftly conveys the morsel from under their enormous bills. The life of an ocean-bird in stormy weather must be a hard and poor one. I suppose when in luck they get a great gorge at once, and *that* lasts them a long time. The albatross rests much more on the water than is generally supposed, and when he alights he is as careful of wetting the soft under feathers of his wings as a lady is of protecting the hem of her petticoat against the mud of the kennel. Let me add that an albatross in a *dead* calm is one of the meanest birds on the wing I have ever seen."

It is evident that one by one the illusions of our youth are disappearing. Even much of the romance of the sea is being taken from us. Who, with memories of Coleridge's "Ancient Mariner" in his mind, has not pictured to himself the majestic flight of the albatross, his courage, and his great strength? And now we must perforce abandon the poetic idea, as we are also compelled to give up the touching legend that so long consecrated the pelican with a halo of maternal devotion! Simple old Bishop Epiphanius, not foreseeing the new light that would be thrown upon Natural History, could write in perfect confidence: "Beyond all birds the pelican is fond of her young. The female sits on her nest, guarding her offspring, and cherishes and caresses and wounds them with loving; and pierces their sides, and they die. After three days the pelican comes and finds them dead, and very much his heart is pained. Driven by grief, he smites his own side, and as he stands over the wounds of the dead young ones the blood trickles down, and thus are they made alive again." Hence the old emblem-writers, or some of them, found in this marvellous bird the type of a good king who gives himself up to the work of promoting the welfare of his subjects. Thus Camerarius:—

"Sanguine vivificat pelicanus pignora, sic rex
Pro populi vitæ est prodigus ipse suæ."

That is—

"By blood the pelican his young revives; and so a king
For a people's sake himself of life is prodigal."

Reusner, quoted by Mr. Green, tells how Alphonsus, the wise and good king of Naples, "with his own honoured hand painted a pelican which, with its sharp beak, was laying open its breast so as with its own blood to save the lives of its young. Thus for people, for law, it is right that a king should die, and by his own death restore life to the nations. As by His own death Christ did restore life to the just; and with life, peace and righteousness." Shakespeare, as is usual with him, sums up, in terse but comprehensive phrase, the conclusion of the whole matter:—

King. Good Laertes,
If you desire to know the certainty
Of your dear father's death, is't writ in your revenge,
That, swoopstake, you will draw both friend and foe,
Winner and loser?
Laer. None but his enemies.
King. Will you know them then?
Laer. To his good friends thus wide I'll ope my arms;
And, like the kind life-rendering pelican,
Repast them with my blood."

But it has long been known that the pelican does nothing of the kind. The pretty fable originated doubtlessly in a peculiar movement of the bird when disgorging food for the nourishment of his young. For this purpose he presses his pouch against his breast; and the red tip of the bill, contrasted with the snow-white plumage of the breast, may, to a careless observer, have seemed to be embued in blood.

We know of no account of the pelican by an English naturalist so graphic and withal so quaintly picturesque as that which is given by the French ornithologist Toussenel. As it is little known to the English public, the following condensation may prove acceptable:—

He begins by affirming that man can hardly help laughing when he first catches sight of these grotesque birds which Nature created evidently in a gay and sportive mood. As if the immense bill, furrowed like a gutter, and supported by a balloon, did not suffice to endow their physiognomy with a sufficiently abnormal character, there are some species (the Australian) which join to their buffoon's mask the acces-

sories of a frizzled peruke, an academician's wig, and a pair of spectacles! Yet we may reasonably infer that the colossal form was called into existence for some useful purpose. It is not that he may stow away his fish in his belly, that our fishing-bird has been provided with a game-bag or fish-basket. And observe, that of all the piscivores he is the only one which is thus equipped. His beak, slender, straight, and compressed, measures ten to twelve inches. The upper mandible consists of one thin flat plate or blade, an inch wide, which is strengthened in the middle by a longitudinal ridge, terminating with a hooked tip. This upper mandible is hermetically encased, as it were, between the two rims of the lower, which are separated from one another by a void, the opening to a "yawning abyss;" the said "yawning abyss" consisting of a double membranous pouch, diaphanous and largely expansible, which Nature has stitched to the neck and the inferior sides of the bill, to serve as a portable bag-net.

Formerly science attributed to this remarkable apparatus a purpose which was wholly chimerical and absurd. In its simplicity it pretended that Nature intended it for a kind of "meat-safe," because the bird had often very long journeys to make in carrying home food to the young! The ancient writers, Hebrew and Roman, were not less fanciful in their conjectures. Some said that the pelican was a great eater, with a constitutional incapacity for profiting by what he ate, so that he was compelled to keep an immense provision in reserve. Others, taking the opposite extreme, affirmed that he was a sensual gastrosophist, with an affection for fish high-flavoured, and, moreover, "done to a turn." *Their* idea of the pouch was of a kind of vestibule or first stomach, in which the fish underwent a preliminary stew. When it was sufficiently tender, the bird swallowed it, and submitted it to a further and final process of cooking in the furnace of his second stomach; after which he ejected it, picked it up again, and dined off it voluptuously, being particularly careful to throw aside the bones and scales. The natural and only correct solution, however, is this: the pelican has been supplied with a pouch to stow away the fish, because he is not designed to work only for himself; and, as his vigour of wing and muscular strength shelter him from the attacks of vulgar

parasites, we conclude that the pelican works only in the capacity of a companion for man.

Vainly, says Toussenel, do the princes of zoological science and short-sighted navigators assure me that the association of man and the pelican in the craft of fishery is a myth; we give no heed to their puerile objections. The best proof of the bird's sociability is his passion for music, which he shares in common with all the allies of man, with the carp as with the lizard. The pelican is distributed over three-fourths of the surface of the globe; and yet only a single people have taken advantage of the purpose for which it was created. His training is not more difficult than that of the falcon or the cormorant; it is a hundred times easier than that of the otter, and probably would prove much more lucrative.

History records a thousand traits which bear witness to the companionability of the pelican, the strong sympathy that draws him towards man, and the duration of his attachments. Who knows not the story of the pelican which lived for sixteen lustres on terms of intimacy with the Emperor Maximilian, faithfully accompanying him in all his military expeditions? On the other hand, it must be admitted that in ancient song and legend he figures as the very type of sadness; the melancholy Jaques of the Bird World; another proof, if other proof were needed, of the ignorance and credulity of the naturalists of antiquity.

The various extravagant fictions on record with respect to the pelican's immoderate domestic devotion, originated, of course, in his habit of extracting the fish in his pouch or game-bag to distribute among his offspring. But a similar thing is done every day before our eyes by the pigeon, the canary, and the goldfinch, without striking us as at all remarkable. The pelican's pouch is certainly a much larger crop than that of the pigeon, as the pigeon's is larger than that of the goldfinch; but, like the pigeon's crop or the ruminant's paunch, it is but a preparatory stomach, in which the provident animal stores up his food to undergo a preliminary softening process, and to be ready at hand—or at *beak*—when it is wanted.

The pelican's flesh, like that of the cormorant, is uneatable, owing

to its rankness, oiliness, and strong fishy odour; an incontestable proof that man has more services to expect from these species during their life than after their death. The pouch, which in form, volume, and colour resembles an enormous pig's bladder, is used in many countries as a receptacle for tobacco. The ladies of Spanish America do not disdain to embroider and filigree it with their dainty fingers, metamorphosing a fisher's equipment into a souvenir of love. The bird's bones are said to make excellent pipe-stems and incomparable flageolets.

Aldrovandus accuses a pelican of Ethiopia of having concealed one day a child in his pouch, and carried it high up into the air! But the story is ridiculously incredible. The pelican, says Toussenel, has as little taste for human flesh as for mischievous practical jokes. He is a bird of gentle nature, and quite incapable of a sorry trick or a shameful action to make the silly laugh. Readers who have not yet made acquaintance with Aldrovandus, are warned that his pages are by no means edifying.

For eighty centuries, or more, the pelicans in their fisheries have adopted the processes of the madrague and the seine. Everybody has not had the good fortune to see the blue waters of the historic Mediterranean, or to be present at the tunny fishery *à la madrague*; but most persons have seen the seine-net in operation. It is an immense net which is thrown right across a stream, and afterwards drawn towards the bank by one of its corners, so as to describe a kind of ellipse; while the fishermen, posted below it, beat the waters until the fish are driven into the circular enclosure formed by the two sides of the net. As the pelicans, with all their knowledge, are ignorant of the art of net-making, they are compelled to make up for the want of engines by prodigious efforts of strategic genius. And in so doing they afford a remarkable illustration of the power of association, a power which in human life is productive of such marvellous results.

We have not forgotten that most fishes, like most birds, are impetuous navigators, whose fins "itch" at certain epochs of the year, and who are arrested in their wayward wanderings only by lack of water. The movement is universal, and makes itself felt in fresh

water as in salt, in the seas, the rivers, the lakes. Fish-eating birds follow up these migrations, just as the swallow pursues the sun in its westward course.

As soon as a stir of expectation is visible among the fish, and they form in columns in the great pools or broad rivers on the banks of which the pelican has made his home, he gives public notice thereof by the sound of his trumpet, and immediately the fishers assemble to determine the plan of their campaign. The place chosen is usually a narrow creek or inlet on the lake, or on the river some shallow or sand-bank at the foot of a fall or rapid. Of course, the selection is governed by the comparative abundance of the destined victims.

As soon as the choice has been made, an aged pelican, and an expert in this kind of work, traces with his wing the line of circumvallation or of investment of the fish. Thereafter a hundred or two hundred birds, all the disposable effectives of the little army, take up their stations one after another in a long row, care being taken to leave an interval of about twelve feet, a little less or a little more, between each; just sufficient, in fact, to allow for the full play of the wings in case of need. The beleaguering completed, and the creek or pass hermetically blocked, the next step is to force the fish towards the shore. Immediately the signal is given by the veteran who has undertaken the task of distributing the soldiery. To his sonorous cry, which is echoed all along the line by the watchful sentinels, succeeds a sound of universal agitation and a continuous flutter. Each pelican rises erect on his feet, and displays the whole scope of his heavy wings, with which he furiously lashes the water, while executing, without moving from his place, a series of rapid gyrations that create a kind of miniature tempest.

Affrighted by the clang and clamour, and the sudden upheaval of their universe, the fish take to flight in every direction. Those shut up between the birds and the shore seek safety by darting shorewards; which is exactly the result aimed at by their persecutors. Continually agitating the surface, and working beneath it, the cordon of sentinels gains and gains, gradually contracting the space between bird and bird until they elbow one another; soon it becomes a living,

impenetrable wall, or a net with closed-up meshes which incessantly advances. The unfortunate fish, driven into a *cul de sac*, and perceiving that no outlet is practicable, spring up into the air in an agony of desperation. A pleasant sight for the pelicans, but one which does not move them from their impassive composure. They know better than to yield to a rapacious appetite which would break their ranks and open up a means of escape to the captives. On the contrary, as the moment for enjoying their harvest approaches they redouble their watchfulness. At length they touch one another breast to breast, the water does not rise above half-way up their legs, and the fish, shut up within the fatal circle, piled together in heaps, float in a sort of stupor. Now the conquerors may disband without danger. The order to slay and plunder echoes down the line; and all at once the elongated necks armed with large bills are thrust into the mass, and the game-bags are filled, and filled, even to over-filling. When the operation is well conducted, and the fishers muster in sufficient numbers, an essential condition of success, the booty will amount to as much as ten pounds weight for each depredator; and, observe, the pelican admits only choice morsels to the honours of his table, disdaining the small fry. A pelican who has captured a fine fish seldom denies himself the pleasure of exhibiting his dexterity. He sends the prize spinning in the air, to render all his comrades jealous of his good fortune, and witnesses of his skill; and then takes care to receive it, head foremost, into his vast pocket.

To labour and fatigue succeed the happiness of repose and the pleasure of the feast. Just as a merry troop of deer-stalkers, after a successful day's sport on the heather-purple moorlands, with appetites keen-set by the fresh mountain air, eagerly direct their steps to the clump of rowans where rest and refreshment await them, so do our phalanx of fishers, loaded with plunder, seek the shelter of the scarped cliff, the height of which protects them against surprises from without, to enjoy a well-earned banquet. This is the time for friendly chat, and for comparing notes on the various incidents of the day; the time for criticism and praise, for self-laudation and long prosy narratives of individual exploits! Each empties his pouch to display his booty, and



PELICANS FISHING.

gloat over the scaly treasures. "Just feel this fine mullet, this fat haddock, this plump eel! Did you ever see finer, more appetizing, or fresher-coloured flesh?" And each fish affords a theme for interminable discussion. However, to all worldly happiness there must be a limit; yes, even to the intemperance of the bill and the lust of the eye! After having given full course to his hilarious voracity, each of our *gastroso-phists* prepares to stow away his capture in his portable "meat-safe," reserving for his supper a particularly choice specimen. This dish for a king he then seizes in his powerful bill, turns and turns it in all directions, swallows it at a single gulp, digests it, and falls asleep. An observer describes as a curious spectacle the long file of great white birds, motionless and slumbering, with the red bill down-pressed on the fish-distended pouch. At a distance, it looks like a row of white-coated Austrian grenadiers, posted on an artificial embankment to defend the passage of the river against a hostile force.

THE PENGUIN.

In all these proceedings, the pelican, it must be confessed, manifests a degree of intelligence, a faculty of comparison and observation, and a capacity for association, which rise far above the standard of that automatic, semi-mechanical "instinct," of old regarded as the attribute of the Bird. But we must now turn from the pelican to the penguin, and from the laughing islands of Polynesia to the bleak shores of the far South.

To the west of Tristan d'Acunha, in the South Pacific Ocean, lies Inaccessible Island; surrounded, as its name implies, by a bold rampart of black cliff, which at first sight appears to the approaching voyager an impenetrable barrier. At the foot of the cliff, but separated from it by a bank of earth, covered with tussock grass, runs a strip of stony beach, incessantly resounding with the roll of the dark-green waves. This lonesome spot is one of the favourite retreats of the penguins, which here collect in all the order and regularity of a civilized community. Penguins, in the popular belief, are stupid birds; but this belief we suspect to have no other foundation than their oddity of appearance. If the characteristic of a bird be the faculty of flight, they

might, it is true, be relegated to some other division of the Animal World, for fly they cannot. The wing in them is little else than a paddle-like fin, covered with short stiff feathers, resembling scales. Their legs, too, are very *unbird-like* in structure; they are situated so completely at the hinder end of the body as to force it, when at rest, into an erect attitude; while the tarsi are short and thick, and the toes are webbed. The tail is short, or it would be very much in the way; and, altogether, we are quite ready to grant the oddity of appearance, so long as the penguin is seen only upon land. The truth is, he is essentially an aquatic bird; the waters are his natural home, and he seldom visits the shore except for breeding purposes. His habitat is the rocky isles of the Southern Ocean, the floating packs of ice that spread over the Antarctic waters, and the bleak coasts of Patagonia and Chili. As a swimmer, his power and dexterity are wonderful; and with his exceptional, paddle-like wings he cuts his way like an arrow, or like anything else that is exceedingly swift, through the stormiest billows.

Mr. G. Bennett, the naturalist, fell in with a penguin colony on Macquarrie Island, in the South Pacific. Within an area of thirty or forty acres, an immense number were collected; some thirty or forty thousand landing during the day and night, and as many going out again to sea. When on shore they were arranged in a manner as compact, and in ranks as regular, as a regiment of soldiers; the young birds having a quarter of their own, as well as the moulting birds, the sitting hens, the clean birds, and so on. In Dr. Richardson's proposed City of Health, the method and order cannot be more exact and praiseworthy. "No trespassing allowed," is the rule in each section; and if a moulting bird should intrude among those which have passed through that disagreeable process, he is ignominiously expelled.

But it is to Inaccessible Island that we are fain to convey our readers. It was visited by the *Challenger*, on her recent scientific expedition; and Lord George Campbell, one of her officers, has recorded a truly graphic account of this penguin settlement.

The species flourishing there is the crested gorfew, which may be thus described: Crest on the top of the head, the outside feathers

of which, above the occiput, are yellow; red eyes, with small black pupils, and a vicious expression; back and head slate colour, and throat and breast white; tail short and black, feet pink, bill red and very, very sharp.

The gorfews make their nests among the grassy tussocks of the earth-bank already spoken of; and as they land from the sea at fixed points, regular roads strike right into their rookeries. "As you come up," says Lord George Campbell, "to a group of a hundred or more squatted on the beach, they all stare at you; then, thinking there's something wrong, all turn together as one, and go hop-hop-hopping over the large stones, their yellow crests flapping up and down, at every hop bobbing their old heads, hunching their old backs, and wabbling their flappers. Away they go, hop-hopping rapidly off, stopping after every jump to recover and make sure of their equilibrium, and altogether ludicrously like a crowd of hunch-backed old men with their feet tied. But the water is the element to see them at home in. When first we landed, we were very much puzzled by seeing a large, odd-looking fish leaping out of the water in shoals, and in this manner proceeding rapidly along. At last somebody said, 'They're penguins!' And so they were,—an odd sight, truly! Among the stems of the tall tussock grass they were sitting about in thousands on their nests, consisting of a layer of grass. It was not pleasant walking in the rookery, dreadfully dirty and horrible smells, to say nothing of the fierce digs we got in our legs, and the fiendish noise—something between the last notes of a donkey's bray and a deep-voiced sheep—a perfect roar, which is kept up day and night, and plainly audible from the ship, sounding on a still night like the roar of a heavy surf."

It was found that no nest contained more than two eggs, and sometimes only one; the said egg being somewhat larger than a dorking's, and coloured dirty white, with brown stains. As for the newly-hatched young, they were horrible, featherless, egg-shaped, palpitating little bits of life. Not unfrequently the eggs were cracked inside by the young, whose bills could be seen projecting. As for the parents, they wore a truly motherly appearance; but when sitting on their nests or guarding their young, would glare at an intruder with

evil eyes, and point ominously at him a wide open beak. They seem able to accommodate any number of *penguinlets* under their ample breast; and if those of another family are consigned to the care of a mother-bird, she immediately takes charge of them along with her own. When the young attain a certain age, they are led to the sea and taught to swim,—the old birds carefully supporting them until they are able to go alone.

According to Lord George Campbell, an endless stream of penguins is perpetually passing to and from the sea; and he describes it as singularly laughable to see them coming down a steep brae from the bank to the beach—a feat they accomplish either by waddling carefully sideways or by straightforward jumps, “looking as if they said, after every jump, ‘Ugh! so far good! now another—ugh!’ as plump they landed after every jump, looking human to the last degree with their pink feet.”

On Nightingale Island, another of the Tristan d’Acunha group, the people of the *Challenger* again encountered the penguins. The whole area of the island is covered with the tall tussock grass among which they delight to build their nests. Lord George Campbell landed with some brother officers, and this is the scene they saw:—

“We landed on the rocks pretty easily, and scrambled up their slippery sides till we came to the tussock grass, which, circled by a *penguin street*, we skirted, till we got to a rock, on the top of which we sat,—hundreds of penguins on the rocks just below us, where was their landing-place, a street from thence leading up into the high grass which surrounded our rock. While we sat here two mollymawks quietly walked out from under the grass behind us, and stood unconcernedly by our side. They are beautiful birds—snow-white throat and breast, black wings and tail, the back of the head and neck tinted a pearly gray, a black bill, with an orange streak along the top of the upper mandible; black eyes, placed under a straight black eyebrow, which, with a soft edging of black around the eye, gives them an odd look of half-fierceness, half-gentleness. This rock appeared to be a starting-point from which, coming from their nests among the grass,

they took their flight. They, as well as the penguins, were nesting,—their nests consisting of a cylindrical column of earth mixed with grass about a foot high, with a slight depression on top, in which was never more than one egg. It was a beautiful sight, as, bending down, we saw these lovely birds among the grass tunnels, which radiated in all directions, looking quietly dignified as they walked or sat on their high nests among the squatting, screaming penguins below and surrounding them. Just above us rose a rocky peak some five hundred feet in height, and up its very steep side we began to climb,—desperate hard work fighting our way through the grass, at every step having to clear away by main force the entangled stems above, below, all around. The rookery extended quite two hundred feet above the sea on this steep slope, and the muscular power in these penguins' legs must be quite enormous."

Traces of puffins, black petrels, and the fierce carrion-gull were numerous; but the attention of the visitors was chiefly directed to the "rookery," which extended all along the hill-side, and down to the sea, with a broad main street, quite bare of grass, winding through the centre. Up and down this thoroughfare the penguins contentedly hopped their way, each keeping, as a rule, his own side of the road. It is wise not to interfere with them, for they have a habit of gathering round you, and pecking viciously at your legs; and what with the odour that fills the air, and the infuriated clamour that rises on every side, and the fracture of countless eggs, there are pleasanter places in the world—dreary as ignorance and vanity picture it—than a penguin colony. Of course, you can knock down your assailants, and slide forward with relentless step; but the victory is one which brings neither honour nor profit. Leave them to their rocky isle, and the wild waters that heave and roll around; and retire in prudent silence, convinced that even in a penguin rookery there is more than *your* philosophy can intelligibly explain!

At all events, the penguins have their troubles. They do not secure these isles and islets all to themselves; and some of their neighbours show a shameful indifference to the rights of property. The sheath-bills, for instance, which prey upon the eggs of the colony, uncon-

cernedly cruising about the nests, and darting at a prize whenever a mother-bird is off her guard. These sheath-bills are not unlike white pigeons, but they have longer legs, and a curious horny sheath drawn over the base of the upper mandible. They are found on the coasts of Patagonia, and on the islands of the Antarctic Ocean, feeding on molluscs, small crustaceans, carrion fish, and the like, and thereby acquiring so foul a flavour that not even a sailor, weary of salt meat and hard biscuit, will touch them.

Some of the gulls, too, are fierce enemies of the penguins. And what numbers frequent these remote, desolate, wind-swept patches of rock! Black-backed gulls, hawk-gulls, carrion-gulls,—the air seems a flutter of wings! Thousands of other sea-birds frequent the same localities,—the pretty Cape pigeon, the broad-winged albatross, the stormy petrel, the black-capped tern, and flocks of ducks, which, as yet, have not learned to dread the presence of man. Lord George Campbell, speaking of Kerguelen Land, the "Land of Desolation," as Cook aptly called it, says that he found there four kinds of birds, all living in holes burrowed into the soft moss and turf—the little gray "prion," two kinds of large petrels, and a little puffin about the size of a stormy petrel. He found also the nests of shags, sheath-bills, terns, and ducks—a duck suddenly starting up from under his feet, sometimes followed by a brood of pretty tiny ducklings, the old mother skilfully pretending to be wounded in order to divert attention from her young. What taught her this stratagem? Kerguelen Land is seldom visited by ships, and she could have had no experience of man's tender mercies. Here the king penguin, a finer fellow than his crested congeners, waddles to and fro—a solemn and a pompous being, with a regal air of indifference which sits well upon him. When ashore he seems to spend his time in standing still, yawning, occasionally pecking at his feathers, and sleeping; never lying down, however, but maintaining a majestically erect position.

THE SOLAN GOOSE.

Various are the species of gulls, and terns or sea-swallows, which haunt the open coasts, and may be seen traversing the wastes of ocean on rapid wing. Nor, among the sea-birds, must we forget the solan



THE BASS ROCK AND ITS INHABITANTS.

goose,—the *Fou de Bassan*, as French naturalists call it,—though, to find its best-known habitat, we must carry the reader away to the isolated mass of trap rock, off the east coast of Scotland, which seems to guard the broad estuary of the Forth. The Bass Rock is not without a history of its own; while its romantic aspect has frequently been reproduced on the canvas of our marine painters. Its declivities, rugged, abrupt, almost perpendicular, are the home of myriads of solan geese; so that the boatman, if, in passing near it, he blow a horn or fire a shot, finds the air suddenly astir with a tumult of wings. Of about the same size as the wild goose, he wears a coat of gray-white plumage, and has a long robust bill, terminating in a point, with mandibles denticulated at the margin. His wings are vigorous, and wide of sweep. As he is exclusively a fish-eater, his flesh is by no means desirable eating. He nests in the holes and fissures of the rock, and lays but a single egg. According to our naturalists, he is a silly bird, with physical faculties greatly in excess of his intelligence. Toussenel describes him as one of Nature's victims; as the serf of the sea, the ocean-boor, a coward, without heart to defend his rights, offering his back to the oppressor instead of his beak. All his "industrial power," all his "means of action" are, so to speak, null and void. He will labour for others to the end of the ages.

It would be a mistake, however, to suppose that the solan or soland goose—the name is corrupted from the Latin *sula*, and a trace of it occurs in Suliskerry, "the gannet rock," St. Kilda—is confined to the Bass Rock. He frequents all insular rocks, or rocky islets, in the Northern waters; voyaging to warmer regions at the approach of winter. The Cornish fisherman is often apprised of the advent of a pilchard-shoal by the appearance of flights of these birds. They abound on the cliffs of St. Kilda and Lundy Island, where every ledge is covered with the rude masses of seaweed and marine grass which form their nests. To the same genus, that of the Gannet, belongs, we may add, the "booby" of the Southern Seas.

ARCTIC SEA-BIRDS.

Dr. Hayes, describing the bleak Arctic scenery of Smith

Sound, speaks of the cliffs as shrouded in great sheets of drifting snow, which rolled over the slopes, and swept down every gorge and valley. Whirlwinds lifted it up from the white hill-tops, and drove it through the air in skurrying storms of blinding, dazzling spray. A glacier hurled its frozen mass through a yawning ravine covered with a curtain of "revolving whiteness." As the bold explorer penetrated into the dark channel, the sun sank beneath a black and ominous horizon. Seaward the aspect of Nature was singularly sombre. Off each bold headland the wild waters were lashed into a weltering mass of foam. On the air were borne shrieks and lamentations, dreary and loud as those of the impetuous blast which, down in the second circle of the *Inferno*, appalled the imagination of Dante; and clouds of snow and vapour were tossed upon the gale, like the condemned souls upon that tyrannous gust:—

" Bellowing there groaned
A noise, as of a sea in tempest torn
By warring winds. The stormy blast of hell
With restless fury drives the spirits on."

It is in such localities as these that the auks, and gulls, and guillemots are found in countless numbers, hurrying northward when the genial influence of spring spreads beyond the Arctic Circle. Then it is that the cliffs are white with the wings of auks, which have left the warm Southern lands for colder shores. Then it is that squadrons of eider-ducks, in admirable array, steer stately into the water-channels that have broken up the fields of ice. Then it is that burgomaster-gulls and gyrfalcons roam to and fro in quest of food; that the snipe's repeated cry echoes from the inland pool; that long lines of cackling geese sail onward to the remotest recesses of the Polar Sea.

In the neighbourhood of the "Sanderson's Hope" of the old navigator, John Davis, and of Mount Krekarsoak, one of the loftiest peaks of the "Land of Desolation," Dr. Hayes came upon a haunt of sea-birds which must needs be described. An immense precipitous cliff, towering, like a wall of shining silver, 2600 feet above the

sea, presented an extraordinary scene. At the approach of the explorer and his companions, its feathered inhabitants rose like a cloud of wings from ledge, and crag, and rocky angle. The flocks increased as they drew nearer. At first it was like the distant sound of a waterfall; then the murmur deepened rapidly, and, close to the cliff, so rose, and swelled, and gathered, that no human voice was audible above it. The din was produced by the sweep of countless pinions, and the shrill cries of the birds perched on the cliff or fluttering near it. Each ledge of the great high precipice, sloping or horizontal, level or irregular, a few inches wide or two or three feet, was occupied by the lummes, sitting on the hinder part of the body, pressed close to one another, with heads turned seawards. Ranged in compact order, they occupied the smallest possible space, and from a distance looked not unlike battalions of soldiers, in white tunic and black kepi, drawn up for review. Those on the lower tiers could easily be counted; higher up the lines could still be traced; on the summit of the cliff nothing was distinguishable. At first the adventurers were puzzled by the immovable attitude of the birds; but they proved to be females, each sitting on its single egg. They build no nest, but deposit the egg on the naked rock. Then the mother raises it with her beak, balances it on one end, and seats herself upon it, as on a right royal throne.

Discharging their guns simultaneously, the explorers brought down a goodly number of victims. How great a change passed over the appearance of the cliff! Every cry was silenced; the birds leaped into the air; the winnowing of their rapid wings was like the breath of a storm pouring down an Alpine gorge; so numerous were the hosts, that as they flew they cast a shadow like a cloud. Some of the eggs, abandoned too precipitately, rolled over the brink, and down the cliff, streaking it with white and yellow.

The birds did not remain long on the wing, however. The main body swooped down upon the waters some four hundred yards distant, and absolutely blackened their surface. Others regained the precipice, fearful lest their eggs should grow cold; and in due time the rest

became possessed with a similar anxiety. What a turmoil then arose, what a clang! They displayed a curiously violent irritation, with bristling feathers menacing one another, screaming at one another, tearing out each other's snow-white plumes, and pecking at each other's eyes. Thousands and thousands were screaming, pecking, fluttering simultaneously. The cause of the dispute was after a while discovered. Some of them, without a conscience, had shamelessly seized on their neighbour's egg!

Sometimes the mother is forced to abandon her rocky post and her maternal task; she cannot die of hunger while waiting for her offspring to emerge into the light of day. It may be that, in taking flight, she carelessly topples down the egg; or her mates, while quarrelling, have accidentally pushed it over the brink of the cliff. On her return it is nowhere visible. As an honest bird, she should be content with her lot; but lummies are as disregardful of the rights of property as our "criminal classes;" and the bereaved mother hastens to appropriate the first egg she can get at. The original proprietor returning, discovers the felony; she too seeks some unguarded treasure; and if she find none, attacks anybody or everybody in her rage, and provokes a general *mélée*. The precious deposit, however, is not always left without a guardian; and the male sometimes acts as a substitute while his spouse attends to the cravings of nature. She is careful, however, to return with the briefest possible delay to her phlegmatic partner, who celebrates his release from an unwelcome duty by clapping his wings and uttering a loud cry of pleasure.

Guillemots are found both in the Northern and Southern regions, always migrating in the winter to the Temperate Zone. Their habitat, as in the case of most ocean-birds, is the wild, bleak, wind-worn cliff, overhanging restless waters. There they breed, and congregate at their seasons of repose; but a great portion of their time is spent on the ocean, in noisy sport, or in pursuit of fish. Myriads frequent the rocky sea-wall which stretches from Flamborough Head to Filey Bay. On its bare ledges the guillemots lay their eggs without the shelter of any nest; in its deep dark crevasses the razorbills and puffins breed; the peregrine falcon and the raven rear their young

upon its lofty platforms; and the kittiwakes build their rude habitations of dried grass wherever a secure place offers.

In May and the early part of June the eggs of the guillemots and razorbills form a considerable article of traffic. They are captured by the following process:—An iron bar is driven about six inches deep into the ground at the top of the precipice; a stout rope is fastened to it, and then thrown down the rocks. The egg-hunter next proceeds to thrust his legs through a pair of hempen braces, which meet round his middle like a waistband. At each end of this hempen belt a smaller rope is reeved through a loophole; and this rope is held tight by a companion, who gradually lowers the hunter down the cliff. While descending, the latter clings also to the stouter rope fastened round the iron bar; and thus supported, passes from ledge to ledge, and rock to rock, picking up the eggs, and storing them away in a couple of bags slung across his shoulders. When these are filled, he jerks the rope as a signal to his friend or friends to draw him up.

Mr. Waterton furnishes a graphic description of his experience of egg-hunting on the Yorkshire coast. As he was lowered down, all apprehensions of danger disappeared before the rush of emotion caused by the intense sublimity and grandeur of the scene. At the base of the huge rampart of rocks the sea-water dashed with regulated fury; thousands of wild-fowl whirled around him; in circling flight rose the jackdaws and the kittiwakes; while most of the puffins, razorbills, and guillemots descended in a straight line, with swift movement of the wings, until they plunged into the ocean. The puffins were easily distinguishable from the razorbills in their descent, as they presented a uniformly dark-coloured back, while the latter are streaked with a faint white diagonal line across the wings. The nests of the kittiwakes were close to each other, and so numerous that it was impossible to count them. On the bare level ledge of the rocks, often not more than six inches wide, lay the eggs of the guillemots; some placed parallel with the margin, others nearly so, and others with their blunt and sharp ends pointing indiscriminately to the sea. They were not fastened to the rock by any viscous substance, but lay bare and

unattached, as on the palm of an outstretched hand. Nine, ten, or even twelve old guillemots were sometimes seen in a line, and so near to each other that their wings seemed almost to touch; when they flew away, disturbed, as many eggs were visible as there had previously been birds sitting on the ledge.

The greatest variety of size and colour imaginable obtains among the eggs. Some are small, others large; some nearly round, others tapering to a point at one end. Some are green, or streaked and blotched with black; others blotched and streaked with a light brown on a ground of milky white. In fact, as Mr. Waterton remarks, and as everybody who has seen guillemots' eggs well knows, Nature has introduced into the colouring of their shells such an endless intermixture of brown, white, green, yellow, and black, that only an artist can give an idea of the beautiful tints and shadings and combinations.

The rock-climbers, says Waterton, assert that the guillemot, when undisturbed, lays only a single egg; but if that be taken away, she lays another; and if that too be removed, she produces a third; and so on. On dissecting a female guillemot, a knot of eggs is found within her; and the rock-climbers say that she can retain or produce these birds, according to circumstances. They also assert that when the young guillemot attains a certain size it manages to climb upon the back of the old bird, which carries it down to the ocean. That this statement is true may well be believed, as old swans may frequently be seen sailing to and fro with their cygnets nestled among their downy plumage.

THE WILD SWAN.

We must not leave the water-birds and the Northern seas without taking note of the wild swans, the migration of which to more temperate climes is one of the most remarkable facts in Natural History. These elegant birds, the very types of grace of form and motion, gather about the lakes and rivers of the sub-Arctic region in September; and in the following month, in flocks of from twenty to thirty, they mount high into the air, with hoarse screams of intelligence, and forming a dense phalanx, wing their way with wonderful swiftness—Lloyd says at the rate of one hundred miles an hour—to the sunnier and more

genial South. The single species of this genus that permanently resides in England is the fantastically-named mute swan, which, unlike most of its congeners, has a soft and not altogether unmelodious voice. She builds her nest among the aquatic plants that fringe the edges of our streams and pools, constructing it chiefly of reeds and rushes interwoven with sedge and grasses, and raising it to a considerable height. The locality chosen is always silent and secluded.



A NORTHERN LAKE.

Our readers will be familiar with the old poetic fable which represented the swan as singing a wonderful sweet song in the hour of death. Tennyson has availed himself of the fiction in a rich and elaborate poem. He first describes the swan's haunt:—

“ The plain was grassy, wild, and bare,
Wide, wild, and open to the air,
Which had built up everywhere
An under-roof of doleful gray.
With an inner voice the river ran;
Adown it floated a dying swan,
And loudly did lament.
It was the middle of the day.
Ever the weary wind went on,
And took the reed-tops as it went.”

Next he expresses the death-hymn of the swan in language of the utmost richness:—



"The wild swan's death-hymn took the soul
 Of that waste place with joy
 Hidden in sorrow: at first to the ear
 The warble was low, and full, and clear;
 And floating about the under-sky,
 Prevailing in weakness, the coronach stole
 Sometimes afar, and sometimes anear;
 But anon her awful jubilant voice,
 With a music strange and manifold,
 Flowed forth in a carol free and bold.....
 And the creeping mosses and clambering weeds,
 And the willow-branches hoar and dank,
 And the wavy swell of the sighing reeds,
 And the wave-worn horns of the echoing bank,
 And the silvery marish-flowers that throng
 The desolate creeks and pools among,
 Were flooded over with eddying song."

We can hardly regret the existence of a fiction which has led to
 the enrichment of our literature with so fine a piece of word-harmony.
 Its origin is due to the ancients, and we meet with a reference to it in
 one of Martial's epigrams:—

"Mollia defecta modulatur carmina lingua
 Cantator Cygnus funeris ipse sui."

Hence the epithet of the "Swan" formerly applied to Virgil, and after-
 wards to Fenelon, and even to Shakespeare, though no epithet could



WILD SWANS.

be more inappropriate to a great poet. A lively French writer, after admitting the vocal deficiency of the swan, undertakes the rôle of her advocate against Buffon, who speaks of her as fitted only to grace our lakes and streams, and for nothing else. She is no musician, he says; but a bird of special intelligence, understanding thoroughly how to combine the useful with the agreeable. Fitted, he continues, for a much higher purpose than the mere embellishment of our private and public gardens. Her mission is to destroy all the sources of contagious infection stored up in the putrefaction of the aquatic plants. She is one of Nature's scavengers. The "born healer" of the malarious fever, her mission is to destroy it; or, in popular language, to "stamp it out." Place a sufficient number of swans in a stagnant water thickly sown with aquatic plants, and at the end of a few months they will have thoroughly cleansed it, and transformed into crystal mirrors its turbid and troubled waves.

The swan, of whom we are here speaking, is the graceful creature, with curved neck, swelling bosom, and snow-white plumage, which has long been accepted by artists as a model of elegance of form. She is a bird of unsullied whiteness, black only about the bill, feet, and eyes. Her average weight is about twenty-five pounds. Her concave wings, which seem to swell before the wind like the sails of a ship, measure upwards of six feet from tip to tip. The long undulating neck, which has suggested to poets a complimentary image of female loveliness—the mistress of Harold the Saxon was called Edith Swanneshad, or the Swan-necked—rounds into a supple serpentine curve. Her well-proportioned bill unites all the conditions of elegance, dexterity, strength. The mandibles are armed with trenchant saws, the upper terminating in a solid horny tip.

Australia, where things vegetable and animal seem to have been designed on diametrically opposite principles to those obtaining in other parts of the world, has its black swans, and Iceland has its yellow-billed swans. The species, however, are not numerous, though they are very widely distributed.

The swan does not live on fish, properly speaking, and does not dive like the duck; facts which have reasonably led our naturalists to

infer that the long neck and trenchant bill were given to her as an instrument to be used in the extirpation of sub-aquatic bulbs and roots. And once in possession of this luminous indication, which confers upon the bird the useful functions of a preserver from infection and a sanitary inspector, the said naturalists were forced to put aside the rash assertion that she was simply an ornamental animal.

The swan, says Toussenel, with some extravagance, but considerable vivacity, is the *Edile* of the waters,—combining the offices of director of hydraulic economy and conservator of the general health! The ancients, he thinks, almost divined her twofold mission, when they consecrated her to Apollo, the god of the fine arts, and to Venus, goddess of beauty; or, in other words, to the two most charming divinities of the old Pantheon.

Greek poets have sung of the swan, as they have sung of the nightingale, the dove, the swallow, and all graceful creatures and creations. With this snow-white "thing of beauty" they delighted in peopling the haunted waters of Hellas, and specially those of Eurotas, the favourite resort of Leda. Because the latter was the mother of "the snowy-necked Helena," they fabled that Jupiter had introduced himself to her under the form of a swan.

Summing up various indications of her popularity, Toussenel bursts out into an animated eulogium on her various admirable qualities. He tells us that he has often spent long hours in watching the male in the performance of his duties as the head of a family; speeding on in advance of his lively brood "under full sail," with wings amorously spread to catch the gentle breeze, tracing a broad furrow on the rippled surface of the lake, and, with head erect and glowing eye, examining the scene before and around; while the mother follows up the rear-guard in an attitude not less haughty, and the little cygnets disport between them with all the careless gaiety natural to youth.

As he glides over the water, without any visible motion of his oars, he forms a perfect image of the screw-steamship, one of the most magnificent conceptions of the higher industry. Nautical science, which has already adapted to the ship the swan's method of progression, will



SWANS ATTACKED BY EAGLES.

not have borrowed all that it can and ought to borrow until it has invented for the action of its machinery a paddle operating like the webbed feet of the swan, so as to effect a forward movement, and, while expanding, secure a new starting-point. It would seem as if Providence had always placed within reach of man the model or type of the marvellous processes which it wished the latter to discover and apply to the advancement of the human race.

Borrowing from the same writer, we may speak of the swan as a model father. But he cannot be praised for his conjugal fidelity, which sometimes lasts only for a single season. The maternal tenderness of his mate is very admirable. Both father and mother carry their young on their back in their first infancy, and provide them with a warm and secure shelter under the elegant canopy of their wings. They never calculate either the number or the strength of the enemies which threaten the safety of their brood, but rush upon them with impetuous fury. With equal gallantry they attack man, the dog, the horse; or await the eagle with heroic firmness,—her head raised, bill extended,—stunning it with a sudden blow, and driving it ignominiously from the reedy pool. She does not hide her nest, because always on the alert to defend it; and even the subtle fox, with all his passion for delicate food, dares not approach the well-guarded home of the cygnets.

The males, however, contend not less furiously among themselves for the possession of the female. In the far Northern waters, the lakes of Iceland and Lapland, where numbers of wild swans live in uncontrolled freedom, sanguinary encounters take place every spring.

Referring once more to the bird's supposed musical gifts, we may fairly conclude that the Greeks originated the picture simply with the view of filling up the sum of perfection which they had attributed to her. A graceful form, courage, devotion, spotless purity,—what more was wanted than a tender melancholy voice, sweeter and more flute-like even than that of the nightingale? The fiction may be excused, perhaps, on the ground that it sprang from the Greek love of perfection and the ideal. In order to render it plausible, or to mitigate it, the poets pretended that this wonderfully melodious voice, this "essence of all



THE BLACK-FACED THRUSH.

sweetness," was heard but once in the bird's life,—that is, in the hour preceding her death. The fable succeeded because it was picturesque, as indeed were all the fables of Greek poetry. It lived by virtue of the Greek genius; and the song of the swan has passed into the language of all modern peoples.

A DIGRESSION.

Among the dense shadowy forests which crown the southern slopes of the Himalaya is found the black-faced thrush, or *Garrulax leucolophus*. His head, neck, and breast are white, with grayish tints, and consequently the black streak which runs from eye to beak is all the more conspicuous. The rest of the body is clothed in a reddish olive-brown plumage. This bird is found in bands of twenty individuals and upwards, who at intervals break out into a fanfaronade, well adapted to stupify and confound the traveller who hears it for the first time. He feeds upon worms, molluscs, insects, and in winter upon berries. His nest is but an indifferent affair; a heap of roots, moss, and grass, hidden in the heart of a thick bush.

Firth furnishes an interesting description of the ways and doings of a captive garrulax, a very gentle and trustful creature. He delighted in being caressed; and would unfold

his wings and assume the most remarkable positions when any person stroked his feathers. A good singer, he was very skilful in imitating the notes of other birds.

His mode of taking his food was sufficiently curious. When a piece of meat or any other fragment was given to him, his first "move" was to fix it firmly between the bars of his cage. But if he received a wasp or bee, he seized it and bit off the tail before devouring it. Large insects he pounded vigorously with his beak. In the same way he killed a serpent about a foot long, after which he pierced its head, and devoured at one gulp nearly half the body.



THE CAROLINA DUCK.

Something must be said about the mandarin duck, which holds in the zoological economy of the Old World much the same place as is occupied by the Carolina duck in that of the New. The latter is a singularly handsome bird, not inferior probably to the swan which tempted Leda; his plumage gleaming with a combination of brilliant greens and purples, toned down by brown and white, which, as we so often read, must be seen to be appreciated. His movements are as graceful as his garb is gracious. And just as much may be said of the mandarin duck, which ranges from the north of China and Japan in the summer, to the south of China in the winter; and feeds, like his Western congener, on grain, the young shoots of water-plants, cereals, worms, molluscs, and insects. Like the Carolina duck, he occasionally perches on old trees. The Chinese look upon him as the symbol of

conjugal fidelity; in wedding processions he invariably figures, and, enclosed in a richly ornamented cage, is offered to the newly married as a present of the highest value. Who knows but the sweet phrase



THE MANDARIN DUCK.

of endearment, "My duck," may have spread from the Celestial Empire into Europe, and thence into our own island, passing through many languages, but always referring to its original cause, the mandarin?

ISLES OF THE EASTERN SEAS.

But we journey now to a fairer region than was ever visited by wild swan or celebrated by Greek poet—the rich islands of the Eastern Archipelago. If, says Mr. Wallace, we look at a globe or a map of the Eastern Hemisphere, we shall perceive between Asia and Australia a number of large and small islands, which form a group having little connection with either of these great masses of land. Situated upon the Equator, and bathed by the tepid water of the great tropical oceans, they enjoy a climate more uniformly hot and moist than that of almost

any other part of the globe, and teem with natural productions which are elsewhere unknown. Here grow the richest of fruits, the costliest of spices. Here giant flowers expand to the stimulating splendour of the sun; here the air coruscates with butterflies of the brightest colours; here disport the most gorgeous creatures of the Bird World; here the uplands bloom with forest-masses of the deepest verdure. The islands we speak of extend over a space of 4000 miles in length from east to west, and of 1300 miles in breadth from north to south. Three among them are larger than Great Britain; in one of them the whole of the British Isles might be set down, and yet a sea of forests would surround them. Beginning with Sumatra, we come in succession to Java, Lombok, Sumbawa, Floris, and Timor. To the north extends another line: Borneo, Celebes, the Moluccas, New Guinea, Bouru, and Ceram. Still further north lie the Philippines. All these enjoy a uniform and very similar climate, and are clothed with an exuberant vegetation. Most of them are more or less volcanic in character. But a careful examination shows that, so far as their natural productions are concerned, they may be divided into two sections, in the westward of which the animal and vegetable life approximates in type to that of the Indian and Indo-Chinese peninsulas, while in the eastward it approximates to that of Australia. The boundary between the two sections is furnished by the strait which separates Lombok from Bali, and Celebes from Borneo. This is what Mr. Wallace—a thoroughly competent authority—advances:—

The great contrast between the two divisions of the Archipelago is nowhere so abruptly exhibited as on passing from the island of Bali to that of Lombok, where the two are in closest proximity. In Bali we have barbets, fruit-thrushes, and woodpeckers; on passing over to Lombok these are seen no more, but we have abundance of cockatoos, honeysuckers, and brush-turkeys, which are equally unknown in Bali, or any island further west. The strait is here fifteen miles wide, so that we may pass in two hours from one great division of the earth to another, differing as essentially in their animal life as Europe does from America. If we travel from Java or Borneo to Celebes or the Moluccas, the difference is still more striking. In the first, the forests abound in

monkeys of many kinds, wild cats, deer, civets, and otters, and numerous varieties of squirrels are constantly met with. In the latter none of these occur: the prehensile-tailed cuscus being almost the only terrestrial mammal, except wild pigs, which is found in all the islands, and deer (probably of recent introduction) in Celebes and the Moluccas. The birds most numerous in the western islands are woodpeckers, barbets, trogons, fruit-thrushes, and leaf-thrushes, which form the great ornithological features of the country. These, in the eastern islands, are unknown; so that the naturalist seems to have passed into a new world, and can hardly understand that so great a change has been effected in a few days, and without ever losing sight of land.

FORESTS OF JAVA.

The forests of Java remind the traveller in many respects of those of Brazil, though the trees of which they are composed are not the same. But there is the same exuberance of vegetation: huge tall trunks, the upper branches of which interlace so as to form an almost impervious roof; and epiphytes and parasitical plants clinging together and to the trees in a network of leaf and flower. The ferns, moreover, are equally abundant, and of the most various and beautiful species. Some of them attain to arboreal proportions, and are of the most exquisite outlines imaginable. The low grounds teem with aroids, amaranths, papilionaceous or leguminous plants, and poisonous euphorbias. The papaw, a native of the West Indies, thrives almost everywhere; the banana, with its long, green, drooping leaves, and green or golden-yellow fruit; the fragrant-flowered screw-pine; and the tall and shapely cocoa-nut palm, with its feathery crown, and its rich clusters of wholesome fruit. Fruit! Where but to Java, and the genial islands of the East, would you go for fruits of the rarest quality, such as Adam might have offered to Eve for her marriage-feast,—more delicious than even the lucent syrups and candied sweets which Porphyro, in Keats's strangely beautiful poem, makes ready for his lady-love! There is the mangostin, with its rich yet delicate and wholly indescribable flavour; the rambutan, of globular form and slightly acid taste; the mango, soft, pulpy, and aromatic; the duku,

pleasantly acid and refreshing; and the durian, malodorous in the extreme, but to the palate tasting like "fresh cream and filberts."

On the higher ground flourishes the useful bamboo, which the natives utilize for the walls of their huts, their masts, spear-handles, baskets, utensils, and implements. Still higher, we come to the lofty fig or *waringin*, the liquidambar, and the cotton-wood tree, while orchids of the most marvellous forms grow upon trunks and branches. Above the region of the fig we enter that of the oaks and laurels, and then ascend to the zone of the rubiaceæ, the heaths, and conifers.

It is between 2000 and 5000 feet above the sea that the forests and ravines of Java display the greatest development of tropical beauty and luxuriance. The plenitude of noble tree-ferns, sometimes fifty feet high, adds largely to the general effect, since of all the forms of tropical vegetation they are the most beautiful and impressive. Deep ravines which have been cleared of timber are thick with ferny growth from top to bottom; and when the road crosses one of these romantic basins, the view of their feathery crests, in varied positions above and below the eye, is so picturesque and strangely lovely as, once seen, never to be forgotten. Scarcely less striking is the prospect offered by the broad-leaved musacæ and zingiberacæ, with their splendid foliage, and curious and brilliant flowers; and the varied forms of plants akin to begonia and melastoma.

THE BIRDS OF JAVA.

And now let us say something about the birds which breed and multiply among all this glorious vegetable growth, or in the low rich lands which have been brought under cultivation.

We give the first place to one of the smallest, because it is also the most numerous—the rice-eater (*Fringilla oryzivora*). As soon as the rice is nearly grown, this bird descends in countless flocks on the appetizing crop, intent upon levying their tithe. The Malays, however, are on their guard. In the midst of the field a little bamboo hut, just large enough to shelter its occupant from the deluges of rain and the burning sun-glow, is perched upon poles high above the rice-stalks. Rows of tall, flexible stakes are placed around each field, and con-

nected together by a string. Numerous radiating lines of such stakes stretch from the house to those already mentioned; and the watcher, generally a child, or some person too old to work, has but to pull any set of these lines to drive the would-be plunderers from this or that part of the field.

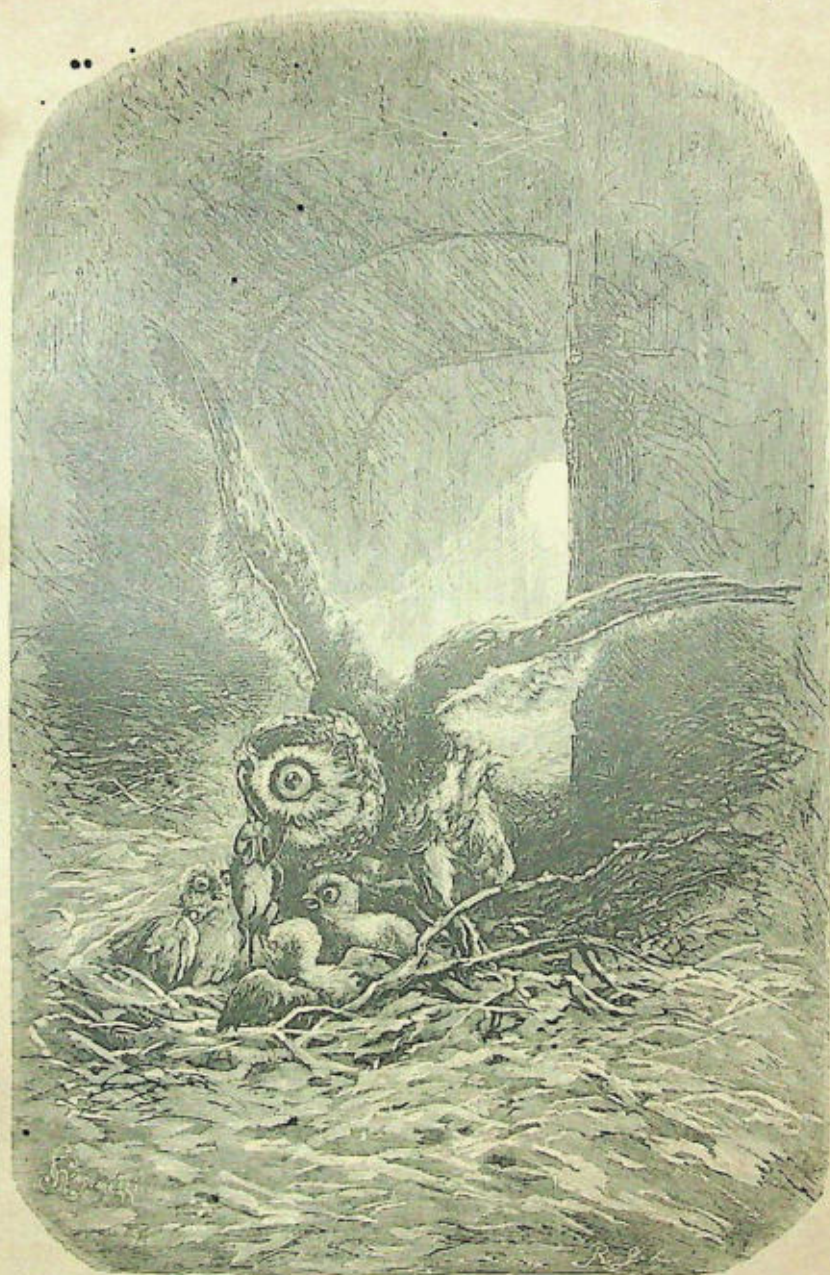
Of owls there are seven species; and when one is heard to raise its *tu-whit, tu-who* near a house, the inmates believe that sickness or some other misfortune is near at hand. It is thus to be noted that,



RICE-BIRDS.

in the East as in the West, the owl has an evil fame; yet she has at all events one excellent quality,—her maternal affection is indubitable.

Of eagles and falcons or kites, eight species are found in Java; one of which is very abundant at all the anchorages, and so tame as to light on the rigging of a ship in the close vicinity of the seamen. Having caught some offal in his long talons, he tears it to pieces with his beak, and swallows it as he sails slowly through the air; instead of flying away to some convenient perch, and consuming it at his leisure, as is the case with most birds of prey.



OWL FEEDING HER YOUNG.

Of pigeons there are no fewer than ten species; but the web-footed birds are rare, comprising no more than a single species of duck, a teal, and a couple of species of pelicans. Flocks of white herons gather along the shores at ebb of tide, and pounce upon any unwary or accidentally stranded fish. Java possesses some beautiful peacocks, the glowing ocellated tails of which measure fully seven feet in length. When the bird is seen feeding on the ground, it seems wonderful that he can rise into the air with such a meteor-streaming train of feathers. Yet he accomplishes this movement with great facility by running quickly for a short distance, so as to secure a start, and then rising obliquely; and in his flight will mount above trees of considerable elevation. The green jungle-fowl (*Gallus furcatus*) is also an inhabitant of this favoured island. His back and neck are finely scaled with bright bronzy feathers; and his smooth-edged, oval comb is of a violet-purple colour, changing to green at the base. A remarkable feature is the one large wattle beneath the throat, diversified by three patches of yellow, red, and blue.

Of the special Java peacock, a bird fit to have stood beside the throne of Juno, Mr. Wallace says that the species is different from that of India—the crest being of a different form, and the neck clothed with scale-like emerald feathers; but the train equally large and equally beautiful. It is a curious fact, in connection with the distribution of animal life, that the peacock is not found in Borneo or Sumatra; while the superb Argus, fire-backed, and ocellated pheasants of these islands are equally unknown in Java. On the other hand, while the peacock abounds in Southern India and Ceylon, we find there none of the gorgeous lophophores and other pheasants which inhabit Northern India. It would seem, suggests Mr. Wallace, that the peacock admits no rivals in his domain. "Were these birds rare in their native country, and unknown alive in Europe, they would assuredly be considered as the true princes of the feathered tribes, and altogether unrivalled for beauty and stateliness. As it is, I suppose scarcely any one, if asked to fix upon the most beautiful bird in the world, would name the peacock, any more than the Papuan savage or the Bugis trader would fix upon the bird of paradise for the same honour."

In the Bornean forests lives the great Argus pheasant, seeking always its deepest recesses, where his sober colours and rich eye-like spots harmonize admirably with the dead leaves that strew the ground. Sir Stamford Raffles says that he is generally seen in company with his mate; and the natives affirm that they disport themselves in the "galangan,"—that is, they dance or "tread a measure," out of pure pride, and for the purpose of displaying their magnificent plumage. The Banjerezi, who inhabit the southern districts of Borneo, call this bird the *haruwe*; the Malays of Sumatra, the *kuwan*. Marsden speaks of him as a bird of remarkable beauty, and perhaps the handsomest of all birds. When one has been captured in the forests, it is very difficult to keep him alive. A captive does not live longer than a month. The bird hates the light. If kept in a dark corner he is lively, and frequently utters his cry, *ku-wan*, which is more piercing and plaintive than that of the peacock. But if brought out into the eye of "garish day," he remains motionless and dull. Later writers, however, affirm that he can be kept in captivity, if fed with his proper food—insects, snails, worms, young buds, and seeds.

The feathered inhabitants of these sequestered wooded glades are very numerous, and most of them are very noticeable. Take, for instance, the blue-billed gaper, or "rain-bird" of the Malays. In size he resembles a starling; his plumage is of a rich claret and jet-black colour, with white slender stripes; and his large broad bill is painted of the purest cobalt blue above, and the richest orange below. Then there are the lovely Eastern trogons, with their beautifully pencilled wings, and crimson breasts, and brown backs; and the large green barbets, with short, straight, bristly bill, and head and neck illuminated by patches of the most vivid blue and crimson. Then there is the green gaper, a kind of living emerald, with black bars relieving the wings. And the eye is further delighted with handsome woodpeckers and bright kingfishers, green and brown cuckoos with green beaks and velvety red faces, red-breasted doves and honeysuckers flashing with metallic hues.

The trogons are interesting birds, which belong to the Western as well as the Eastern Hemisphere. They resort to the sombre forest-



THE PEACOCK.

bowers; and, half-concealed among the leafage, sit motionless upon the branches, until near the close of the day, when they sally forth in quest of their insect-food.

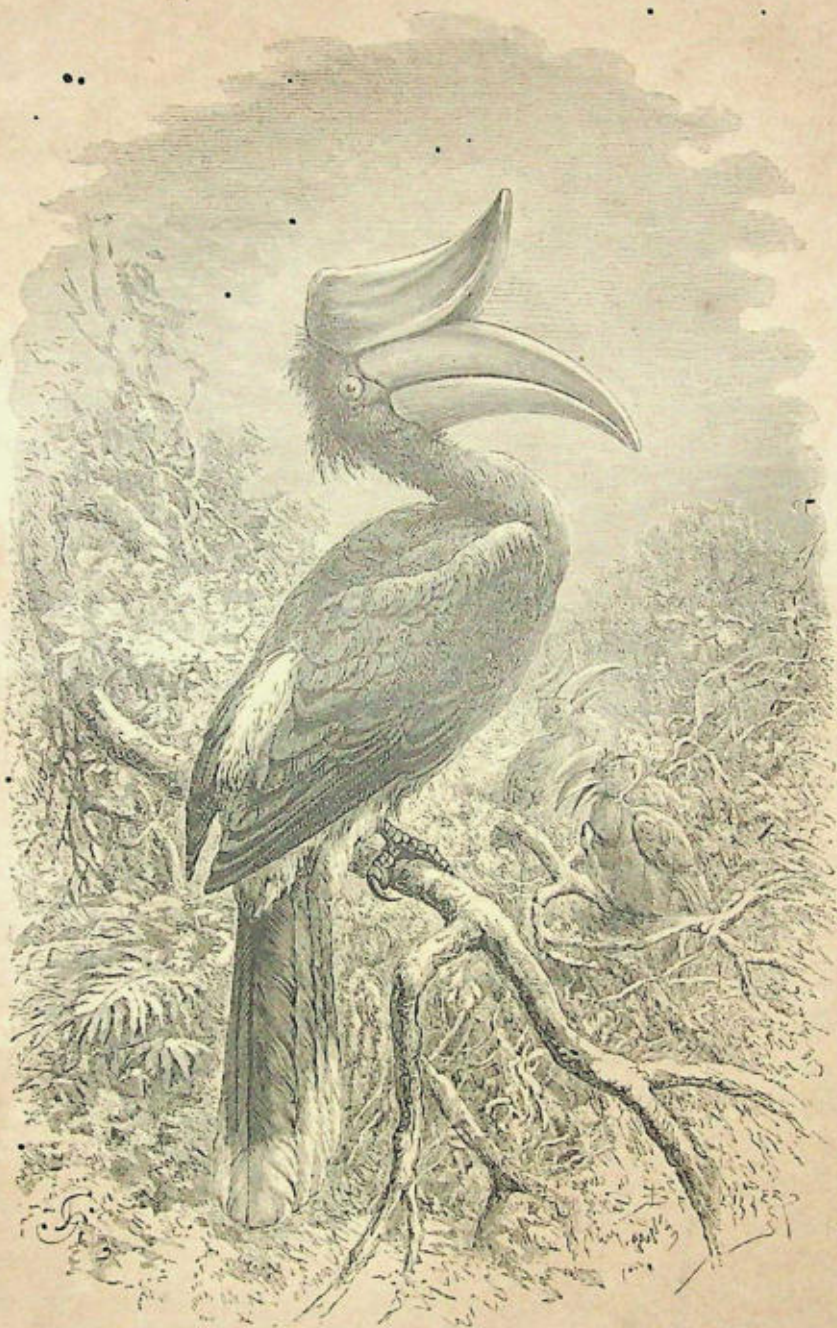
Mr. Wallace, during a visit to Sumatra, came one day, in the course of his rambles, to a large tree leaning over some water. On its lower side, at a height of about twenty feet, appeared a small hole, and a quantity of mud which had been used for plastering it up. Listening intently, he soon heard the harsh cry of a bird inside, and in a minute or two the white extremity of the beak was projected. He offered a reward to any native who would climb the tree and secure the bird, with her egg or nestling; but all declared this was too difficult, and that they were afraid to try. He therefore left the spot. But, an hour afterwards, to his great surprise he heard a tremendously loud screaming, and the bird, together with a young one found in the same hole, was placed at his feet. The youngster proved to be a curious object, as large as a pigeon, and absolutely bare of plumage. It was exceedingly plump and soft, and, with a semi-transparent skin, looked not unlike a bag of jelly to which head and feet had been attached.

The curious custom of the male, to plaster up his spouse and her egg and feed her during the whole period of incubation,—indeed, until the young one is fully fledged,—is common to several species of the hornbills, as well as to the hornrays, of which we shall speak hereafter, and must be accepted as a fact of which no satisfactory explanation can be given. Dr. Livingstone relates that he met with a hornbill at Kolobeng, and it was the first time he had seen the bird. While he was standing by a tree, he heard a native exclaim, "There is the nest of a *korwé*!" and looking round, he discovered a slit about half an inch wide and three or four inches long in a slight hollow of the trunk. Thinking the word *korwé* denoted some small animal, he waited with interest to see what the native would extract. The latter broke a crust of clay which surrounded the slit, thrust his arm into the hole, and brought forth a *tokus*, or red-breasted hornbill, which he killed. He then proceeded to inform the great African

traveller that the female, on entering her nest, undergoes an actual imprisonment. The male plasters up the entrance, leaving only a narrow slit exactly adapted to the form of his beak. The nest is made of the female's own feathers. There she lays her eggs, and there she patiently abides until the young are fully fledged; her partner meantime, like a good *paterfamilias*, providing his family with their daily food. What is the result? One by no means satisfactory as a reward for conjugal and paternal fidelity: the prisoner grows so fat as to be reckoned among the dainty dishes of an African epicure; but the assiduous husband becomes so bare and feeble, that, when a sudden lowering of the temperature occurs after a fall of rain, he gets a chill, falls down, and perishes.

The principal food of the hornbills would seem to be fruit; but no doubt they feed also on carrion, as well as on small mammals, such as rats and mice, which they crush with their strong mandibles, and then swallow whole. The Eastern species evince a decided partiality for nutmegs, and thence their flesh acquires a fine aromatic flavour. They frequent the woods in large flocks, perching on the highest branches, or sweeping through the green fields with great rapidity, and raising at stated intervals their peculiar voice, which is composed "of the transient blast of a bugle and the sudden hiss of an exploding sky-rocket."

Wandering along the shores of the island of Buru, Mr. Bickmore fell in with two species of those remarkable birds, the mound-builders (*Megapodius*),—so called from their singular habit of accumulating great heaps of sticks and sand, frequently twenty or twenty-five feet in diameter, and five feet in height. These great mounds are their nests, where they deposit their eggs. One species, however, burrows deeply in the sand. The natives brought to Mr. Bickmore a specimen which they had captured while she was crawling up from her hidden nest. Mr. Bickmore kept her for some time; but, after laying an egg more than one-third the size of her whole body, she died. Two eggs of the same dimensions were found at the bottom of the tunnel she had excavated in the loose soil. This bird generally comes down from the hills in the early evening to deposit her eggs, and then her wailing cry



RHINOCEROS HORBILL.

is heard; but her shyness is so great that she is an exceedingly difficult bird for the naturalist to procure.

The megapodidæ are found only in Australia and the surrounding islands, extending as far as the Philippines and North-West Borneo. In many respects they are akin to the gallinaceous birds; but they do not sit upon their eggs,—preferring to bury them in rubbish or the soil, and leaving them, like the crocodile, to be hatched by fermentation or the solar heat. They are all possessed of large, robust feet and long, curved claws, with which they rake together the hillocks that serve as a receptacle for their eggs. It is said that frequently several birds will combine their forces to erect a mound, and then lay their eggs together—as many as forty or fifty being found in such a case. The natives regard them as a considerable delicacy. The mound-builders seek the neighbourhood of dense thickets bordering on sandy places or the sea-shore; retiring into their almost impervious coverts on the approach of an intruder. They feed upon fibrous roots, berries, seeds, snails, earth-worms, centipedes, and insects.

In very similar localities is found the beautiful ground-thrush or ant-thrush (*Pitta*), some species of which belong to Western Africa, though he must be regarded as more particularly a denizen of the glowing islands of the Eastern Archipelago. His habit is to hop about on the ground, picking up insects, and on the slightest alarm to seek safety in the heart of the nearest thicket. At intervals he utters a peculiar cry of two notes, which, when once heard, is easily recognized; and he may also be heard rustling among the dry fallen leaves that carpet the ground in the places which he loves to frequent. The different species are differently coloured. For instance: the *Pitta concinna* is admirable in his soft, bright plumage, which shines with emerald hues on the upper part of the body, while the under side is of a delicate buff, striped with rich crimson, and edged with black. The head is a jet-black, with a stripe of blue and brown over each eye. Speaking of the jungle-growth of the island of Lombock, Mr. Wallace remarks that its most characteristic feature was its thorniness. The shrubs were thorny; the creepers were thorny; even the bamboos were thorny.

Everything grew zigzag and jagged, and in an inextricable tangle. It was in such places that the pittas often lurked; as well as beautiful grass-green doves, little black and crimson flower-peckers, large black cuckoos, golden orioles, metallic king-crows, and the handsome, stately jungle-cocks, the origin of all our domestic breeds of poultry. On the palm-trees abound the great, green fruit-pigeons; these exceed in size the largest of our tame pigeons, and feed upon the bunches of palm-fruits, and upon any other fruit which comes in their way. Here, too, flutters the pretty Australian bee-eater. This graceful little creature

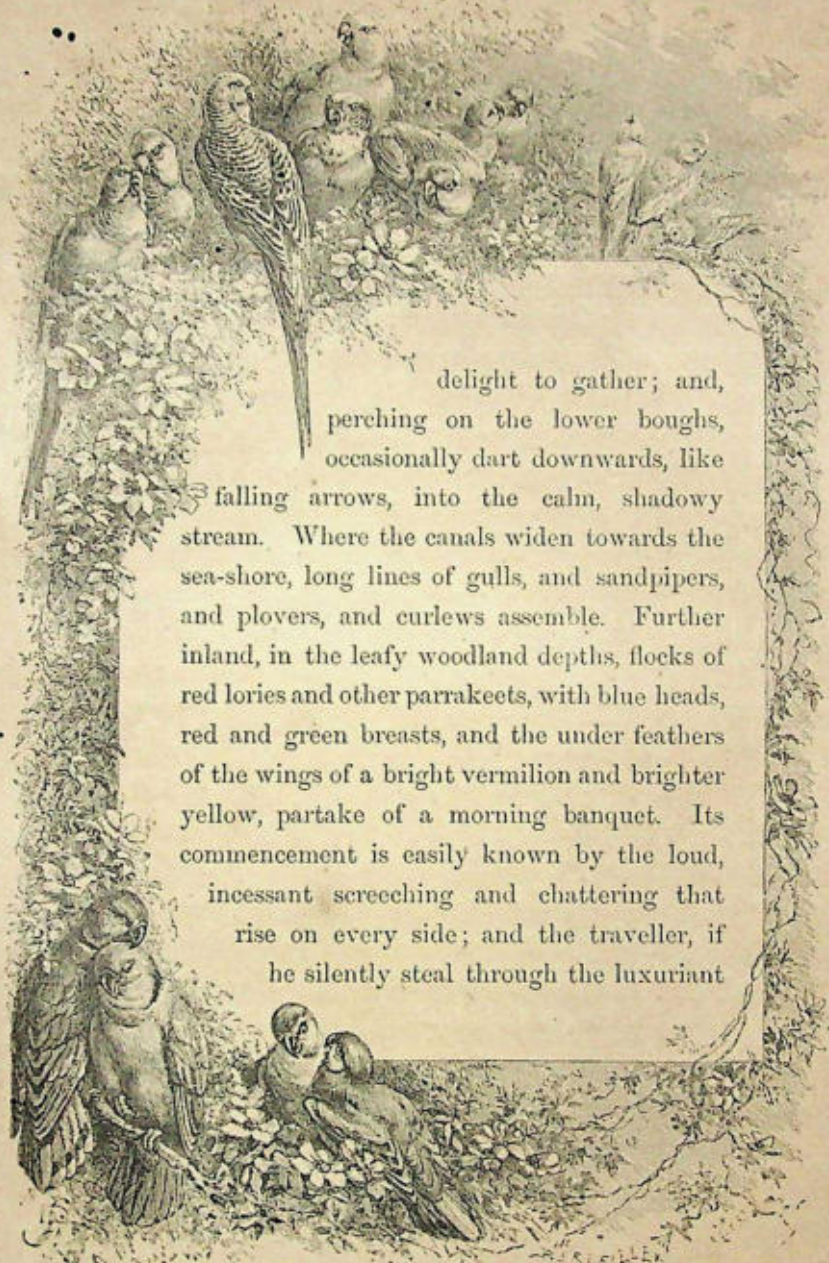


THE KINGFISHER.

sits on twigs in open places, gazing eagerly around, and darting off at intervals to seize any insect which may be flying near, returning afterwards to the same twig to swallow the victim. An elegant and a pretty bird is this, with long, sharp, curved bill, two long, narrow feathers in the tail, and fine green plumage, diversified by a rich brown and black and vivid blue on the throat.

From Mr. Bickmore's pages we borrow a picture of the bird-life of Buru.

In the watercourses which intersect its deep forests, the kingfishers



delight to gather; and, perching on the lower boughs, occasionally dart downwards, like falling arrows, into the calm, shadowy stream. Where the canals widen towards the sea-shore, long lines of gulls, and sandpipers, and plovers, and curlews assemble. Further inland, in the leafy woodland depths, flocks of red lories and other parakeets, with blue heads, red and green breasts, and the under feathers of the wings of a bright vermilion and brighter yellow, partake of a morning banquet. Its commencement is easily known by the loud, incessant screeching and chattering that rise on every side; and the traveller, if he silently steal through the luxuriant

shrubby, will see the great trees filled with scores of brilliantly-plumed birds, flying to and fro, or climbing out to the ends of

the branches, and balancing themselves by their wings, while they make a dainty breakfast on the rich flowers. These are the birds described by Moore as

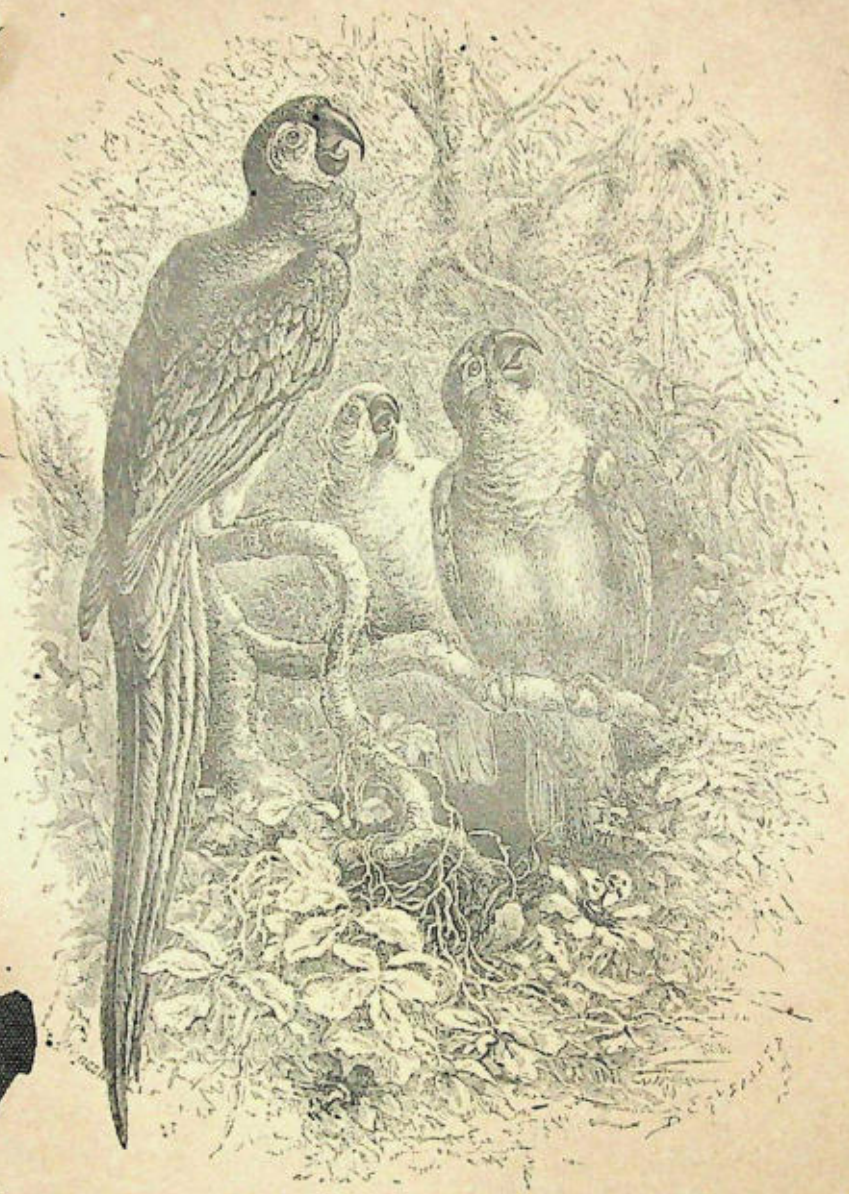
" Gay sparkling lories, such as gleam between
The crimson flowers of the coral-tree
In the warm isles of India's sunny sea."

Among the teak-trees flocks of large green parrots are feeding upon the ripe fruit. Their wariness is such that the hunter finds it difficult to approach them, especially as the large dry leaves which cover the ground continually crack and rustle beneath his feet. To see these magnificent birds, says Bickmore, flying backward and forward in impetuous glee, and utterly unconscious of danger, is a noble sight; and it seems little less than actual wickedness to shoot one, even when it is to be made the subject, not of idle gazing, but of careful study. When a parrot has been wounded, not only its mate, but the whole flock, on hearing its cries, will at once return, as if to afford their sympathy, and render, if possible, some assistance.

In such spots as we have been describing, flocks of cream-coloured doves congregate for the sake of the fruit of the tall canari-tree, and with their loud, continuous cooing fill the air. Among the lower branches rest the long-tailed pigeons. In and out of the green bamboo clumps flit beautifully plumaged flycatchers; one of which, the *Monarcha loricata*, a slender bird about as large as a martin, with blue on the upper part of the body, and a pure, almost silvery, white beneath,—except on the throat, which is covered with scale-like feathers, of a rich metallic blue-black,—is found only on the island of Buru. And in the bushes and shrubbery is constantly heard the cheerful note of the tropidorynchus, which seems akin to the curious friar-bird of Australia.

ABOUT THE MALEO.

In the island of Celebes, the naturalist may make the acquaintance of the maleo, or *Megacephalon rubripes*, which frequents the sandy beach and the mouths of small rivers, where in the hot, loose sand she deposits her eggs. In the dry months of August and September, the maleos come down in pairs to their favourite haunts, and scratch holes

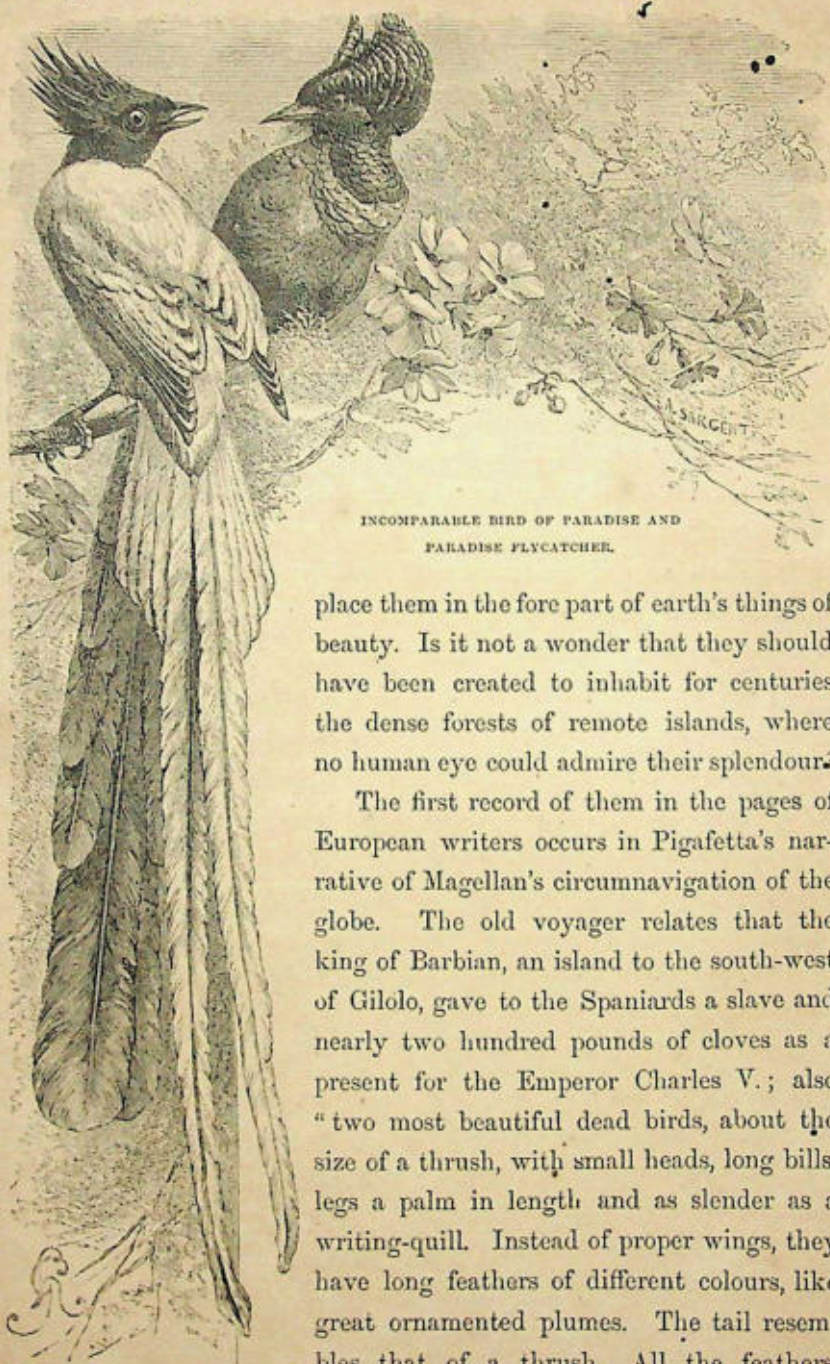


MACAW (SOUTH AMERICAN) AND GREEN PARROTS.

three or four feet deep, just above high-water mark. The female having deposited a single large egg, and buried it beneath a layer of sand about twelve inches deep, returns with her mate to the neighbouring forest. At the end of ten or twelve days she visits the same spot to lay another egg; and this operation she repeats six to eight times during the season. It is noticeable that the male always escorts his spouse on these journeys, and assists her in making the nest. The appearance of these birds when walking on the beach is quite impressive. The glossy black and rosy white of the plumage, the helmeted head and elevated tail, like that of the common fowl, give a striking character, which is enhanced by their stately and somewhat sedate walk. Between the sexes the difference is very slight; in the male bird, however, the casque or bonnet at the back of the head, and the tubercles at the nostrils, are a little larger than in the female, and the fine rosy salmon colour a little deeper. They run quickly; but if suddenly disturbed, wing their way, with a lumbering, noisy flight, to some neighbouring tree, where they settle on a low branch. It is probable that this, too, is their roosting-place at night. Every year the natives come from miles around to secure the maleos' eggs, which are of an exceedingly good flavour when quite fresh—surpassing that of hens' eggs. The colour of the shell is a pale brick red, or—but sometimes only—a pure white. They are elongate, and very slightly smaller at one end; measuring from four to four inches and a half in length, by two and a quarter to two and a half wide.

BIRDS OF PARADISE.

The Aru Islands are the chosen haunt of the beautiful birds of paradise, the most gracious and attractive of the inhabitants of the Bird World. They are found also in New Guinea; and to this comparatively limited region, we know not why, are these glorious creatures confined. Their plumage, glittering with all the dazzling gem-like hues of the humming-bird, or soft and warm and delicately tinted, or deepening with a rich intensity of colour that glows in the sunshine with a magical radiance, and their flow of graceful and wavy plumes that gently undulate in harmony with the curves of the body,



INCOMPARABLE BIRD OF PARADISE AND
PARADISE FLYCATCHER.

place them in the fore part of earth's things of beauty. Is it not a wonder that they should have been created to inhabit for centuries the dense forests of remote islands, where no human eye could admire their splendour?

The first record of them in the pages of European writers occurs in Pigafetta's narrative of Magellan's circumnavigation of the globe. The old voyager relates that the king of Barbian, an island to the south-west of Gilolo, gave to the Spaniards a slave and nearly two hundred pounds of cloves as a present for the Emperor Charles V.; also "two most beautiful dead birds, about the size of a thrush, with small heads, long bills, legs a palm in length and as slender as a writing-quill. Instead of proper wings, they have long feathers of different colours, like great ornamented plumes. The tail resembles that of a thrush. All the feathers,

except those of the wings, are of a dark colour. These birds never fly but when the wind blows. We were informed," adds Pigafetta, "that they came from the earthly paradise, and were called *Bolondinata*;* that is, 'birds of God.'" The Western mariners translated this term into *ave de paraiso*, whence comes our "birds of paradise." And, indeed, in the first garden, watered by the four immortal rivers, where the parents of the human race wandered in their days of innocence, fairer creatures could not have been seen than these bright and glowing birds.

The specimens imported into Europe before the era of maritime discovery and enterprise began were always imperfect,—the legs having been removed in the process of embalming them. Hence arose some fantastic fables. It was asserted that they were ærial sylphs; that they lived wholly in the air; that they performed all the functions of life while on the wing; that they never rested except for a few moments, when they suspended themselves by their long tails to the branches of the trees. They were beings of a superior order, never requiring to tread the common earth, nourishing themselves in the ether, and quaffing only the pearly dews of the morning. It was in vain that Pigafetta declared they, like other birds, were duly provided with legs and feet; it was in vain that Clusius and other naturalists affirmed the same fact; the popular imagination remained faithful to the old poetic fiction.

The vegetation of the Aru woods, says Lord George Campbell, is exceedingly lovely. Palms and tree-ferns mingle with trees, the branches of which droop with ferns, orchids, and parasites, and are festooned with lianas, ratans, and creepers of every kind. Along the shore, where the waves lisp and murmur in delightful harmony, above the dense undergrowth of foliage rise tall casuarinas, mangroves, and pandanus palms. Both in the forest shadow and in the sunshine on the shore, the most gorgeous and varied butterflies, of all sizes, from huge ornithoptera to tiny blue and yellow gems, fly rapidly in the air or flutter through the pendent leaves. Scarlet dragon-flies dart to and

* A corruption, perhaps, from *Bultrunglewata*, which is the Malay for "birds of God."

fro; dull-coloured little lizards glide across the wood-path; snowy cockatoos terrify echo with their harsh, resonant scream; and, listen! "Wauk! wauk!" that's the "great" bird of paradise; Whreece! that is the little "king" bird; now the note of a pigeon is heard booming low; yonder chatter a flock of lorriquets; and on the dark coral shores blue

kingfishers and lonely gray herons are on the look-out for fish.



THE SUN ORN.

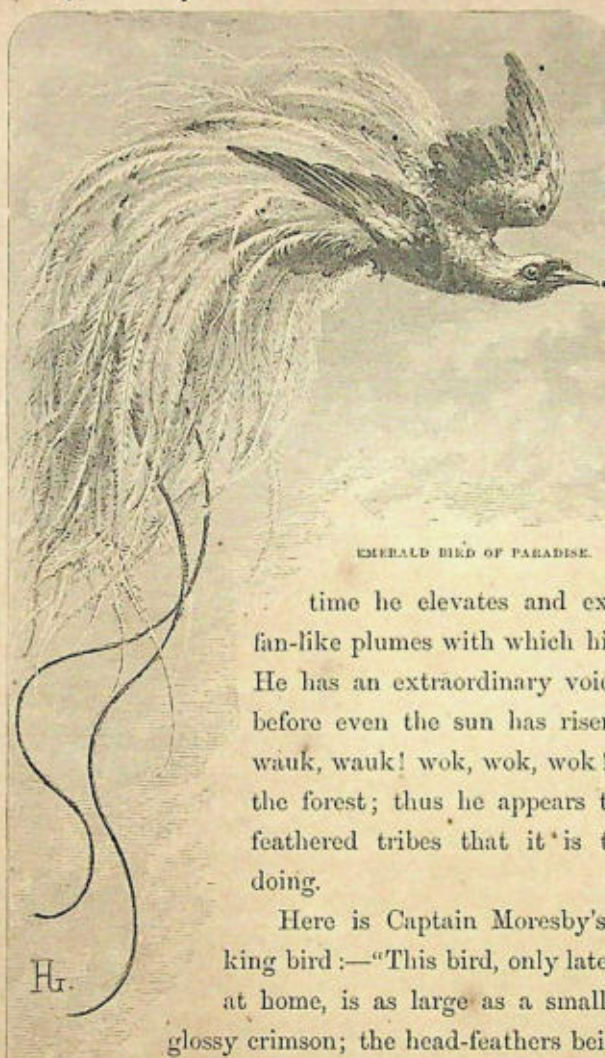
Soon, says Lord George Campbell, describing a ramble through the island-forest,—soon we came to an open spot where the undergrowth had been cleared away, leaving a few tall trees, bare of leaf, among the top branches of which large swifts and lorriquets were flying, when suddenly alighted on a branch a chocolate-coloured bird; some person fired, and down he came—a young male of the "great" bird, but without the glory of his plumage. High up in a tree could be seen the leaf-roof beneath which the native hunters conceal themselves while watching for the arrival of the paradise-birds, shooting them, one by one, with silent, blunt-headed arrow. "I saw a few 'goby-gobies,' and shot one. They fly

quickly among the lower branches; and, of course, in the woods, unless they remain for some time near one spot and close by you, their rare beauty is hardly recognized. Their colouring is exquisite: snow-white breast, green band round the throat, and crimson about the body; while from the tail two stiff, bare shafts fall down, ending in flat spirals, coloured metallic green; and under the wings are two emerald tufts of feathers, visible when the wings are outstretched. But in these

dark woods there is always disappointment in seeing them, for, unless a glint of sunlight happens to fall on their brilliant plumage, you can make out only a small red bird; and the common cardinal-bird of America is more beautiful as it is seen in the woods than is this really infinitely more beautiful little king bird of paradise."

The king paradise-bird, to which reference is here made, is regal only by comparison with his congeners, and in virtue of his surpassing beauty. In reality, he is not quite the size of a thrush. But who cares to think of his diminutiveness when admiring the exquisite colours of his plumage,—colours of which words can afford no adequate idea? A gloss like that of "spun glass" wavers over the cinnabar red which forms the prevailing tint of his gorgeous garb. The feathers on the head shade into a rich orange; while beneath, from the breast downwards, all is pure white, with the softness and sheen of silk, except the belt of deep metallic green that crosses the breast, and separates the snow from the red of the throat. A circular spot of the same metallic green glistens above each eye; the bill is yellow; while the feet and legs are clothed in a fine cobalt blue. So much for the colouring of this lovely bird. But he has other claims to the admiration that is always unsparingly bestowed upon him. From each side of the breast, but generally lying hidden under the wings, spring little tufts of grayish feathers about two inches long, and terminating in a broad band of intense emerald-green. The bird, at his pleasure, lifts these aigrettes, and, when the wings are elevated, expands them like a pair of fans. Then, again, the two middle tail-feathers take the form of slender wires about five inches in length, diverging in a graceful double curve. About half an inch of the end of this wire is webbed on the outer side only, and curling spirally inwards, the two extremities form a pair of glittering emerald buttons, hanging five inches below the body, and about five inches apart. As Mr. Wallace remarks, these ornaments of the breast-fans and the spiral tipped tail-wires are absolutely unique, not occurring on any other of the eight thousand different species of birds known to exist upon the earth.

The king bird frequents the lower trees of the forests, where he displays the most remarkable activity, continually hopping from branch



EMERALD BIRD OF PARADISE.

to branch, or flying strongly with a loud whirring sound. He lives upon stone-bearing fruits; and, says Wallace, often flutters his wings somewhat in the fashion of the South American manakins, —at which

time he elevates and expands the graceful fan-like plumes with which his breast is adorned. He has an extraordinary voice. At early morn, before even the sun has risen, a cry of "Wauk, wauk, wauk! wok, wok, wok!" resounds through the forest; thus he appears to signal to all the feathered tribes that it is time to be up and doing.

Here is Captain Moresby's description of the king bird:—"This bird, only lately becoming known at home, is as large as a small thrush; the back, glossy crimson; the head-feathers being soft and deep in tone like velvet; the throat crimson, and separated from the pure white breast by a wide band of green. He has the long wire-tail of all birds of paradise; terminating, however, in two circular feathers, about the size of a sixpenny-piece, of a burnished green. But his peerless ornaments are two small feather fans, of intense emerald colour, set in the upper joint of the wing, and capable of being spread or folded at pleasure."

Let us pass on to another of these fairy creatures—"the great"

paradise-bird, the largest of the family, measuring as much as seventeen inches from the bill to the tip of the tail. A rich chocolate-brown "pervades" body, wings, and tail; while the breast is touched with shades of purple and violet, merging into black and brown. A soft, delicate straw-yellow spreads over the neck and the whole top of the head, where the feathers are close-set and very short. The feathers on the lower part of the throat are scaly, with a rich emerald-green colour, and a fine metallic lustre; while velvety plumes of a deeper green stretch across the chin and forehead as far as the eye, which is of a bright yellow; a pale lead blue, the beak; and a pale ashy pink, the large, strong, and well-shaped feet. The two middle tail-feathers are without any web, except a very small one at the base and at the tip, forming wire-like cirrhi, which expand in a graceful double curve, and vary from twenty-four to thirty-four inches in length. Beneath the wing, on either side of the body, springs a dense tuft of long delicate plumes, about two feet in length, very glossy, and of the richest golden-orange colour imaginable—except towards the tips, which are of a pale brown. As in the case of the king bird, this plummy tuft the bird can raise and spread out at pleasure, so as nearly to conceal his body.

We borrow from Mr. Wallace the following additional particulars:—

"The great bird is very active and vigorous, and seems to be in constant motion all day long. It is very abundant, small flocks of females and young males being constantly met with; and though the full-plumaged birds are less plentiful, their loud cries, which are heard daily, show that they also are very numerous. Their note is 'Wauk, wauk, wauk! wok, wok, wok!' and so loud and shrill is it as to be audible at a great distance, forming the most prominent and characteristic animal sound in the Aru Islands. The mode of nidification is unknown; but, according to the natives, the nest is constructed of leaves placed on an ant's nest, or on some projecting limb of a very lofty tree, and is believed to contain only one young bird. The egg is quite unknown, and appears to have been seen by no one. The birds moult about January or February; and in May, when they are fully

clothed, the males assemble at early morning to join in what the natives call their 'sicaledi,' or dancing-parties. For this purpose they select a tree with spreading branches, and large but scattered leaves; and here, having taken up their stations, they raise their wings, extend their necks, and elevate their glowing plumes, keeping them in a continual vibration. At intervals they fly across from branch to branch, apparently in a state of great excitement, until the whole tree seems alive with shifting colours. This curious habit enables the natives to capture specimens with considerable facility. Having marked the tree on which the birds are wont to assemble, they build a bower or arbour of palm leaves in a convenient place among the branches. There, before daylight, the hunter takes up his position, armed with his bow and a number of arrows terminating in a round knob. A boy is placed at the foot of the tree; and when the birds make their appearance, and prepare for their morning exhibition, the hunter discharges his blunt arrow with sufficient force to stun his victim, which drops down, and is secured and killed by the boy without injury to the beautiful plumage. This device is repeated until the dancing-party take alarm, and fly away to some securer spot."

There is so great a charm about these birds that we are tempted to linger in their company yet a while. Our naturalists have evidently found a difficulty in inventing for them a suitable nomenclature; one which should to some extent indicate their unrivalled beauty. Thus we have the superb, the golden, the incomparable, the magnificent; the standard-wing, the twelve-wired, the scale-breasted, the long-tailed, the sun gem, the flycatchers, and many another of which our limits forbid our attempting a description, though some of them are portrayed by our artist with characteristic delicacy and truth. Whether a zoological Paris would give the golden apple to either of these in particular, may well be doubted. Far easier was it for the Trojan shepherd on Mount Ida to determine between the respective claims of the three goddesses than it would be for him to pronounce judgment in a competition of paradise-birds. We have stood before the specimens which light up a dark cabinet in the British Museum, and have felt it



SUPERB BIRD OF PARADISE.

impossible to institute a decided preference. *Detur pulchriori?* Yes; but which is the fairer? What say you to the Golden, or six-shafted bird, with the bronze and purple gleams of his plumage contrasted on the breast by what seems a shield or an escutcheon of molten gold—with the broad recurved crest of feathers that shines like mingled topaz and emerald—with the six slender wire-like feathers, each six inches long, and terminating in a small oval web, that spring from the sides of



GOLDEN BIRD OF PARADISE.

the head, and the thick tufts of soft feathers on the breast, which can be elevated so as entirely to conceal the wings?

Or what say you to the Magnificent, most rightly so named, with the short brown velvety feathers that cover the head, and the ruff or mantle of straw-coloured feathers, about one and a half inch long, that rises from the nape of the neck, and the orange-brown and bronze on the upper part of the body, and the rich deep green, flushed with purple, on the under part, and the two rich steel-blue feathers in the middle of the tail, which curve outward so as to form a double circle?

Or what say you to the Superb, of which it is written that the ground colour of his plumage is an intense black, but with beautiful bronze reflections on the neck, and the whole head scaled with feathers of brilliant metallic green and blue? His breast carries a glossy shield of a pure bluish-green colour; and from the back of the neck rises another but larger shield, of a velvety black colour, glossed with bronze and purple. Half an inch longer than the wing are the outermost feathers of this singular but beautiful appendage, which, when raised, must give the bird a peculiarly characteristic aspect. The superb is only known by the mutilated skins which reach Europe. He inhabits the interior of the northern peninsula of New Guinea.

Detur pulchriori? Well, do we bestow the laurel on the Red bird, with his rich crimson lateral plumes, and ribbon-like middle tail-feathers, with their graceful double curve, and the rich metallic green of his throbbing throat, and the little double crest of scaly feathers on his head? Or the Long-tailed, with his dark velvety plumage, shining with irradiations of purple and bronze, and superb tail more than two feet long, shining with a vivid opalescent blue, like the sea in a coral lagoon?

The birds of paradise, so far as they are yet known, are grouped into eighteen species—namely, the great paradise, the lesser paradise, the red paradise, the king paradise, the magnificent, the red magnificent, the superb, the golden paradise, the standard-wing, the long-tailed paradise, the twelve-wired paradise, the scale-breasted paradise, Prince Albert's paradise, the rifle-bird, the Victorian rifle-bird, the paradise pie, the carunculated paradise pie, and the paradise oriole. Of these eighteen species, eleven are known to inhabit New Guinea, and eight are entirely confined to it and the adjacent island of Salwatty. Commenting upon this fact, Mr. Wallace is led to remark that Nature seems to have taken jealous precautions that these her choicest treasures should not be made too common, and thus be undervalued. "The northern coast of New Guinea," he adds, "is exposed to the full swell of the Pacific Ocean, and is rugged and harbourless. The country is all rocky and mountainous, covered everywhere with dense forests, offering

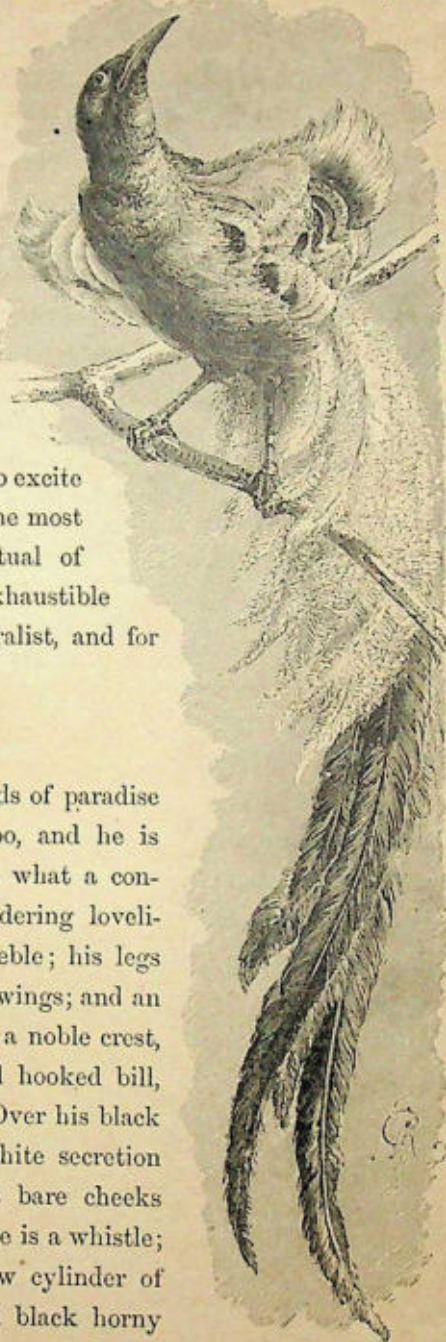


TWELVE-WIRED EPIMACHUS OR PLUME BIRD.

in its swamps and precipices and serrated ridges an almost impassable barrier to the unknown interior; and the people are dangerous savages, in the very lowest stage of barbarism. In such a country, and among such a people, are found those wonderful productions of Nature, the birds of paradise, whose exquisite beauty of form and colour, and strange developments of plumage, are calculated to excite the wonder and admiration of the most civilized and the most intellectual of mankind, and to furnish inexhaustible materials for study to the naturalist, and for speculation to the philosopher.

COCKATOOS.

To the same region as the birds of paradise belongs the great black cockatoo, and he is found in the same forests. But what a contrast he presents to their bewildering loveliness! His body is small and feeble; his legs are long and weak; he has large wings; and an immense head, ornamented with a noble crest, and armed with a sharp-pointed hooked bill, very strong, and of great size. Over his black plumage is dusted a powdery white secretion characteristic of the tribe. His bare cheeks are of a bright blood-red; his voice is a whistle; his tongue is a deep red narrow cylinder of flesh, terminating in a furrowed black horny plate, and possessing a certain amount of pre-



SUPERB PLUMED BIRD.

hensile power. This strange and even weird-looking creature inhabits the lower parts of the forests, making his appearance alone, or at most with a couple of companions. His flight is slow and stealthy. His choice of a habitat is dictated by the character of his food, which consists of seeds and fruits, and specially of the nuts of the canari-tree. The shell of the canari-nut is so hard that only a heavy hammer will crack it; yet the cockatoo manages the operation with his beak. He takes the nut endways in his bill, holding it steady by a pressure of the tongue, and then he uses his sharp-edged lower mandible to saw a transverse notch. Next, he seizes the nut with his foot, and biting off a piece of leaf, retains it in the deep fissure of his upper mandible; transferring the nut to his beak, he keeps it from slipping by means of the leaf, inserts the edge of the lower mandible in the aforesaid transverse notch, and nips off a piece of the shell. Again removing the nut to his claws, he thrusts inside the long sharp point of the bill, and with his extensible tongue picks out the kernel, bit by bit.

Several species of cockatoos are found in the islands of the East Indian Archipelago; and the natives carry on a considerable trade in these and other birds. Thus Lord George Campbell says: "The canoes are a great sight: they come alongside full of fruit and eggs, and literally crowded with lorries and cockatoos; while occasionally a cassowary, with legs tied, lies prostrate at the bottom of the canoe. These cockatoos," continues the lively author of "*Log Letters from the Challenger*," "are not the Australian yellow-crested species, but gentlemanly-looking old fellows, whose white feathers curl like moustaches over their beaks, and their erected crests show pink underneath. They sit solemnly along the sides of the canoes, while the loris are tied by their legs to bamboo perches, and are always moving and bobbing about, never at rest. They are quite lovely; one kind coloured crimson, and another green, blue, and purple."

THE GOURA PIGEON.

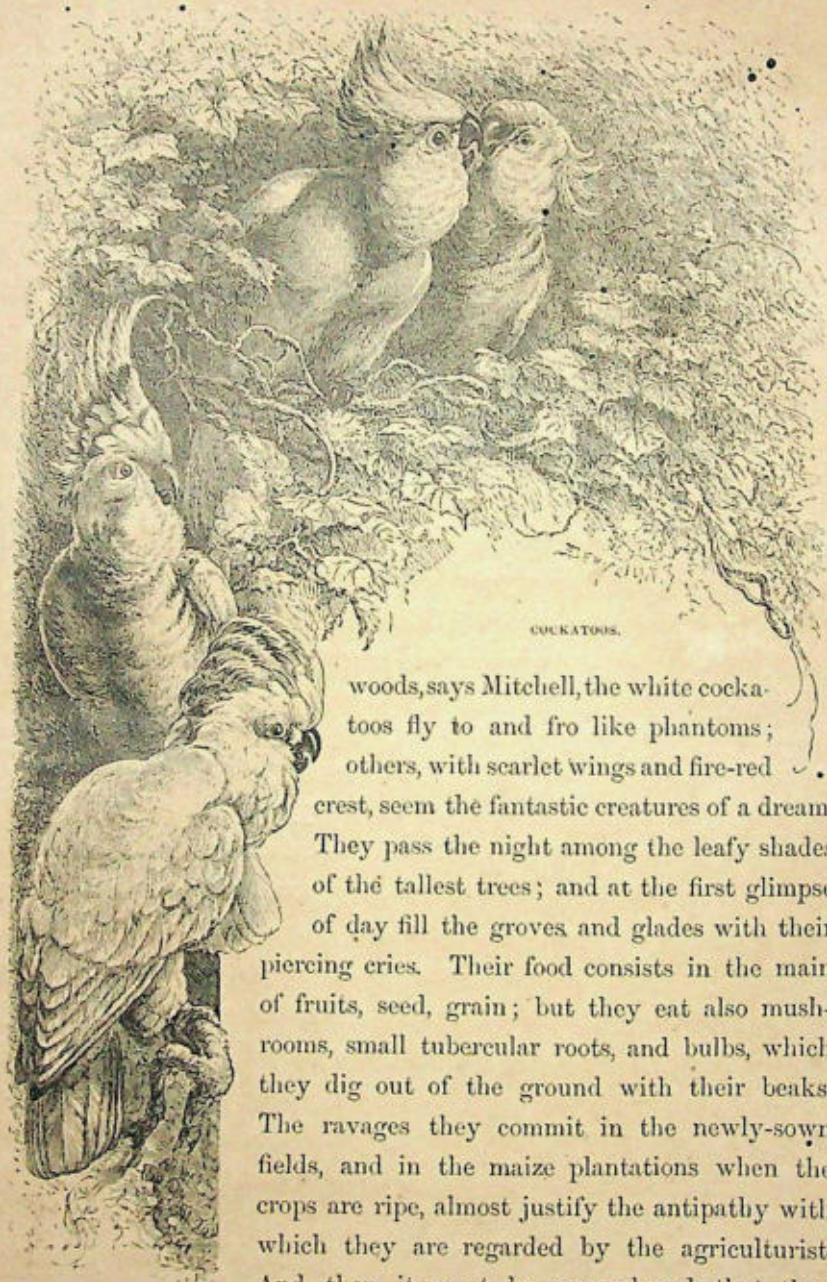
To New Guinea belongs the beautiful goura, or crowned pigeon, with his slate-blue plumage, soft and sleek, and his crest of barbles

feathers. The earliest notice of this bird occurs in the graphic narrative of the old sea-rover Dampier; at a later date a few specimens were brought to Holland; and of recent years they have found their way into most amateur collections. In New Guinea, says Wallace, the rarity of birds of prey and of the larger reptiles has facilitated the multiplication of the goura. He favours the forest glades, spending most of his time on the ground, and feeding upon fallen fruit; he uses his wings only when disturbed, or to seek a roosting-place on some low branch.

AUSTRALIA.

Australia is pre-eminently the realm of the cockatoos. And, indeed, it is pre-eminently the paradise of birds. It has been well said that its mammals are comparatively insignificant creatures, with the exception of such as are abnormal; moreover, they are few in number; but the Bird World is abundantly represented, and represented by some of its most original and interesting types. Of the many families belonging to it and to the adjacent islands, none are more important or characteristic than that of the parrakeets. Among the green foliage of the gum-trees cockatoos sparkle like living flowers; the rose-coloured parrakeets display their scarlet plumage among the yellow-bloomed acacias. The bright-hued lorries hover about the "honey-sweet blossoms;" while even the great wastes of the interior are enlivened by some members of this wide-spread family. In Australia the parrakeets, as in Europe the swallows, fly about the streets of the towns and villages, or, like the sparrows, infest the roofs and courtyards of the houses. When the Australian farmer garners his harvest, hundreds of these birds throng in front of his barns, and hunt among the straw for such ears of corn as may have escaped the flail. To the traveller the spectacle is very pleasing; but the farmer has vowed a vow of hatred, as deep as that of Cato's against Carthage, and slaughters the feathered pilferers without pity and without remorse.

Several species of cockatoos, unlike that which we have just described, live together in very numerous communities. Making their home in the forest-depths, they sally forth to traverse the plains and fields in search of food. In the midst of the deepest obscurity of the



COCKATOOS.

woods, says Mitchell, the white cockatoos fly to and fro like phantoms; others, with scarlet wings and fire-red crest, seem the fantastic creatures of a dream. They pass the night among the leafy shades of the tallest trees; and at the first glimpse of day fill the groves and glades with their piercing cries. Their food consists in the main of fruits, seed, grain; but they eat also mushrooms, small tubercular roots, and bulbs, which they dig out of the ground with their beaks. The ravages they commit in the newly-sown fields, and in the maize plantations when the crops are ripe, almost justify the antipathy with which they are regarded by the agriculturist. And then it must be remembered that they are at work all day long, except for a short interval of noontide rest. They are always active, always on the watch; whoever or what-



GOURAS, OR CROWNED PIGEONS.

ever passes attracts their notice, and calls forth their cries; and when one flock arrives in the neighbourhood of another, the din which immediately resounds through the forest is indescribable in words.

The Australian aborigines adopt a curious method for the capture of these birds. Sir George Grey describes it as exceedingly interesting. The weapon employed is the boomerang—that is, a piece of hard wood shaped like a scythe, which the savages can hurl through the air for a distance of upwards of one hundred yards. As it cleaves the air it describes a series of graceful circles, but though diverging from a straight line it is almost certain to reach its goal. Such is the weapon, made of wood or iron, which the natives of the Australian interior use with so much effect.

A native starts in pursuit of a company of cockatoos, in the plain or in the forest, preferring those localities where a pool or watercourse is overshadowed by tall trees; for there the birds love best to congregate, assembling in countless flocks, climbing from branch to branch, or flying from one tree to another. There, too, they pass the night. The hunter advances warily; he glides between the trees, and creeps from bush to bush, taking every precaution not to give the alarm to birds so keenly vigilant. But at length they detect him; and a general stir and agitation indicate the approach of the enemy. The cockatoos feel that a danger threatens them, though they know not what it is. When he reaches the brink of the pool, he no longer attempts concealment. The winged populace immediately spring into the air, and at the same moment the fatal boomerang is hurled. It glides, revolving, on the surface of the water, then with curving motion rises and strikes into the midst of the birds. It is followed by a second, a third, a fourth. In vain the perplexed cockatoos attempt to fly; they are paralyzed by the apparently capricious course of the deadly missile. One is hit, then another, then a third; they fall to the ground stunned or with broken wing. The air rings with their screams of pain and anger; and it is not until the hunter has satisfied his desire of acquisition that the remainder of the flock reassemble, to seek together a new and safer asylum in the thickest shades of the tallest trees.

While describing the ways and habits of the cockatoos, we are reminded of a member of the great parrakeet family which is found in New Zealand only,—the owl-parrot, or *Strigops habroptilus*. The natives call him *kakapo*,—that is, the “night-parrot.” In size he approaches the common owl, but his body is more slender. His downy plumage is of a deep green, spotted here and there with yellow, and shading off into a yellowish-green on the under parts. The tail is green, streaked with dark brown.

According to Lyell, this remarkable bird inhabits the hill-sides, or the neighbourhood of rivers, where great trees abound, but neither ferns nor bushes. He first caught sight of the stranger on a lofty hill, some five thousand feet above the sea-level; afterwards he saw several individuals in the plains, on the river-banks, and at no great distance from the sea. It is worth notice that he is never found on the western slopes of the New Zealand Alps, though they are covered with masses of forest-foliage, except in the Makavora valley, which is surrounded by hills of comparatively moderate elevation. It is easy to trace him to his habitat by his astonishingly long footprints, which measure fully a foot, and sink two or three inches into the soft moss; in fact, they are not at all unlike those of a man. He excavates a kind of burrow under the roots of a tree, or seeks shelter in the fissures of the rocks. Many of the New Zealand trees having roots which rise above the ground, the kakapo is able easily to find accommodation; but it is probable that he always enlarges by his own exertions the natural hollow.

By day the bird is never seen unless startled from his nest—for which purpose dogs are employed. Prior to the introduction of these valuable animals into the island, and when the kakapo was more abundant, the natives pursued him at night with torches; but at present a race of half-wild dogs, which has become established in the north of the island, incessantly hunts down the kakapo, and threatens to exterminate him.

The Maoris describe him as a courageous bird, which does not fear to resist the dogs, and sometimes with success; but this can be true only when the dogs are very young or feeble. The traveller Haast remarks that, as regards his own dogs, they suffered much from the wounds

inflicted by beak and claws, but never failed to secure their prey after a brief struggle.

The kakapo has always been included among the nocturnal birds; but he is not so completely a night-prowler as was at first supposed. Haast says that his voice is heard about an hour after sunset in places where the denseness of the foliage secures a perpetual gloom; that he then sets forth on his rambles; and at such times, attracted by the light, he would approach and flutter around his tent. Twice, however, he surprised the bird by day. The first occasion was a dull, dark afternoon in an open forest-glade, when and where he saw a kakapo perched on a prostrate trunk. He took flight on his approach, but was pursued and captured by the dogs. The second time was also at mid-day, and the scene a rocky defile, where the owl-parrot, planted on a little fuchsia, was eating his fruit. As soon as he perceived the traveller he sprang to the ground, and disappeared among the rocks. Strange to say, he never opened his wings to break his fall. To ascertain whether the bird was able to fly, Dr. Haast set one, which had been caught by a dog, in an open place; but, without attempting to rise into the air, he ran to the nearest thicket, and this with a perfectly astonishing rapidity, considering the heaviness of his form. He appeared to keep his wings close to his sides, opening them very slightly and without agitation,—evidently using them with no other object than to preserve his equilibrium.

But Mr. Lyell tells us that he has seen the kakapo on the wing. He flies, however, only to reach a tree where he can take refuge, climbing rapidly from branch to branch, chiefly by the aid of his tail. His voice is hoarse, but intensifies into a scream when he is excited or hungry. The Maoris assert that they make a tremendous clamour when, in the winter, they assemble in large flocks,—saluting with their cries every fresh arrival and departure. They are vegetarians, these kakapos, feeding on roots, leaves, young shoots, berries, and grasses. While other birds have the skin lined with a layer of soft and oily fat, these, owing doubtlessly to their vegetable food, boast of a stratum of fat quite firm and white. Their flesh is superior to that of parrakeets generally, and has a really delicate flavour. Hence,

we are told, the Maoris lick their lips when any one speaks in their hearing of a dish of kakapos!

Returning to Australia, we find there an interesting member of the parrakeet family—the warbling grass parrakeet, or, to adopt the rolling syllables of scientific nomenclature, the *Melopsittacus undulatus*—which, in beauty of plumage, has some claim to rank even with a bird of paradise. We feel it difficult to give any accurate idea of colouring in words. After we have told the reader that the dominant colour is green, of a pale hue about the head and neck and back and upper wing-coverts, edged and spotted with black, of a deeper tint on the chest and belly,—that the sides of the head are ornamented with four gem-like spots of a rich blue,—that the wings are brown, and the tail-feathers beautifully varied with blue, green, and yellow, we have left our task incomplete. We have not shown him the delicacy with which hue shades off into hue, or the soft harmonies that everywhere prevail, or the gloss that rests upon the whole; and, in fact, to realize all these in their actual beauty and grace and richness, he would need to see the fairy-like creation with his own eyes! Nothing is more disappointing than a laboured description of a bird's plumage. The most glowing terms and the most eulogistic collocation of adjectives come nowhere near the reality, as the reader may determine for himself by comparing a bird of paradise (let us say) with a naturalist's account of it!

Our knowledge of the melopsitta is due chiefly to the researches of Mr. Gould. In traversing the vast plains of the Australian interior, he found himself literally surrounded by birds of this species, and resolved to remain a while in the same place in order to make himself acquainted with their manners and habits. They appeared in bands of eighty to a hundred individuals, in the vicinity of a small pond, where they quenched their thirst. At regular hours they flew towards the great open bush, to seek the grain on which they feed. At an early hour every morning they resorted to the pool to drink, and again in the evening, before the veil of night fell upon the earth. In the hot hours of the day they remained immovable among the leafy tops

of the green trees. It was then difficult to discover them; but, just before taking to the wing, they congregated on the leafless boughs or on the branches which inclined towards the surface of the water.

Swift the flight of these parrakeets, as that of the falcon or the swallow! They walk on the ground with tolerable ease, and climb not unskillfully. When flying, they make the welkin ring with their piercing cries. When at rest, they keep up a lively babble among themselves: it cannot be called a song, for the different voices mingle in a discordant medley which is perfectly indescribable. Even during their breeding-season these sociable birds live together in numerous communities, though each couple preserve their domestic independence. They make their nests in the hollows and gaps of the gum-trees. The female lays from four to six white round eggs in the month of December, and in two or three weeks the young ones are fully clothed and capable of self-support. Then they attach themselves to the society of their elder congeners; and all sally forth together, a happy family, which seems seldom disturbed by intestine dissensions.

STRUTHIOUS BIRDS.

Australia is the land of oddities; and it is natural, therefore, that it should have its representative of the Struthionidæ, or short-winged birds, like the rhea of America and the ostrich of Africa.

The earliest notice of the emeu occurs in Captain Philip's narrative of his voyage to Botany Bay, published in 1787. He is there named the New Holland cassowary, and he is figured by Lieutenant Watts. Afterwards he was described by Péron; and still more lately by Bennett, who studied his habits carefully, and gave him the name of *emeu*—a name formerly applied by the early Portuguese navigators to a great bird of Malacca.

The emeu forms a transition type between the ostrich and rhea on the one hand, and the cassowary on the other. He has the "air," the bearing of the ostrich, but is more compact in figure, has a shorter neck, and less formidable legs. His wings are exceedingly small, and are scarcely distinguishable when folded close in to the body. Like Canning's knife-grinder, he has no "tail," but the body is covered with

feathers everywhere except on the throat and the sides of the head. His feathers are remarkable for their twofold structure; that is, from each bulb spring two stems, exceedingly flexible, and furnished with loose barbs. These feathers are very long and narrow.

Down to 1859, only one species of emeu was known. A second species was then described by Bartlett, and the specific distinctions pointed out by him have since been admitted by all naturalists.

Each species seems to occupy its own part of the "island-continent"—the emeu proper keeping to the east, and the spotted emeu to the west. The limits of the respective territories cannot be precisely defined; and as to the older species, it has been destroyed by the colonists in many places where it was formerly numerous. We know from the relations of the earlier voyagers that it abounded in the neighbourhood of Botany Bay and Port Jackson, on the south coast of Australia, and in the neighbouring islands; but now it would be as easy to find one as to find a wolf in England. Even in Tasmania they are so rare, that any enthusiast desirous of making their acquaintance must search for months, and penetrate into the remotest parts of the isle. On the mainland they have been gradually driven back into the interior, and nowhere can they be seen in great numbers except in the plains of the south.

In localities where the white men refrain from hunting these birds, they show very little timidity, and do not hesitate to approach the tents of the pioneers and emigrants. They are described as living in troops of three to five individuals, and as having all the habits of the ostrich; but the ostrich and the emeu differ so considerably in captivity, that it would be strange if no difference existed in their natural conditions of liberty. But, in truth, we know very little of the emeu as a free creature. Ramel furnishes a few particulars, which may be accepted as accurate, and are interesting enough to justify quotation:—

Wherever there are grass and water, he says, the traveller hears, at sunrise and sunset, the guttural cry of the emeu, not unlike the rattle of a drum. In the virgin districts of the continent, he loves to feed on the vast plains or the basaltic hills; but in places



THE EMEU.

frequented by herds of cattle and flocks of sheep, the few individuals who have survived this aurora of civilization seek a refuge in the thickets or forests, collect their nourishment in the ravines and narrow valleys, while preferring always the luxuriant vegetation of the pasture-lands.

Like the camel, the emeu can swallow a great quantity of liquid; and in weather of average temperature can live for several days without renewing the supply. Even in the burning heats of summer he has been met with at a distance of fifteen to twenty miles from the nearest watercourses. When he wishes to drink, he pauses on the bank for some time, and looks around with vigilant precaution to see that no enemies are near; then all at once dashes into the water, quaffs a good supply, reascends with celerity, and, if no peril be at hand, retires calmly.

Mr. Ramel relates an anecdote in illustration of her maternal courage—a virtue for which most species of birds are celebrated. “In the plains of the Lower Goulburn,” he says, “I caught sight of an old bird surrounded by half-a-dozen young ones, which were not more than half grown. Being anxious to obtain a specimen, I approached within less than a mile before they discovered me; then they immediately took to flight, but in good order, the old bird bringing up the rear. I had with me a large greyhound for hunting kangaroos; he outstripped my horse a little, with the view of pouncing on one of the fledgelings. But as he seized his prize the mother turned round upon him, and forced him to let go. The dog returned to the charge, and again seized the young bird; the old emeu leapt upon his back, threw him on the ground, and struck him with her feet. In the midst of the mêlée I arrived, and the emeus were forced to beat a retreat. When the dog a third time captured a youngster, the old emeu again rushed upon him; but my presence checked her. Though a fine strong animal, well known for his prowess, my greyhound had been completely beaten by the old emeu.”

The same traveller records an example of the singular effect produced upon this bird by a sudden alarm. “I was crossing on horseback,” he says, “the Morton Plains in the Wimmera, accompanied

by three young kangaroo dogs, which had already killed several dingos, or bush turkeys, but had never hunted the emeu. All at once they quitted me, sprang into a small thicket of acacias, and began to bark,—a certain sign that they were face to face with an enemy whom they feared to attack. I spurred my horse, and soon found myself in the presence of a great emeu, which was evidently greatly terrified. His body and long neck formed an almost vertical line, and his plumes stood erect at right angles. My horse recoiled before so extraordinary a spectacle. The emeu fled into the plain, but was so disordered by the barking of the dogs that he could not find his route. For a considerable time he turned round and round in the middle of the pack, which was not less terrified than himself, while I could not force my young horse to approach within a distance of fifty yards. Eventually, one of my dogs leapt on the emeu's neck, and tore him to the ground."

Does the reader remember Lord Lytton's apostrophe to Australia towards the end of "The Caxtons," the hero of which admirable novel he carries thither to make his fortune? "Thou beautiful land!"—it is thus he addresses this Greater Britain of the South,—"Canaan of the exiles, and Ararat to many a shattered ark! Fair cradle of a race for whom the unbounded heritage of a future, that no sage can conjecture, no prophet divine, lies also in the golden promise-light of Time!—destined, perchance, from the sins and sorrows of a civilization struggling with its own elements of decay, to renew the youth of the world, and transmit the great soul of England through the cycles of Infinite Change. All climates that can best ripen the products of earth, or form into various character and temper the different families of man, 'rain influences' from the heaven that smiles so benignly on those who had once shrunk, ragged, from the wind, or scorched in the thankless sun. Here, the hardy air of the chill Mother Isle; there, the mild warmth of Italian autumns, or the breathless glow of the Tropics." In a region so vast and so diverse, the forms of animal-life are necessarily numerous; and while we meet with some familiar to us in the temperate West, and others

which are akin to those of the glowing South, we meet with many which are peculiar to Australia, and are found nowhere else. As we have seen, the emeu may fairly be regarded as of close kinship with the ostrich; and the cassowary is also a "blood relation," although on the "other side."

Let us own, however, that the cassowary is something more than Australian. In the Eastern Archipelago we first meet with a species peculiar to the island of Ceram; to the west of which it is not found.



THE CASSOWARY.

"A large and extraordinary bird," says Mr. Wallace, "which inhabits the island of Ceram only. It is a stout and strong bird," he adds, "standing five or six feet high, and covered with long, coarse, black, hair-like feathers. The head is ornamented with a large horny casque or helmet, and the bare skin of the neck is conspicuous with bright blue and red colours. The wings are quite absent, and are replaced by a group of horny black spines like blunt porcupine quills. These birds wander about the vast mountainous forests that cover the island of Ceram, feeding chiefly on fallen fruits, and on insects or crustacea.

The female lays from three to five large and beautifully shagreened green eggs upon a bed of leaves—the male and female sitting upon them alternately for about a month. This bird is the helmeted cassowary (*Casuarus galeatus*) of naturalists, and was for a long time the only species known. Others have since been discovered in New Guinea, New Britain, and North Australia."

The history of the cassowary is interesting. In 1597, some stout Hollanders, returning from the East Indian islands, brought to Amsterdam a singular bird, which had never before been seen in Europe. It had been discovered at Banda, one of the Moluccas, where the natives named it *emu* or *emeu*. The prince or ruler of the town of Lydajo, in Java, gave it to the Dutch captain, one Mynheer Seelinger. At Amsterdam it formed an attractive and profitable public exhibition for several months; after which the feathered wonder passed into the hands of the Count of Solms, and was removed to the Hague. At a later period it became the property of the Elector Palatine; and, finally, of the Emperor Rudolph II. Was ever bird more highly placed? Since its time, numerous other cassowaries have figured in Europe, and have been carefully studied by competent authorities. But we are still in want of authentic details of their mode of life in a state of freedom. Their area of dispersion is not exactly known. The crested cassowary, as we have seen, is supposed to be a native of Ceram. Bennett's cassowary, or the mooruk, has been discovered in New Britain. The true country of the carunculated species is unknown; and Kemp's cassowary has been found in New Guinea. The Australian cassowary is described by Gould as inhabiting the northern coast of Australia.

All travellers agree in speaking of these birds as dwelling in the depths of the forest, and keeping themselves so jealously concealed that it is difficult to catch sight of them. At the least sign of danger they are "off and away." In islands which are almost desolate they should not be rare, yet they are never seen in companies. Each individual seems as prone to melancholy solitude as Shakespeare's Jacques. But apparently it is by no means easy to gain any informa-

tion of their habits. Thus: in New Guinea, Müller was never able to catch sight of one, though he often came upon the trail of the bird, and heard him in the bushes. At Ceram, Wallace was unable to secure a specimen, though he was convinced of his presence in all the places he visited. Those which have been brought to Europe have been caught when very young and brought up by the natives; a fact which explains their general confidence and gentleness, for in liberty they exhibit exactly the opposite qualities. According to Bennett's statement, the first two mooruks which fell into his hands were brought by the New Britain natives on board his ship, the *Oberon*. The islanders asserted that it was impossible to catch the old birds, on account of their timidity and suspiciousness; they took flight at the least sound, and, owing to their speed of foot, speedily gained the intertangled shades of the impenetrable forest. In order to secure the young, they pounced upon them almost as soon as they were hatched. The birds of which Bennett speaks were very tame; they ran freely about his house and garden,—fearlessly approaching any person who was in the habit of feeding them. After a while they grew so bold as to disturb the servants while at work; they entered the open doors, followed the inmates step by step, pried and peered into every corner of the kitchen, leaped upon the chairs and tables, flocked round the busy and bountiful cook. If an attempt were made to catch them, they immediately took to flight, hid under or among the furniture, and lustily defended themselves with beak and claw. But as soon as they were left alone they returned, of their own accord, to their accustomed place. If a servant-maid endeavoured to drive them away, they struck her and rent her garments. They would penetrate into the stables among the horses, and eat with them, quite sociably, out of the rack. Frequently they pushed open the door of Bennett's study, walked all around it gravely and quietly, examined every article, and retired as noiselessly as they came. Whatever was new attracted them; not a sound escaped their attention.

The cassowary differs greatly from the ostrich in his gait. He does not run; he trots,—keeping his body horizontal, and the long

feathers of the hind parts elevated. His steps do not follow one another very rapidly; yet, when he is bent on flight, his swiftness is something surprising. He wheels round and round with great dexterity, and jumps to a height of four or five feet. His voice is indicated syllabically thus,—*houh, houh, houh*, pronounced feebly, and from the bottom of the throat. This, however, is his mode of expressing pleasure; when he is irritated, he “puffs,” like the cat or owl.

The most perfect of his senses is his sight; next comes hearing; but scent seems also tolerably well developed. As for the power of taste, our naturalists can tell us nothing about it, and just as much about the bird's tactile capacities. There is no reason to believe him more intelligent than the other short-winged or struthious birds. If he be more wary, he is also more wicked. Every unaccustomed object, if it do not excite his alarm, provokes him to anger. Then he rushes full upon his adversary, whether man or beast; leaps upon it, and endeavours to strike it with his beak or claws. As to his mode of feeding, he is, fundamentally, an herbivorous animal. In his native forests he is supposed to feed chiefly upon soft vegetable substances and succulent fruits; but in captivity he will eat bread, seeds, apples, and even meat.

THE LYRE-BIRD.

So much for the cassowary, which we now leave to the enjoyment of his wooded solitudes. Before we quit the Australian continent, we must glance at yet another of its feathered marvels—one which claims consideration on account of his elegance of form and unusual beauty of plumage.

To the unscientific reader there will seem nothing in common between the tiny wren which flutters about our English hedges, and relieves with his warble the gloom of winter,—between the modest wren and the glorious lyre-bird of the Australian bush. Yet both belong to the same family, the *Certhiidae*. Both are generally seen in pairs, and are prone to take up their abode in the low thickets of open plains, or on the threshold of sunny woods. Both are insectivorous. Both are distinguished by the same physical characteristics—the long slender bill, with sides compressed to the tip; the short



THE LYRE-BIRD.

rounded wing; the toes generally long, with long claws, more or less curved; but while the wren is one of the smallest of feathered minstrels, the lyre-bird is equal in size to our common pheasant, while his limbs are longer and his feet much larger.

And now for a description of this famous bird, which, had but the Greek poets known him, would unquestionably have occupied a conspicuous place in the old mythology. What more suitable attendant could have been desired for Apollo himself?

His favourite habitat is the low brushwood growing in the neighbourhood of the sea or the mountain slopes; but the advance of civilization is driving him back into rocky defiles covered with thick forests, where he can with difficulty be approached. The rocky heights, says a traveller, are not explored without danger; the crevasses and precipices being crusted with half-decayed vegetable matter, into which you sink knee-deep, as in a snow-drift. A single false step, and you disappear, or are suspended between two rocky walls; happy if you retain the use of your arms, and, with brain on fire, can extricate yourself from a too prolonged torture—for succour must not be expected. In such localities you hear the voice of the lyre-bird everywhere, but its owner you cannot see. Gould tells us that for whole days he remained in the bushes inhabited by these birds; on every side rang out their clear and piercing cry, but it was only by an effort of prudence and perseverance of which few men would be capable, that he eventually succeeded in catching sight of one. Such being the case, it is not surprising that we have still but an imperfect knowledge of the lyre-bird's manners and habits. However, all authorities agree that he is virtually a ground-bird, and that he seldom takes to the wing. It is with a kind of running gait that he traverses the forests, and scales the cliffs; it is with a leap and bound that he rises abruptly to a height of ten or twelve feet, and gains the summit of a rocky pinnacle. Apparently he makes use of his wings only to descend to the bottom of a ravine or valley.

Towards all animals he observes a remarkable degree of wariness; but especially does he exercise his prudence in avoiding man. He does not appear to favour the society of his congeners; at least, he is

never seen except in couples: and when two male birds meet together, then comes "the tug of war;" they fall to blows immediately, and the combat is always terribly in earnest. When he runs, the lyre-bird, like the pheasant, holds his body extended, with the head bent slightly downward, the tail closed up and horizontal. It is particularly at morn and eve that he displays his activity.

In the breeding-season the bird builds up a small mound of earth, on which he takes up his position, with tail elevated and expanded, and representing, with considerable exactness, the figure of a Greek lyre; the two outer feathers, one on each side, curving like the letter S, with close and compact barbs, but of unequal length,—an ornament of singular elegance and of fine effect. As if conscious of the beauty of this appendage, there stands the lyre-bird, (what name could be more appropriate?) and gives expression in continuous song to his various sentiments. His voice is very flexible; the strain differs according to the locality, for it is composed of notes peculiar to the singer, and of notes which he borrows from other birds. Becker, indeed, speaks of the lyre-bird as a mimic of extraordinary excellence. In Gipp's Land, he says, on the southern slope of the Australian Alps, was situated a saw-mill; and there on Sundays, when all work was suspended, could be heard, in the neighbouring forest, the barking of a dog, the laughter of a man, the song of various birds, the weeping of children, the strident noise of the saw; and all these sounds proceeded from a single lyre-bird, which had established his residence at no great distance from the saw-mill. In his love-season he develops his imitative powers to a remarkable extent; and thus Australia, like America, can boast of its mocking-bird.

The nest of the lyre-bird is usually planted in the midst of bushes, on the declivities of the deeper ravines, or at the foot of the mountain-cliffs, in the immediate vicinity of a rippling rill.

There the bird seeks the young trees which, growing close together, and with trunks interlaced, form a kind of "funnel;" and there, a foot or two above the ground, he constructs his habitation. Sometimes, however, he places it in the hollow of a tree, or on a fern of moderate height. The nest measures about twenty inches in diameter, and six

inches in height. The materials used are fine and flexible roots, with very delicate feathers for the lining, and a layer of twigs and bits of wood for the base. The upper half of the nest is distinct from the lower, and can easily be detached; it is formed of mosses, ferns, and fragments of wood, and covers the lower like a roof. Seen from a distance, it resembles a heap of grasses and dry branches, about three feet in height and breadth. The entrance is at the side.

The lyre-bird breeds but once a year, and lays only a single egg, very like a duck's. It is of a clear ashy-gray colour, sprinkled with brown spots. The female bird, it should be added, does not possess the lyre-like tail of her more fortunate spouse.

AUSTRALIAN SCENERY.

A sketch of the picturesque scenery which Australia in many places presents, is drawn by the late Henry Kingsley with much vividness of colouring. Let us introduce it, as a relief to our more sober descriptions:—

"It was a glorious crystal-clear day in autumn; all Nature, aroused from her summer's rest, had put off her suit of hoddie-gray, and was flaunting in gaudiest green. The atmosphere was so amazingly pure, that miles away across the plains the travellers could distinguish the herds of turkeys (bustards) stalking to and fro; while before them that noble maritime mountain, Cape Chatham, towered up, sharply defined above the gleaming haze which marked the distant sea.

"For a time their way lay straight across the broad, well-grassed plains, marked with ripples as though the retiring sea had but just left it. Then a green swamp; through the tall reeds the native companion, king of cranes, waded majestic; the brilliant porphyry water-hen, with scarlet bill and legs, flashed like a sapphire among the emerald-green water-sedge. A shallow lake, dotted with wild ducks; here and there a group of wild swans, black, with red bills, floating calmly on its bosom. A long stretch of grass as smooth as a bowling-green. A sudden rocky rise, clothed with native cypress, honey-suckle (banksia), she-oak (casuarina), and here and there a stunted gum."

And now for a contrast:—

"They came soon on to the heath; a dark, dreary expanse, dull to look upon after so long a journey upon the bright green grass. It stretched away right and left interminably, only broken here and there with islands of dull-coloured trees; as melancholy a piece of country as one could conceive; yet far more thickly peopled with animal as well as vegetable life than the rich pastoral downs further inland. Now they began to see the little brush-kangaroo, and the gray forester, skipping away in all directions; and had it been summer, they would have been startled more than once by the brown snake and the copper snake, deadliest of their tribe. The painted quail and the brush quail (largest of Australian game-birds) whirred away from beneath their horses' feet; and the ground parrot, green, with mottlings of gold and black, rose like a partridge from the heather, and flew low." Here, too, was seen a "White's thrush," the only known bird which is found in Europe, America, and Australia alike. Also, the emeu-wren, a little tiny brown fellow, with long, hairy tail-feathers, flitting from bush to bush.

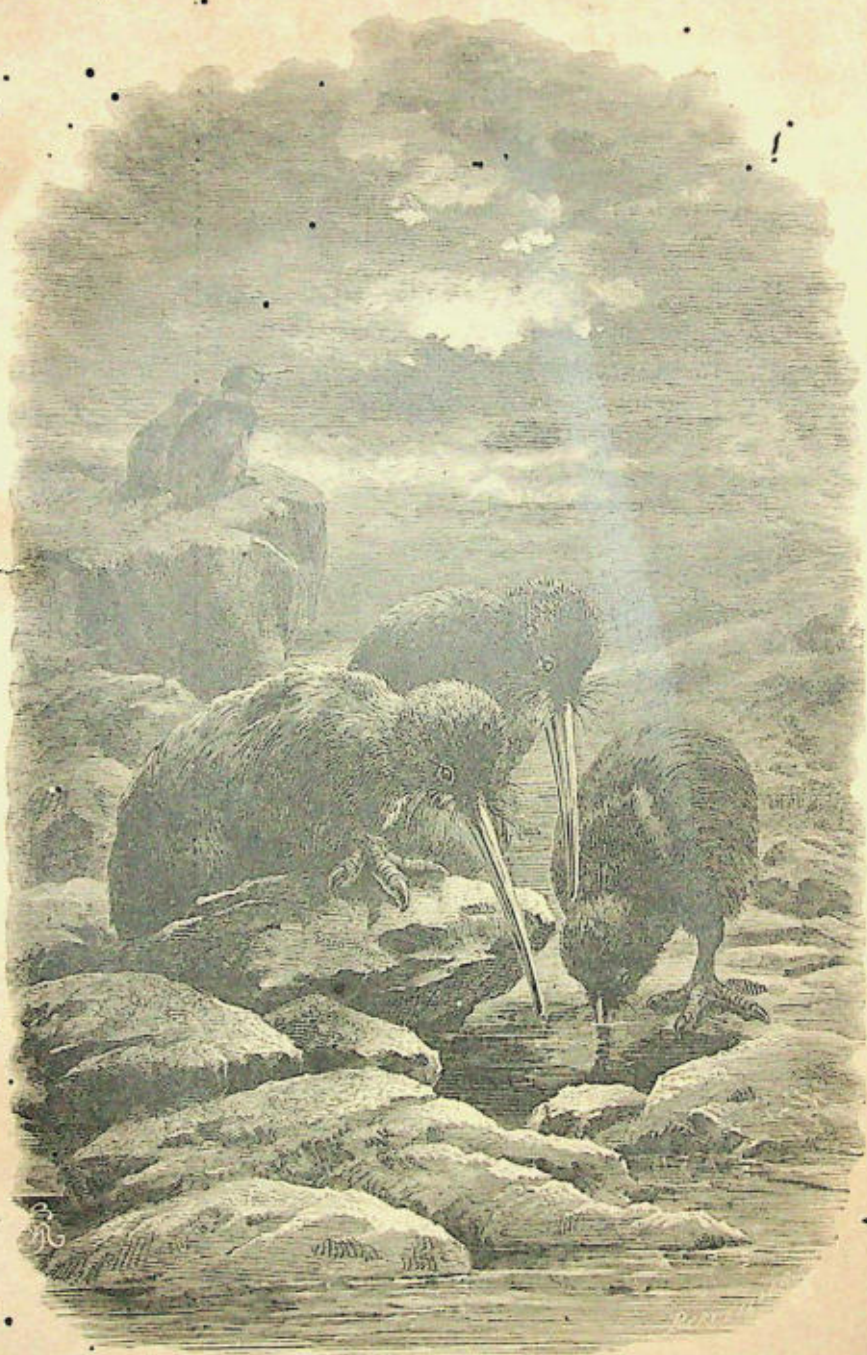
Yet one other picture:—

"The old stockyard stood in the bush a hundred yards from the corner of the big paddock fence, and among low rolling ranges and gullies, thickly timbered with gum, cherry, and she-oak; a thousand parrots flew swiftly in flocks, whistling and screaming from tree to tree, while wattle-birds and numerous other honey-eaters clustered on the flowering banksias. The spur-winged plover and the curaro ran swiftly among the grass; and on a tall dead tree white cockatoos and blue cranes watched the intruders curiously."

From these bright pictures the reader may form some idea of the abundance and variety of bird-life in the Australian "island-continent;" and if he turn to the "Recollections of Geoffrey Hamlyn," he will learn something of the odd ways and intelligence of the Australian magpie, as a peculiar kind of crow is called,—in allusion, we suppose, to his mottled plumage and irrepressible curiosity.

THE APTERYX OF NEW ZEALAND.

Before we quit the Australian region, we must direct the reader's



THE ALBATROSS.

attention to yet another of the short-winged or struthious birds—the apteryx or kivi, which is confined to New Zealand. He is specially interesting, from the extremely rudimentary character of his wings (whence his scientific name, “the wingless”), and from his close kinship with the now extinct gigantic bird of New Zealand, the moa, one species of which must have equalled, or nearly equalled, the giraffe in height. His native name is an imitation of the bird’s cry. Three species are recognized by naturalists: the apteryx Australia, or kivi, which has almost died out; Mantell’s apteryx, also called kivi by the natives, which differs from the former in his darker plumage and in the possession of long silky hair on his head; and Owen’s apteryx, which is of stronger build than either of the others. In all important respects these species so closely resemble one another, that the following description will apply to all:—

They are nocturnal birds, says Hochstetter, which during the day remain hidden in holes excavated in the earth, or, by preference, under the roots of the great trees, whence they issue only at night in quest of food. They live upon insects, larvæ, worms, and the seeds of various plants. They go in pairs; and run and leap with surprising rapidity. Next to man, their most formidable enemies are the dog and the cat. The natives attract them by imitating their cry, dazzle them by the light of their torches, and capture them by hand, or by stunning them with a stick. This persecution has been so long maintained that the race has dwindled greatly in numbers, and the survivors have retired to the less accessible districts of the island.

The female lays but one egg. Her mode of incubation is a subject of dispute. Some authorities affirm that she and her mate sit upon it alternately; others that she partly buries it, and then digging a trench close at hand, brings the warmth of her body to bear only on one side, and for about a third of its length. Mr. Webster writes that some years ago a native found the egg of an apteryx under the roots of a small tree, and after taking possession of it drew out the mother-bird herself. “The New Zealanders,” he adds, “assert that she never lays more than one egg, in a cavity which she digs in a dry soil under a tree’s roots. The egg is covered with leaves and moss; the

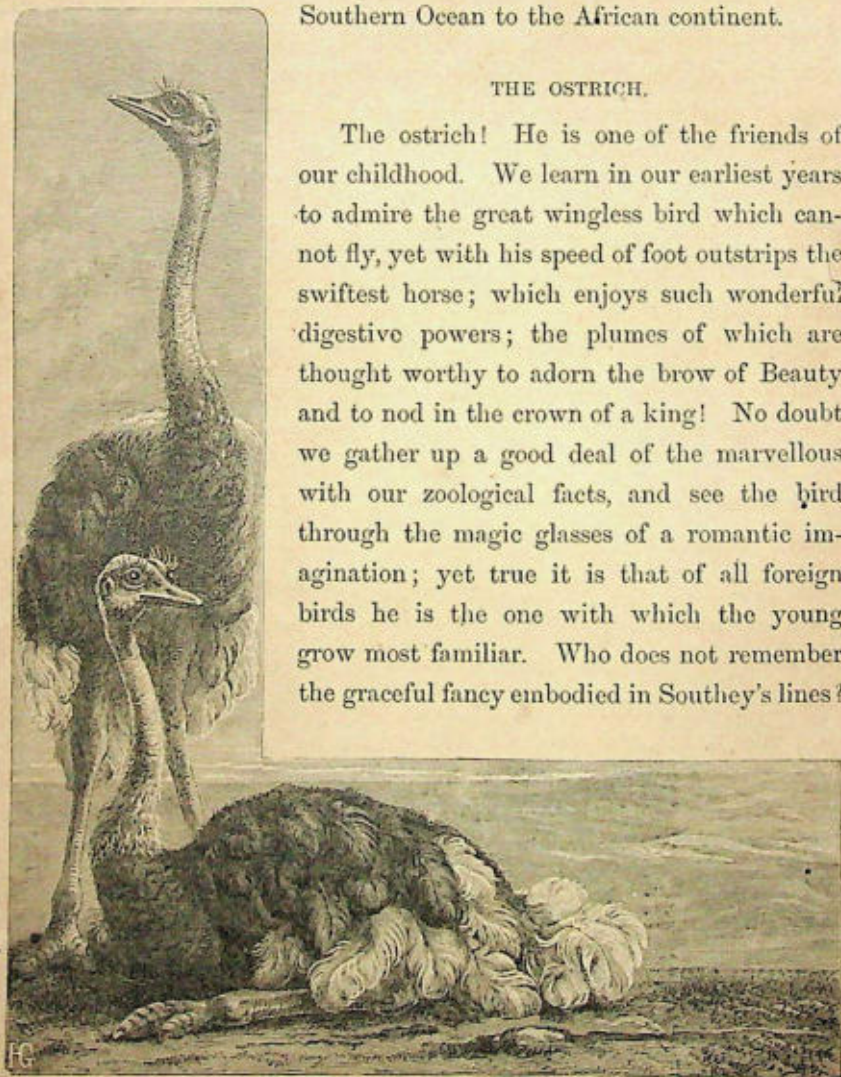
fermentation of these substances producing a sufficient heat to develop the egg; the duration of this incubation is about six weeks."

IN AFRICA.

Naturally enough, these wingless birds carry our thoughts to the best known and most celebrated of the family, the ostrich, and at the same time convey us in imagination across the broad waters of the Southern Ocean to the African continent.

THE OSTRICH.

The ostrich! He is one of the friends of our childhood. We learn in our earliest years to admire the great wingless bird which cannot fly, yet with his speed of foot outstrips the swiftest horse; which enjoys such wonderful digestive powers; the plumes of which are thought worthy to adorn the brow of Beauty and to nod in the crown of a king! No doubt we gather up a good deal of the marvellous with our zoological facts, and see the bird through the magic glasses of a romantic imagination; yet true it is that of all foreign birds he is the one with which the young grow most familiar. Who does not remember the graceful fancy embodied in Southey's lines?



THE OSTRICH.

" Then, if the brightening Moon that lit his face,
 In darkness favoured hers,
 Oh! even with such a look, as fables say,
 The Mother Ostrich fixes on her egg,
 Till that intense affection
 Kindle its light of life,
 Even in such deep and breathless tenderness
 One's soul is centred on the youth."

The fable is told in full by Vanslebo, in a quotation from an old Arabian manuscript. And the purport of it is, that when the ostrich would hatch her eggs she does not cover them as other fowls do, but both the male and female contribute to hatch them by the efficacy of their looks only; and therefore when one has occasion to go to look for food, he advertises his companion by his cry, and the other never stirs during his absence, but remains with her eyes fixed upon the eggs till the return of her mate, and then goes, in her turn, to look for food: and this care of theirs is so necessary that it cannot be suspended for a moment; for, if it should, their eggs would immediately become addle. This story, we are told, is emblematic of the Creator's perpetual attention to the universe He has created.

Passing from the region of Fable to that of Fact, let us see what travellers have to tell us respecting this famous bird. Barrow grows quite animated in his sketch of the ostriches scouring the great desert plains, with their black and white plumes waving in the wind, and thus indicating the neighbourhood of their nests, especially if they wheel round the place whence they have started up: when they have no nest they take to flight as soon as they are disturbed, with the wing-feathers close to the body. He proceeds: There is something in the economy of this animal different in general from that of the rest of the feathered race—a fact, but not a particularly novel one! He seems to be the link of union, in the great chain of Nature, that connects the winged with the four-footed tribe. His strong-jointed legs and cloven hoofs are well adapted for speed and for defence. The wings and all his feathers are insufficient to raise him from the ground; his camel-shaped neck is covered with hair; his voice is a kind of hollow, mournful lowing; and he grazes on the plain with the quagga and the zebra.

Among the very few polygamous birds that are found in a state of nature, the ostrich is one. The male, distinguished by his glossy black feathers from the dusky gray female, is generally seen with two or three, and frequently as many as five, of the latter. These females lay their eggs in one nest, to the number of ten or twelve each, which they hatch all together; the male taking his turn of sitting on them among the rest. Between sixty and seventy eggs have been found in one nest; and if incubation have begun, a few are most commonly lying round the sides of the hole, having been thrown out by the birds on finding the nest to contain more than they could conveniently cover. The time of incubation is six weeks.

According to Barrow,—and he is confirmed by later travellers,—the eggs of the ostrich are considered a great delicacy. They are prepared in a variety of ways, but that made use of by the Hottentots is perhaps the best: it is simply to bury them in hot ashes, and through a small hole made in the upper end to stir the contents continually round till they acquire the consistence of an omelet. "Prepared in this manner," says Barrow, "we very often, in the course of our long journeys over the wilds of Africa, found them an excellent repast. In these eggs are frequently discovered a number of small oval-shaped pebbles, about the size of a marrow-fat pea, of a pale yellow colour, and exceedingly hard. In one were nine, and in another twelve, of such stones."

The habitat of the ostrich is the sandy desert. His feet are adapted for traversing a rough and stony soil, and his stomach for feeding on a coarse, scrubby vegetation. He is found both in the north and south of Africa; in the Sahara and the Kalahari. He is generally seen, says Livingstone, quietly feeding on some spot where no one can approach him without being detected by his wary eye, which is placed so high that he can see a considerable distance. As the traveller's waggon, drawn by a team of patient oxen, rolls along to the windward, he fancies there is a design to circumvent him, and he comes rushing down, perhaps a mile or more, until so near to the foremost oxen that the traveller frequently secures a shot at the silly bird. The moment he begins to run, all the game in sight follow his example. The natives, if they come upon him in a valley open at both ends, sometimes profit

by his folly. They begin to run as if to cut off his retreat from the passage through which the wind blows; and though the opposite outlet is necessarily unguarded, he darts forward impetuously to pass the men, and of course is speared. Whatever the course he once adopts, he pursues it to the end, never diverging to right or left. Terror does but impel him to quicken his speed, and rush faster into the snare. If pursued by dogs, he turns upon them; and his onset is formidable, for a single blow from his heavy foot will break the back of the animal that receives it. He is sometimes overtaken by the lion, whom he is unable to resist.

When he is feeding, his pace is slow and leisurely, covering from twenty to twenty-two inches; when walking at his ordinary gait, about four inches more; when terrified, he will cover as much as twelve, thirteen, and even fourteen feet. In general the eye can no more follow the movement of his legs than that of the spokes of a wheel in rapid rotation; but Livingstone apprehends, from observations he once made with a stop-watch, that the bird accomplishes three strides a second, which, if we reckon each stride at twelve feet, gives a speed of twenty-six miles an hour. These Mercuries of the Desert are sometimes shot by a horseman, if he can contrive to cross their undeviating course; but few Englishmen, says Livingstone, ever succeed in killing them.

Mr. Andersson describes some of the expedients to which the natives of South Africa resort to effect the capture of the ostrich. At times he is fairly ridden down by men on horseback; several hunters starting from different sides of a large plain, until they hem the bird in, when they chase him backwards and forwards until his strength is exhausted. But he is also captured by a single horseman. In ordinary circumstances this would be impossible with the swiftest horse, but in the hot oppressive days towards the close of the rainy season he may be seen standing on the sultry plain, with wings spread and beak wide open; he is then taken with comparative ease. The Arabs of North Africa, as General Daumas tells us, pursue the great bird with their swiftest steeds; not attempting to outstrip him, but steadily following him up, day after day, until he succumbs to fatigue.

In some parts of South Africa he is run down even on foot. Mr. Andersson relates that he has seen the Bushmen accomplish this exploit on the shores of Lake Ngami; and Harris says that he more than once fell in with a large party of Corannas engaged in the same pursuit, and knocking the bird off his legs with a club of rhinoceros horn, fashioned like a hockey stick. A simpler plan is not unfrequently adopted by the native hunter. He seeks out the ostrich's nest, removes the eggs to a place of safety, and taking up his post in the empty hollow, bides the return of the bird, which he generally contrives to bring down with a poisoned arrow. Or he will lie concealed on the reedy margin of a



ARABS HUNTING THE OSTRICH

pool, and shoot the bird when he comes down to quench his thirst. Or he will take a long cord, with a noose at one end, tie it to a sapling which is bent downwards, and pin the noose to the ground in such a manner that when a bird treads within it, the sapling, springing back by its own natural elasticity, suspends the victim in the air, where he struggles until death releases him from his sufferings.

The missionary, Robert Moffat, describes another and a more ingenious stratagem. A kind of flat cushion, he says, is stuffed with straw, and shaped into a rude resemblance of a saddle. Except on the under part, it is covered over with feathers attached to small pegs, and gradually the saddle assumes a likeness to the ostrich itself. The head

and neck of an ostrich are stuffed, and a small rod is introduced. Then the hunter, having whitened his legs with any available substance, 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. Thus equipped, he constitutes as good a "mimic" of the bird as the most accomplished "property-maker" of a London theatre could produce; and, in fact, at the distance of a few hundred yards it is impossible to discover the deception. This "human bird" appears to nibble at the verdure, turning his head as if to keep a good look-out, shakes his feathers, walks to and fro, then trots, and at last approaches within bow-shot; and when the flock runs, because one of them has been stricken by his arrow, he runs too. It sometimes happens that the male ostriches give chase to the strange bird, when he endeavours to elude them in such a way as to prevent them from catching his scent. Should they do so, the spell is instantly broken. If a bird overtake the deceiver, he runs at once to windward, or throws off his saddle, to escape a blow from a wing which would otherwise lay him prostrate.

Man, however, is not the only enemy of the ostrich. He is hunted down and preyed upon by lions, panthers, wild dogs, and other beasts; and the eggs are devoured with avidity by both beasts and birds. Sir James Alexander affirms that, when the birds have quitted their nest in the middle of the day in quest of food, the traveller may often descry the white Egyptian vulture soaring in mid-air, with a stone between his talons. After a careful survey of the ground below him, he suddenly drops the stone, and then follows it in rapid descent. If the traveller hasten to the spot, he will find a nest of probably a score of eggs, and some of them broken by the vulture's ingenious device. Sir James adds that the jackal is said to roll the eggs together to break them; while the hyena pushes them off with his nose, to break them at a distance.

It would be pleasant, had we the space, to dilate upon the history of the ostrich, and to describe the figure he made in some of the imperial shows at Rome's colossal amphitheatre. Wonderful stories about him are told by Strabo and Oppian. To some of the Eastern nations he was known by the name of the "camel-bird," and a vulgar popular error

supposed him to be the offspring of a bird and a camel. He certainly presents some points of similitude to the latter. In both, the structure of the feet and stomach is very similar; both endure thirst with remarkable patience; both subsist on a scanty and stunted vegetation; both are furnished with "callous protuberances" on the chest and on the abdomen, on which they support themselves when at rest; and both lie down in the same manner. It is a curious fact that the ostrich is never known to associate with other birds, though he will keep company with the gnu, the springbok, the zebra, and quadrupeds of an inoffensive character. His points of affinity to the mammal are,—cloven hoofs and strong-jointed legs, a long muscular neck, a gruff voice, and the absence of that "elevated central ridge of the breast-bone" which is generally a striking feature in the bird's anatomy.

We might fill pages with anecdotes of the extraordinary digestive powers of the ostrich,—powers which are the envy, doubtless, of many a pale-faced dyspeptic invalid. In his wild state, he feeds upon the pods and seeds of different kinds of leguminous plants, and the leaves of various shrubs. As these are often hard and dry, he assists their digestion by swallowing a considerable quantity of pebbles, making no objection if they are as large as marbles. To small bulbs he is partial, and to a wild melon for the sake of its juice. In confinement, he appears possessed of, or consumed by, an indiscriminate appetite,—gulping down stones, knives, spoons, pieces of wood and iron, and various other equally indigestible articles. This seeming obtuseness of taste and strange propensity, says Andersson, obtained for the bird, at an early period, the epithet of "*the iron-eating ostrich*."

"The estridge that will eate
An horshowe so great
In the steade of meate,
Such fervent heat
His stomach doth freat."

So says Skelton in his "*Boke of Philip Sparrow*." A story is told that, when the ostrich was still a rare bird in Europe, a woman, hearing of the arrival of a distinguished stranger, and feeling naturally curious to make his acquaintance, hastily shut up her house, taking the door-

key in her hand. She reached the spot where the bird was "on show;" but, behold! he gravely bore down upon her, snatched the key from her hand, and swallowed it—thus effectually excluding the gossip from admission to her own house. And what says Matheson, in reference to a female ostrich of which he became the possessor? Nothing, he declares, disturbed her digestion; dyspepsia was an evil undreamt of in her philosophy. One day a Muscovy duck brought a promising brood into the world, and in due time proudly led them forth into the yard. Up, with step solemn and stately, marched the ostrich, and, with the mildest and most benignant expression of countenance imaginable, swallowed all the ducklings, one after the other, as an Apicius swallows oysters; regarding the indignant hisses and bristling plumage of the hapless and helpless mother with serene composure.

Livingstone disputes the assertion of many naturalists and travellers that the ostrich is polygamous. He adds that the female begins to lay her eggs before she has chosen a spot for her nest. Solitary eggs, which the Bechuanas name *lesatla*, are thus found lying all over the country, and furnish the jackal with a welcome feast. The nest is nothing more than a hollow scratched in the sand, and measuring about a yard in diameter. She seems indisposed to fix upon a situation for it, and often lays in the resort of another ostrich.

Some of the eggs contain small accretions of the matter which forms the shell; a fact that has originated the notion repeated by Barrow and others that the eggs have stones in them. Both male and female take part in the incubation. Several eggs are left outside the nest; and these, it is supposed, are intended to provision the youngsters first hatched, until, the rest coming forth, all are able to start together in search of food. "I have several times seen young in charge of a cock," says Livingstone, "who made a very good attempt at appearing lame, in the plover fashion, in order to draw off the attention of pursuers. The little ones squat down, and remain immovable when too small to run far, but attain a wonderful degree of speed when about the size of common fowls."

The vital power of the egg is remarkable. One which had been kept in a room for upwards of three months, in a temperature of about

60°, was found to contain a partially developed live bird. When the Bushmen come upon a nest, they are cautious not to touch the eggs, or to leave in their immediate vicinity any marks of human feet. They go "up the wind" to the locale of the coveted booty, and remove some of the eggs with a long stick. In this way the suspicions of the hen are not awakened, and she will keep on laying for months. Contrary to the assertion of some travellers, Livingstone, whose authority is unimpeachable, declares that the eggs have a strong flavour, and that it requires the keen appetite engendered by the desert to render them tolerable to a European. The Hottentots, he says, turn their trousers into a bag for carrying home the twenty or twenty-five eggs usually found in a nest. "It has happened that an Englishman, imitating this knowing dodge, has reached the waggons with blistered legs; and, after great toil, found all the eggs uneatable from having been some time sat upon."

Ostrich plumes, as everybody knows, wave on the armorial shield of the Prince of Wales; having been adopted by Edward the Black Prince in commemoration of the victory of Cressy (1306), and the death of Jean of Luxemburg, king of Bohemia, who had worn the ostrich plumes as his crest, with the famous motto of "Ich Dien." As an emblem of royal dignity and an ornament of womanly beauty, the snow-white feathers have always been highly valued. It is said they were held in honour by the ancient Egyptians; and certain it is that of old they always formed part of the tribute imposed upon the inhabitants of conquered countries where the bird abounded. The ostrich feather, says an authority, was a symbol of the Goddess of Truth or Justice. It was interwoven, also, in the head-dress of Io; was adopted by Hermes Trismegistus; and on great religious festivals was worn by the priests and soldiery. In Turkey, the janissary who distinguished himself by his valour was privileged to carry it in his turban; and in Congo, the feathers, mixed with those of the peacock, were employed as the ensign of war and victory.

The white wing-feathers of the ostrich—the black are used chiefly for mourning—form an important commercial staple, their price varying

according to their comparative abundance or scarcity. Seventy to ninety feathers go to the pound, and those plucked from the living bird are accounted of the greatest value.

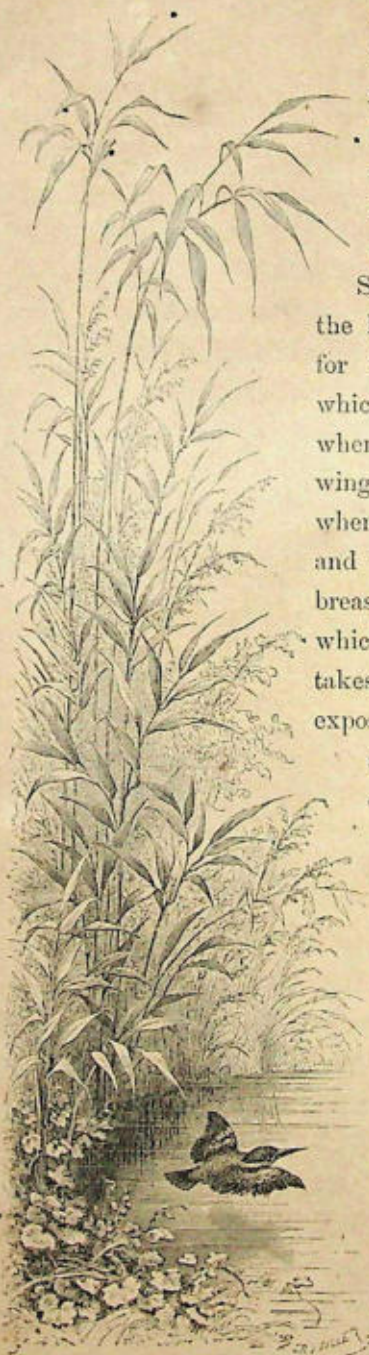
The flesh of the young bird is described as not unpalatable; that of the adult is coarse and rank. Yet it was considered a *bonne bouche* by the ancient Romans. According to Vopiscus, the pseudo Emperor Firmus, the Moor, equally celebrated for his exploits at the anvil and the trencher, devoured an entire ostrich at one sitting. Apicius has put on record a recipe for the best sauce to be served up with the African bird. The brains were considered a peculiarly precious dish, and at a single feast the Emperor Heliogabalus was served with those of six hundred slaughtered ostriches. But, as Dr. Doran observes, had he confined himself to becaficoes, instead of acquiring indigestion on ostrich brains and flamingoes, his name would have held a more respectable place in the annals of gastronomy.

With one more reminiscence, we take leave of the ostrich. When Sir Epicure Mammon, in Ben Jonson's *Alchemist*, is expatiating on the enjoyments his expected mastery of the great alchemic secret of gold-making will place at his command, he bethinks himself of certain attendants who shall fan him

" With two ostrich tails
A-piece, made in a plume to gather wind."

VALLEY OF THE ZAMBESI.

Passing out of the Kalahari Desert into the rich valley of the Zambesi, we find it inhabited by numbers of birds, who find there a pleasant habitat. In the river-banks the bee-eater makes his home. He is of a friendly and gregarious disposition; and the face of the sand-cliff is perforated with hundreds of holes leading to their nests, each about twelve inches apart from the other. A similar habitat is sought by the speckled kingfisher, which may be seen on busy wing along with a most beautiful little blue-and-orange kingfisher,—the two ever and anon darting, arrow-like, into the water after their prey. Dr. Livingstone speaks of upwards of thirty species on the river itself; the commonest being the *Ibis religiosa*, which, as on the Nile, comes down



the Zambesi when the waters rise; the large white pelican, appearing in flocks of three hundred at a time, in long, undulating lines; clouds of a black, shell-eating bird, called linongolo;* besides snipes, plovers, herons, and curlews innumerable.

Some of the rarer varieties would delight the heart and eye of an ornithologist. As, for instance, the graceful white ardetta, which settles on the backs of buffaloes, and, when they run, follows them with rapid wing; the kala,† which sits on the withers when the animal is careering at full speed; and the strange scizzor-bill, with snowy breast, jet-black coat, and scarlet-red beak, which perches on the sunny sand-banks, and takes his ease. He makes his nest in this exposed locality, without the slightest attempt at concealment; but keeps close watch over it, scaring away the marabouts and crows by feigned attacks on their heads. He changes his tactics on the approach of a human intruder, and, like the ostrich and the lapwing,‡ allowing one wing to drop, limps with one leg as if lame. Owing to the extreme shortness of the upper compared with the lower mandible, the young require to have everything conveyed to their mouths by their parents. The lower mandible

* *Anastomus lamelligerus*. † *Textor erythrorhynchus*.

‡ "Far from her nest the lapwing cries away."

SHAKESPEARE.

is as thin, says Livingstone, as a paper-knife; and it is put into the water while the bird skims along the surface, and scoops up any little insects that come within his reach. That this process can be performed so as to yield a sufficient meal, and at dark too,—for it is then only that insects and fishes rise to the surface,—is one of the “curiosities of Nature.”

A pretty little wader, the avocet, with long legs, and bill bent upwards, wades in the shallow water and digs up insects, for which his bill is singularly well adapted. He ducks his head under the wave to seize his prey, raises it quickly, and makes a rapid gobbling, as if he were swallowing a wriggling worm. Then there is the *Pacra Africana*, with thin long legs, and long slender toes, admirably fitted for running or walking swiftly over the plants that float on the surface of the rivers and pools. His fore toes are three inches and a quarter long, and his hind one two inches and a half. Hence, when he stands on a broad lotus leaf his toes cover the surface, and prevent him from sinking. His food consists of aquatic insects, and the seeds and buds of plants. The American and Australian jacanas belong to the same sub-family, and he is close of kin to the screamers.

The tragopan, or *Lehututu*, also inhabits the Zambesi valley. He strongly resembles a turkey; and when standing still appears quite black, but when flying his wings are seen to be partly white. His native name is *onomatopoeic*. He wages war against serpents, killing them with a blow administered skilfully behind the head.

THE SECRETARY-BIRD OR SERPENT-BIRD.

We are thus reminded of the serpent-bird, or secretary-bird; the latter appellation referring to his crest, which has been fancifully compared to a pen behind a clerk's ear. He is known to the Arabs, most grotesquely, as “the devil's horse;” in the Eastern Soudan they call him “the bird of fate.”

The secretary-bird is found over a great part of Africa, his range extending from the Cape to the fifteenth parallel of north latitude, and from the shores of the Red Sea to the banks of the Senegal. His structure is a proof that he was designed to inhabit the wide plains of

Central and Southern Africa, and to pass his life on the ground. He shuns the forests and the mountains, and drives from his haunts the terrestrial animals. His high-raised tarsi are characteristic. He makes excellent use of them, and runs more swiftly than any other bird of prey. With body erect he walks for miles, and shows no signs of fatigue. When pursued or in pursuit, he runs, with body inclined in front, almost as quickly as a bustard; and he is always unwilling to resort to his wings as an aid in locomotion. Before flying he takes a spring, and he seems to experience much difficulty in rising from the ground; but when he has once attained a certain elevation, he hovers for a long time without once flapping his wings.

Naturalists seem agreed that the secretary-birds live in pairs, and that each pair inhabits a domain of considerable extent. They are found everywhere, yet are very difficult to discover. For long hours the bird prowls among the thick grasses which cover the plains and hide him from view; then he rises suddenly before the horseman, who has not even suspected his presence. When his appetite is satisfied, he retires to some open spot, where he remains immovable, digesting his repast. However, he is never imprudent; always on his guard before man, he sees in every stranger an enemy from whom he must flee.

Occasionally the serpent-birds assemble in great numbers. Just before the annual rains the Bushmen kindle the dried herbage of the wilderness, and the devouring flames, extending over many miles, drive before them all the animals that have found refuge there. Then these birds gather together, and hold high revelry all along the line of fire.

The serpent or secretary bird—which shall we call him?—preys chiefly upon reptiles, and is famous for his almost insatiable voracity. Le Vaillant says that he killed a male bird, in the stomach of which he found twenty-one small tortoises entire, several upwards of two inches in diameter; eleven lizards seven to eight inches long; and three serpents as long as a man's arm, and an inch thick. There were also "a multitude" of grasshoppers and other insects, many undigested. Each of the serpents, lizards, and tortoises had a hole in its head. Le Vaillant further discovered in the ample stomach of this much-devour-



THE SECRETARY-BIRD.

ing bird a pellet, as large as a duck's egg, composed wholly of the vertebrae of serpents and lizards, shells of tortoises, wings and feet of grasshoppers, and the elytra, or wing-cases, of numerous beetles.

From all antiquity the prowess of the serpent-bird has been famous. He does not hesitate to attack, says Le Vaillant, an enemy so formidable as the serpent. When it flies, the bird pursues, and in pursuing seems to skim the earth; yet he does not develop his wings, like the ostrich, to assist his course: he reserves them for the combat, and they then become his weapons offensive and defensive. The reptile, if surprised at a distance from its hole, halts, rears its crest, and seeks to intimidate its adversary; swelling its head in anger, and emitting a loud, shrill, hissing noise. The bird of prey, unfolding one of his wings, spreads it before his body as a shield. The serpent springs; the bird leaps forward, strikes, retreats, moves on this side and on that in a manner which to a spectator is most amusing, and returns again and again to the combat, always presenting to the venomous fangs of his foe an outstretched wing; and while the latter fruitlessly exhausts its poison in biting the insensible pens, he deals with the other a succession of vigorous blows, until the reptile, stunned, rolls over in the dust. Then it is seized at once, thrown up in the air several times until its strength is completely gone; after which the conqueror splits its skull open with his beak, and, if it be not too large, swallows it whole—gaining in this way both a victory and a banquet.

THE WHYDAH-BIRD.

A bird which resembles the secretary-bird in its wide distribution over the African continent, but in no other particular, is the whydah; so called because the individuals first imported into Europe came from Whydah,* on the west coast. The name has been Latinized into *Vidua* by our naturalists, and thus a genus of Passeres has obtained the extraordinary and unmeaning designation of the "widow-birds."† We say "unmeaning," because it does not seem to be justified by the circumstances that the prevailing hue of their plumage is dark, and that the long tail of the male drops off after the breeding-season.

* Or Whydow.

† Or Whydah-finch.

However, our readers can take the *jeu de mots* for what it is worth, and be thankful that a ray of humour illuminates the dreary waste of scientific nomenclature.

The whydahs belong to the weaver-bird family, but in their habits are very like the buntings. In their love-season they live together in pairs, though some species are described as polygamous. The males, according to the nature of their attire, modify their behaviour. When dressed in all their nuptial bravery, with long drooping tail-feathers, silken and glossy, they execute the most remarkable movements. At rest on a branch, they simply allow their caudal appendage to hang undisturbed; but when walking they are forced to lift it up, and for this purpose they rest it slightly against any neighbouring object. Necessarily it has an influence on their flight, which it helps to slacken considerably. The bird seems to drag it through the air laboriously, and when the wind is strong can scarcely fly at all. But when the "moulting" process is over, the whydah moves with rapidity, flies like the finch and the sparrow, alternately raising and lowering his wings in such a manner as to describe in the air an undulating line. He lives upon seeds and insects.

THE BUPHAGA.

Insect-feeding birds are numerous in Africa, as in all tropical regions, and are among the best friends of both man and beast. As, for example, the *Buphaga Africana*, which alights on the backs of the cattle, and relieves them from the parasites that infest their hides. His long claws and elastic tail enable him to cling to every part of the beast, and pursue a thorough investigation. He is also a frequent companion of the rhinoceros, to which, besides being of service in ridding him of his insect-torturers, he acts the part of a sentinel. Mr. Andersson relates that on many occasions the watchful bird prevented him from securing a shot at the huge pachyderm. The moment he suspects danger he rises almost vertically into the air, uttering sharp, shrill notes that never fail to attract the attention of the rhinoceros; and the latter, without delaying to ascertain the cause, seeks immediate safety in headlong flight. Mr. Gordon Cumming avers that the bird

attends also upon the hippopotamus. It is not necessary to believe, however, that his cries are intended to warn either animal. The probability is that they are nothing more than an expression of his own alarm at the approach of a stranger.

Dr. Livingstone says of the *Buphaga Africana* (the "kala" of the Bechuanas), that he cannot be said to depend entirely on the insects he finds on the rhinoceros, the hard hairless skin of which is a sufficient protection against all except a few spotted ticks. Yet he seems to have much the same kind of attachment to the pachyderm that the dog bears to man; and while the buffalo is alarmed by the sudden uprising of his sentinel, the quick-eared rhinoceros is warned by his associate's cry. The rhinoceros feeds by night, and his sentinel is frequently heard in the morning uttering his well-known call as he searches for his bulky companion. Livingstone goes on to say of the buffalo-bird, or *Texor erythrorhynchus*, that he acts the part of guardian spirit to the buffalo. When the animal is feeding quietly, he may be seen hopping on the ground and picking up food, or sitting on the buffalo's back and freeing it from the insects that infest his skin. When danger approaches, the bird, having a much more acute sight than the buffalo, is soon alarmed, and flies off; whereupon the buffalo immediately raises his head to ascertain the cause of his guardian's sudden retreat. Livingstone's authority is necessarily of great weight; but we remain of opinion that the habits of these birds are not connected with any attachment to the animals they accompany, purely, as it seems to us, for the sake of the insects that burrow in their skin.

LIVINGSTONE AND THE BIRDS.

Our mention of Livingstone reminds us of another of his delightful sketches of bird-life in the Zambesi valley. Floating along under the shady trees that overhang the broad waters of the river, he often saw the pretty turtle-doves, so famed in song and story, sitting peacefully on their nests; or an ibis perched solitarily on the end of a stump; while the piping of the fish-hawk resounded far and wide. Stepping on shore, he was followed by the *Charadrius caruncula*, a kind of plover,—“a plaguy sort of public-spirited individual,” which flew over-

head, and did his best to warn animals to flee from the approaching danger. Another member of the same family is appropriately called *Setala-tsipi*, or hammering-iron, from the metallic ring of his alarm-note—"tine-tine-tine." The sharp spur on his shoulder resembles that on the heel of a cock, but is scarcely half an inch long. Possessed of a knowledge of his power, this bird does not hesitate to attack and pursue the large white-necked raven. He is celebrated for the friendly terms on which he lives with the crocodile of the Nile, and Mr. St John affirms that he performs the function of toothpicker to the reptile. Frequently he is seen on the same sand-banks as the alligator, and to a passer-by will seem to be perched on the animal itself. Mr. A. C. Smith speaks of him as *par excellence* the "bird of the Nile;" the well-known *zie-zac* of the Arabs, and probably the true "crocodile-bird," or *trochilus*, of Herodotus. He is very common, he says, and his loud sharp note is constantly heard; moreover, he is a fine bold species, of symmetrical shape, and erect carriage when on the alert; though, when in repose on the river-bank he has the appearance of a man shrugging his shoulders, so shortened is the neck, and so close does the head lie upon the breast.

Livingstone observed several new birds among the forest-trees which fringe the rocky banks of the Zambesi. Some were musical, and to ears weary of the harsh voice of African parrots their songs were very pleasant. Jet-black weaver-birds were numerous; francolins and guinea-fowl abounded; and on every stump and rock the web-footed *Plotus*, darter, or snake-bird, was perched, either sunning over the stream, or, with extended wings, standing erect. "Occasionally he may be seen fishing, with his body so much submerged that hardly anything but the neck appears above the water. His time of feeding is by night, and as the sun declines he may be seen flying in flocks to the fishing-grounds. He is a most difficult bird to catch, even when disabled, in consequence of his expertness in diving; he goes down so adroitly, and comes up again in such unlikely places, that the most skilful boatmen rarely secure him. The rump of the darter is remarkably prolonged, and serves both as a rudder in swimming and as a lever to lift the bird out of the water when he wishes to fly."

Frequently, on the overhanging branches the fish-hawk takes his stand, with white head and neck, and body of a reddish-chocolate colour. He generally kills more fish than he is able to eat, as he consumes only a choice morsel of the back; the rest falls to the share of the Barotse, who may be seen, at times, racing with one another to secure the prize. Sometimes he rifles the pouch of the pelican in a manner which is certainly ingenious. Winging his way through the blue, he watches till the pelican has transferred a fine fish to his pouch, when he swoops downward with a rushing noise. The pelican looks up to see if the heavens have suddenly rent asunder, and seeing the descent of his persecutor, raises a loud cry of mingled alarm and indignation. The hawk profits by the opening of the pelican's mouth to abstract the fish from his pouch, and fly away rejoicing; while the pelican, feeling that regrets are useless, quietly resumes his fishing.

It is generally believed that the tropical birds are deficient in power of song, but this is not the case in many parts of Africa, and certainly not along the course of the Zambesi. Some of the birds warble clearly and brightly like the lark; others resemble the thrush; and others again remind the traveller of the robin and the chaffinch, though some curious abrupt notes break in upon the otherwise familiar melody. One bird deliberately utters "puk, puk, pok;" yet another gives forth a single note like a stroke on a violin-string. The mokwa reza utters a "screaming set of notes" like our blackbird when disturbed; and then concludes with what the natives imitate by the words "pula, pula" (rain, rain), though more like "weep, weep, weep." The loud cry of the francolins may also be heard; with the "chicken, chicken, chik, churr, churr" of the honey-guide, and the "pampum, pampum" of the turtle-dove. Near villages a kind of mocking-bird imitates the calls of domestic fowls. It is true, no doubt, as one traveller says, that these African birds have not been wanting in song so much as in poets to sing their praises. Our English birds in this respect have been fortunate beyond all others. The Greek and Latin poets allude but slightly and unfrequently to the music of the feathered minstrels of Italy and Hellas. Even the later Italian poets have little to say in praise of the bird-voices of their native land; and the warblers

of France and Germany might almost be unknown, so far as the poets are concerned. But the lark, the nightingale, the thrush, the black-bird, the linnet, the bullfinch, and many another sweet singer of green fields and green woods, have ever been the favourite theme of English poetry, from Chaucer to Tennyson.

Let us refresh ourselves, while pausing here in the heart of Africa, with the lines in which an old poet commemorates the songs of birds:—

“What bird so sings, yet so does wail?
Oh, 'tis the ravished nightingale.
'Jug, jug, jug, jug, teren,'—she cries,
And still her woes at midnight rise.

“Brave prick-song! who is't now we hear?
None but the lark so shrill and clear;
Now at heaven's gate she claps her wings,
The morn not waking till she sings.

“Hark, hark! with what a pretty note
Poor Robin Redbreast tunes his throat!
Hark! how the jolly cuckoos sing,
'Cuckoo!' to welcome in the spring!
'Cuckoo!' to welcome in the spring!”

The day may yet come when the birds of Africa will receive that poetic consecration which has so long been the high privilege and good fortune of the birds of England.

IN THE NILE VALLEY.—THE IBIS.

Our survey now carries us to the Nile valley, that belt of verdure bordered by great tawny wastes of sand, and enriched by the waters of the classic river. The general character of its scenery is well known to every reader, so frequently has it been described by travellers and reproduced by artists. If we were to express it in a phrase, we should speak of it as “variety in uniformity.” It is monotonous, and yet the monotony is not without colouring. To use a musical term, the dominant tone is everywhere the same, but it is relieved by rich harmonies, and, sooth to say, not a few discords. Were the monotony greater than it is, the traveller from the misty West would pardon it on account of the elasticity in the air and the glow on the sky, which stimulate the senses to the highest pitch of enjoyment. Then, all novel to him is

the panorama of mud-hut villages, embowered in groves of shapely leafy palms; sunny sand-banks, alive with wings, and sparkling with the plumage of the flamingo and the ibis; quaint native boats, of all sizes and types, carrying dusky faces contrasted sharply with white cotton turbans; a yacht or two, belonging to some civilized Egyptian millionaire or adventurous European; men paddling along on rafts of pottery or water-melons; busy little cafés, planted beneath the shade of far-spreading sycamores; creaking *sakias*, or water-wheels, after the pattern of those used in the days of Joseph; and beyond the emerald ribbon of fertile valley, the yellow boundary of the drear and inhospitable desert.

Here is a sketch by a competent hand:—

"Egyptian landscape is in reality beautiful, though of a peculiar character; for flat though the strips of cultivated land, or even wider plains, necessarily are, seeing they are annually inundated by the river, they are always backed by the red or yellow rocks of the desert; and these rocks, though rarely bold or grand, form a most picturesque background to our view, and, from the contrast which their barren glowing heights present to the rich green of the alluvial soil, so marvellous in its fertility, stand out as broad gilt frames to throw out the colours of our picture, or as deep gold settings to enhance the brilliancy of our jewels. Then the broad stream of the great river is in itself a noble sight; the palm-trees with which its banks are often lined, and the villages which cluster beneath them; the ruins of vast temples which here and there stand out on the verge of the desert; the mighty pyramids which are conspicuous in certain districts,—combine to make the views of the Nile really remarkable. But there are points of the river where the rocks approach nearer the stream, as at Hagar Silsilis, at Assouan, and at Philæ, and in several spots in Nubia, where the cliffs assume bolder forms and grander dimensions, and the Nile, hemmed in by the mountains, looks wilder and more grim; and then the combination of rock and river scenery will stand comparison with that of any other country. Then, again, the living forms on the banks and the moving scenes which constantly come into our view, immensely enhance the interest of our

picture. The long files of women clad in dark blue robes, bearing their heavy water-jars gracefully on their heads, and coming down to fill them from the Nile; strings of laden camels sedately marching in the distance; the turbaned sheikhs leisurely ambling on diminutive donkeys on the river's brink; and a thousand trifles, insignificant in themselves, but attractive to the European eye, meet us at every turn. But above all, and over all, and through all,—indeed, without which Egyptian scenery would lose half its beauty,—the glorious unclouded sun of these Southern skies throws a perpetual brilliancy, causing the river to gleam like silver, the green meadows to glitter like emeralds, the rocks and sand of the desert to glow like molten gold. And when evening after evening at sunset the whole heavens were lit up with the most gorgeous colours; or when at night the moon and stars stood out from the coal-black sky in that clear atmosphere, and the 'Southern Cross' rose above the horizon, no fairer scene could well be imagined than that which this majestic old river offered to view: and though tame, perhaps, when compared with Northern landscapes, there is a peace and a repose suited to a tropical climate; and a calmness and mystic stillness, such as best befits the waters of the venerable Nile, ever rolling on towards the sea."

This is a long quotation; but it has the merit of bringing before the reader's eye the principal features of the Nile scenery.

And it is in such scenery as this that the traveller meets with the sacred ibis, the typical bird of Egypt, to which the ancient Egyptians paid divine honours—in recognition, doubtless, of his services in destroying the locust-hosts; or because his arrival in Egypt is coincident with the rising of the Nile. At times he is seen alone, on the river-bank, or stalking along one of the irrigating watercourses; at times he forms one of a little company of eight or ten, all eagerly watching for the molluscs on which, as well as on worms and insects, they subsist. Some species live upon fish and aquatic reptiles, which they catch in the following manner:—They traverse in a body a muddy pool or shallow lake until they come upon a place frequented by a large number of fish. Then they move to and fro very quickly, and in a kind of dancing measure, until they have well stirred up the muddy bottom, and driven to the



IBIS.—CORNER OF THE RUINS OF THE TEMPLE OF PHILAE.

surface not only the fish, but all the frogs and water-snakes and young alligators that had found an asylum there.

What is called the sacred ibis, seems to be really identical with the buff-backed heron,* which is also known as the "paddy-bird" of India. He follows the ploughman as his share turns up the fertile soil, and keeps company with the cattle grazing in the green meadows. The *Ibis religiosa*, which figures on the Egyptian monuments, is a tropical bird; and if once an inhabitant of Egypt, is no longer found there, except in a mummied state in the pits of Memphis and Thebes. In these two localities the sepulture varies. At Memphis it is seen that every ibis was first embalmed, and then placed in a large oblong earthenware pot with a rounded bottom and a lid hermetically sealed by means of some kind of cement. But at Thebes it was placed in no earthen receptacle. Like other sacred mummies, it and its companions were laid out in order in the sepulchral caves; and there they lie, still retaining their form, and almost their substance, with beaks bent down over the breast, and legs folded to the body.

THE SPOONBILL.

Akin to the ibis is the spoonbill, whose special character is indicated by his name. His bill, as broad at the base as it is long, is much broader than it is long for the remainder of its extent, and particularly so at the extremity, where the two mandibles expand in the shape of a spatula. Armed with a tool or implement of such utility, he haunts the river-bank, and low-water mark in the great estuaries, shovelling up out of the mud or sand the molluscs, worms, and aquatic insects on which he feeds.

The spoonbill is found in Holland, the Danubian Provinces, the south of Russia, as well as in Egypt and Central Asia, and as far south as India; probably also in America. Though he visits Greece every year, he and his mate never breed there; nor do they in Italy, Spain, or the south of France. In the warm regions of Southern Asia and Egypt he is, we suspect, a sedentary bird; but in the more northern countries he arrives with the storks in March or April, taking his leave in August and September. He travels by day, like the ibis; and in

* *Ardea russata*.

a long transversal line—always with much deliberation, and with frequent stoppages for rest and refreshment.

He is a sociable bird, the spoonbill, and lives with his like in perfect harmony. A couple of spoonbills may be seen fraternizing, and mutually preening and smoothing each other's plumage. A spectacle for the philosopher to laugh at, or admire, according to his school of philosophy. For several minutes the birds remain pressed against one another,—for the sole purpose, apparently, of exchanging affectionate salutes. Quarrels among spoonbills are as rare as military combats among Quakers! They are not perfect, however; they have been known to yield to the influence of jealousy, and a hungry communistic spoonbill will pursue a luckier individual, to filch from him his prey; but they do not come to blows. They are never seen alone; they have no liking for solitary meditation. With other birds they live on the best of terms; at all events, they never assume the offensive.

PIGEONS.

We turn now, however, to pleasanter company. The doves and pigeons are the delight of poets, and a large amount of sentiment has been expended upon them; but the naturalist knows that they have no right to much of this laudation. They are not more affectionate than other wild birds which go in pairs; and their past and present popularity is chiefly due to their gentleness of aspect, and softness and purity of plumage. As nest-builders, however, they claim our attention. Take, as an example, the ringdove. She lays her two snowy eggs on a platform of sticks, through the interstices of which they are easily seen. On glancing at this apparent commencement or skeleton of a nest, we are tempted to suppose that the young must suffer much from the cold, biting airs of our English springs. But instinct teaches the mother-bird to shelter her nurslings for a longer time than is usual, perhaps, with any other of the feathered tribe. And the ordure of the young being carefully and purposely allowed to remain, forms, in time, a species of plaster, strong and scentless, which increases the consistency of the nest, and affords a sufficient protection against the cold.

Mr. Waterton remarks that no bird in Great Britain seems to resort



SPOONBILLS AND OTHER AQUATIC BIRDS.

to so many trees and shrubs for breeding purposes as the ringdove. From the lofty pine to the lowly thorn, none comes amiss to it. In the locality of some of the nests, too, is to be detected a peculiarity. While one is placed near the topmost branches of the tall sycamore, another is found scarcely four feet from the soil, sheltered in the leafy hedgerow. In mild winters the ringdove visits our neighbourhood as early as February. She does not leave till October. During the winter she retires to wooded coverts, grows very shy and timorous, and flies high and far if any person approach her.

The stockdove breeds in a cavity in the trunk of a tree, and the first brood may be discovered about the early part of April. Unless some mishap occur, she has three broods in a year; but she never brings up two sets of fledgelings in the same nest. And why? Because she never clears the nest of the ordure of the young, and, consequently, in time it fills up the hollow. As each couple has, in the course of a summer, several broods, and needs several cavities, they run the risk of not finding a sufficient supply. Often they are obliged to fight for the possession of an asylum,—contending not only with birds of their own kind, but with woodpeckers and starlings, and sometimes coming off "second best." In the following year they return to their old nest; the ordure no longer exists—either because the process of decomposition has got rid of it, or it has been cleared away by insects, or by some bird which has appropriated the little dwelling-place.

The passenger-pigeon, which, by the way, has no Egyptian congener, belongs to a different family, though often confounded with the carrier-pigeon. The latter (*Columba tabellaria*) is a slight, elegant bird, well known for the rapidity of his flight, and the certainty with which he returns from a considerable distance to his original point of departure. He was formerly utilized for the conveyance of important news or special messages, and though superseded to a great extent by the electric telegraph, is still occasionally employed. During the siege of Paris by the Germans, in the late war, communication between the besieged and the world without was maintained almost entirely by means of carrier-pigeons. It is estimated that their usual rate of flight exceeds fifty miles an hour. Recently one of these birds was despatched

from Dover at the same time as an express train, but reached London half an hour before "the iron horse." This would give a speed of seventy-five miles an hour.

The passenger-pigeon (*Ectopistes migratorius*), or Canadian turtle-dove, is altogether a larger and stronger bird. Two circumstances have made him famous—his remarkable migrations, and his associative faculty; and though in reference to both much exaggeration has been written, still the facts are sufficiently surprising. Audubon affirms that he flies at the rate of a mile a minute; and Wilson speaks of him and his congeners as gathering in dense multitudes, several ranks deep, and so packed against one another that it is wonderful they can ply their wings. "To my right and left," he says on one occasion, "as far as my eye could reach, the column extended, everywhere equally compact and equally dense." As for the passenger-pigeon's nest, we must not expect of so migratory a bird anything consummate in the way of architecture. It is formed of some dry twigs, interlaced, and planted in the forked branch of a tree. That is all; but for a traveller's purposes that is enough. It helps to show that in building his nest, as in choosing his habitat, the bird is guided by the conditions of his daily life, to which he adapts himself with more or less intelligence.

THE BEE-EATER.

The Egyptian bee-eater lives in Egypt all the year round; and, with glossy emerald-green plumage, curved and tapering beak, and long forked tail-feathers, is truly a thing of beauty. The mirror of the Nile reflects few fairer creatures. As he flashes in the sun, like some living garnet, he establishes a claim to be honoured as the humming-bird of the Nile. On bright days he frequents the palm groves and cotton plantations in numerous companies.

In general comeliness and grace he is rivalled, however, by the great spotted cuckoo, which never fails to captivate the stranger with the elegant outlines of his drooping crest and long tail, and the varied tinting and soft texture of his plumage. In Great Britain he is rarely, if ever, seen; in Egypt he is tolerably common. A recent writer gives an animated account of the circumstances under which he captured a



THE CARRIER-PIGEON—SIEGE OF PARIS.

specimen. Striking inland from the river's bank, near Thebes, he speedily found himself surrounded by irrigated gardens, lying in green patches among immense plantations of cotton and castor-oil trees. Here and there gigantic palms reared their lofty crests; and groups of sount-trees, sycamores, and tamarisks spread their grateful shade. From the hot steaming soil sprouted beds of onion and plots of dourra and other corn. The whole grove was astir with wings. Blue pigeons and Senegal doves cooed on every tree; hoopoes, with nodding plumes and graceful bearing, moved airily along the ground; in the soft warm flush of many-coloured light, the bright green bee-eaters flashed to and fro like living gems; hooded crows, with heavy gait and hoarse clamour, hurried away in search of food; and Sardinian warblers and numerous other small birds sported among the blossoming branches of the castor-oil and cotton trees. As the traveller gazed on this animated scene, his attention was arrested by the flight of a great spotted cuckoo across an open glade, and he immediately resolved to attempt his capture. He followed him for a long time through the dense foliage which surrounded him, now catching a glimpse, now fearing he had lost him, until, seeing him perched on the high top of a palm at a long distance, he took aim and fired. To his dismay, the bird flew off towards the river, apparently unhurt; but in a minute or two he observed that his flight was unsteady, and just as he reached the river's edge he saw him drop headlong into the water, though with outstretched wings he managed to keep afloat. His dahabeah, or Nile-boat, happened fortunately to be just passing the spot, and his gesticulations induced the reis or master to make a dash at him with his boat-hook. He failed; but a sailor, casting off his robe and turban, sprang overboard, and with a few sturdy strokes gained the prize and carried it safe to shore.

THE STORK.

A familiar sight in Cairo, and in other Eastern towns, is that of the great white stork, which plays the part of scavenger, and by his persevering labours does much towards cleansing the streets of superabundant offal. In the summer, as everybody knows, he wings his way westward, and in the Continental towns, especially those of Holland,

is a welcome visitant—stalking about the crowded thoroughfares with perfect confidence. He has a happy gift of adapting himself to circumstances, and will build his nest in the forest-shades, or in detached trees near the habitations of man, or on the cottage-roof, and among the chimneys of the house-top. A rude and ungainly-looking nest it is, composed of sticks, dry twigs, and similar materials; and as it is used by generation after generation, and every year undergoes repairs and receives additions, it becomes in time a truly formidable structure. In marshy districts, where he renders great service by destroying snakes and other reptiles, the inhabitants frequently provide him with an eyrie—erecting a tall pole, and fixing to the summit a wheel, horizontally placed. The Dutch place large boxes for his accommodation on the roofs of their houses; and fanatical as they are in their care for external cleanliness, they never complain of the filth accumulated by the stork.

Brehm is of opinion that he is a bird of considerable dignity. His step is slow and measured; he holds his body erect, like a well-disciplined soldier; his flight is slow, but easy, graceful, and above all remarkable for the beautiful spiral lines which it describes. Sometimes he runs, but this is a mode of progression he cannot long maintain without fatigue; while he can walk for several hours in succession—being, in fact, the "Captain Barclay" of birds. Nor does he seem to suffer from sustained flight: he beats his wings slightly, and now and then gives some sudden rapid strokes; but he shows a wonderful degree of skill in availing himself of the wind or of aerial currents. While hovering, he can rise or sink at pleasure, from the dexterity with which he manages his tail—executing by means of that organ every possible change of direction.

There can be no question that he is a very sagacious fellow. As we have said, he possesses the useful gift of adapting himself to circumstances. In this respect no bird is his equal. He can detect at once the feelings of the inhabitants of a place towards him, and knows, as if by instinct, whether they are willing to tolerate him—whether his presence is agreeable. When he first arrives in a new neighbourhood he is prudent, wary, retiring; he avoids man, and mistrusts everything;



WHALE-HEADED STORK.

but, a few days, and lo! he sees a wheel attached to a tree or a house-top, and he recognizes the sign it affords of a hospitable reception. He takes possession of it, and immediately throws aside his caution, and displays the full extent of his confidence. He learns to know the person of his host, and to distinguish those who are friendly from those who bear him no goodwill. He knows whether he is loved, liked, or regarded with indifference; he observes everything, and his observation is never at fault.

Generally, the stork is considered a mild and inoffensive bird; but in reality, says Naumann, he is nothing of the kind—which we are sorry to learn, as it disabuses us of one of our cherished partialities. The way in which he gets his living accustoms him, it seems, to make a habit of murder; to look upon it, in fact, as one of the fine arts, *à la* De Quincey; and when no other victims are at hand, he gratifies his lust of blood upon his own congeners. This is shocking; and we would gladly have believed it a libel. But, unfortunately, facts are stubborn things; and it is known that sometimes when he arrives at a nest he will throw himself upon the youngsters, and, in spite of the resistance of the parents, consummate a massacre of the innocents. It is known, too, that before setting out on their annual migration the storks kill their sick; which, however, is no more than Napoleon did at Jaffa, —and Hazlitt eloquently defends the great soldier's conduct. If you tease even a tame stork, he will turn and rend you; and when wounded he makes a vigorous defence, striking with his beak right and left, and aiming cruel blows at the eyes of his adversary.

But all storks have not the same nature, and many among them may be as guiltless of blood as a Quaker. Some are very sociable, and are willing that their congeners should build in their neighbourhood; not a few, on the other hand, are determined to be monarchs of all they survey. Various motives, foremost among which is the fear of danger, determine the storks to assemble in one body for migratory purposes; but it is only with those of their own kind that they show this disposition to association. An isolated stork will live like a hermit, rather than join with other birds.

The great usefulness of the stork is a reason for looking generously



MARABOUT STORKS.

at his little failings. And, as we have said, he is almost everywhere a welcome visitant,—everywhere the services he renders are fully acknowledged. In certain countries his arrival is the occasion of domestic rejoicings: Nobody forgets that, according to a popular saying, the bird consecrated by the ancients to the goddess Juno is a pledge of happiness, an augury of good fortune, to the roof-tree where he establishes his *lares*; and, to celebrate his return, the countryman kills the fatted calf or the finest sheep in the fold, and the entrails being cast out into the garden or the farmyard, the bird shares in the general festivity. The Egyptians, than whom the world has never seen a people more addicted to polytheism, placed him among the ranks of their beneficent deities. With the Romans he was the emblem of filial piety.

Pliny asserts that he had frequently seen young storks supplying food to, and lavishing the tenderest cares upon, those of their race whom age and infirmities prevented from attending to their own needs.

The so-called whale-headed stork, or *Balæniceps Rex*, belongs to the boat-bill family. He is found in the marshes which lie upon the

White Nile and some of its affluents, and more particularly in the

country inhabited by the Kitsch and Nuer negroes. Petherick describes him at some length. He appears to possess considerable powers of flight. His chief food is fish.

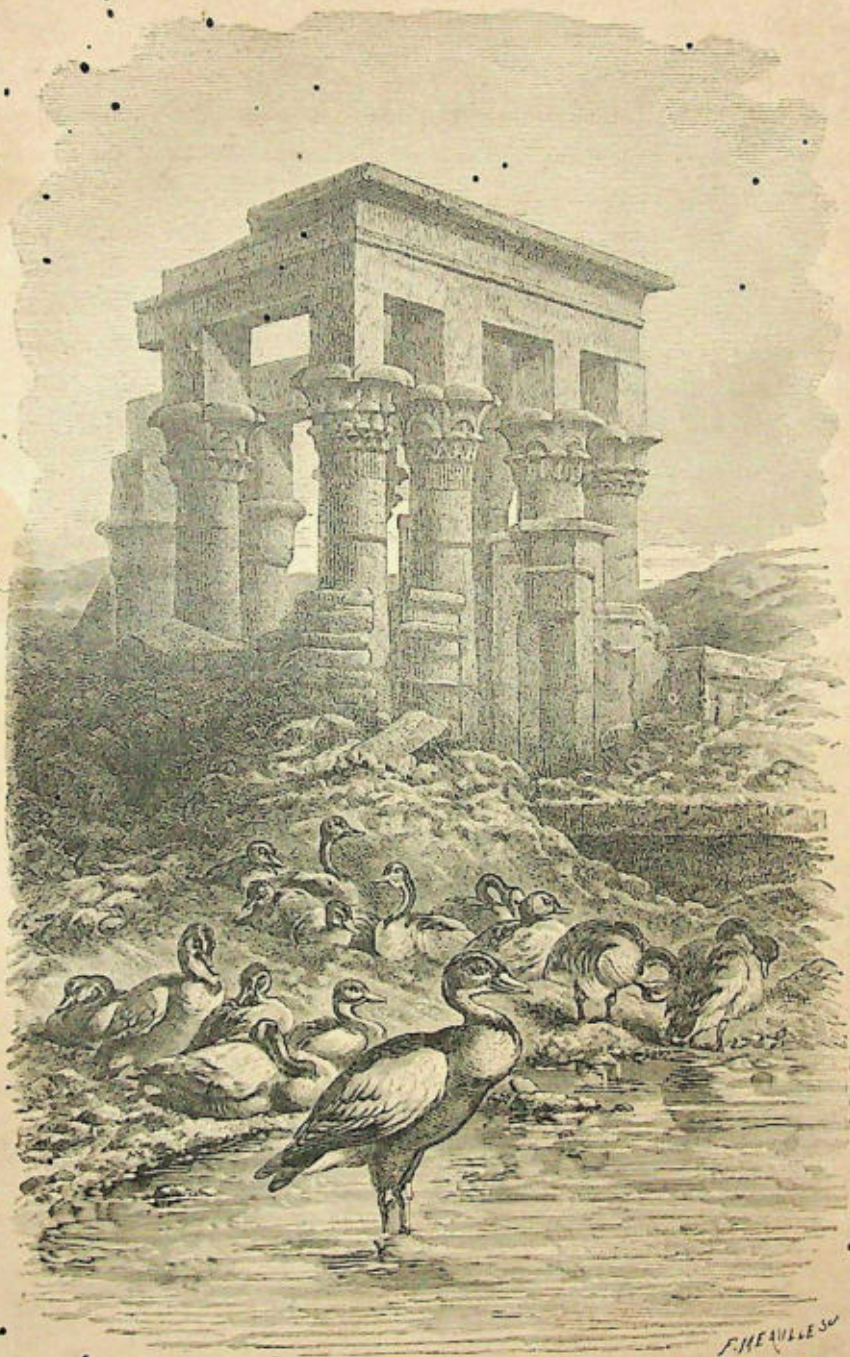
The marabout is not a true stork, though near of kin. In India he is called the argala; while his English sobriquet is "the adjutant," in allusion to his military bearing. He has an enormous bill, while from the under part of the neck depends a curiously-shaped pouch. From beneath the wings are obtained the beautiful marabout feathers. A species of marabout is found in Senegal.

THE GRIFFIN VULTURE.

Among the scavengers of Egypt we may place the griffin vulture, which the voyager on the Nile will constantly catch sight of, engaged in a banquet upon carrion, or perched on a sand-bank and watching for a happy opportunity. He is by no means a hero. Mr. Smith tells us of one which retreated before three tiny hooded crows. He was tugging away at a carcass when they made their appearance; and as first one, and then another, jumped up at his head, or fluttered over him defiantly with outstretched wings, the great cowardly monster withdrew from the prey, and eyed the feast despairingly from a little distance. When the crows retired, he would advance cautiously to the dainty morsel; only to be bullied again by his diminutive antagonists, one of which sufficed to drive him back in abject terror from the spoil.

Mr. Smith adds that on one occasion he saw nine vultures on a single sand-bank, and fourteen on another at two hundred yards distance; on the next day twelve, and on the following day twenty. Wherever a carcass became putrid, the vultures immediately assembled in flocks. As carrion of one kind or another abounds in Egypt, those useful scavengers also abound; and most laboriously do they pursue their vocation—never resting until they have disposed of all objectionable matter. Notwithstanding their unclean habits and their craven disposition, these birds are of dignified appearance. Sometimes they may be seen in an immense body, soaring in the air at an incredible elevation—now sailing each in his own circle, and now floating motionless on expanded pinions.

"Pharaoh's hen," is the popular sobriquet of another species of vulture—the Egyptian, or *Neophron percnopterus* of the naturalists. He is of filthier habits than the griffin, and of a meaner and more disagreeable aspect. He may be found on all the sand-banks of the river, to which he seems to make a point of retiring when gorged; or he frequents the ruined palace-temples of Karnak and Memphis, where, perched on a magnificent column, with tail drooping and wings half closed, he may be taken for an evil genius brooding over the remains of departed splendour. He may be seen, too, on the outskirts of the towns and large villages, squatting on the open ground; the adults with yellow plumage, the young of a sombre brown. "If we sailed near them," says the Rev. A. C. Smith, "as we often did, when they stood with ruffled plumage on a sand-bank, they bore a most astonishing resemblance to Cochinchina fowls, and the Arabic name of 'Pharaoh's hen' seemed most appropriate. Occasionally I have seen a flock of these most unsavoury birds soaring high in the air.....This habit of congregating for aerial manœuvres was something quite unlooked-for by me. I had always supposed that vultures, like carnivorous animals generally, were not gregarious, but that when they did assemble it was from the common attraction of some putrid filth, and that they had come, as we may truly say of this bird, each on his own hook. But here they were unmistakably associating, not for business, but for amusement—wheeling in circles, about and among, above and below one another; and with all my dislike of the species, I must in common candour confess that graceful and elegant evolutions they were. What, however, has given me the greatest disgust at these unclean birds, so that I shall ever shudder to my dying day at the thought of vultures, was the sight of above a hundred of them, of all species, congregated on a bank, and gorged to the full with human flesh; and I shall always think of them for the future with a feeling of positive revulsion, calling to mind the dreadful banquet on which they had fed, and recollecting how, in company with some twenty dogs, which had evidently lost home and master in the disturbances, they sat with drooping wings and distended crops on the river-bank, sleeping in the hot sunshine."



EGYPTIAN GESE.

F. HEAULES

ABOUT THE CRANE.

Passing over the Egyptian goose, which presents no characters of special interest, but is found throughout the green Nile valley, from Phike's temple-crowned island to Karnak, the last Egyptian bird to which we shall allude is the graceful crane. We have called him Egyptian, but he is common in almost all warm countries, and was formerly known in England. In the fen districts, before they were drained and cultivated, he was a yearly visitor, and as late as the reign of Edward IV. figured on the tables of our kings and wealthy barons.

One of the most remarkable circumstances connected with this bird is the regularity of his annual migrations. He flies to temperate climes to enjoy their genial summer, and returns to southern lands to avoid the blasts of winter. But he does not fly alone. Though at other times he retires with his mate to the lone morass, and builds his nest of reeds and rushes on a solitary and shattered tree, he seeks the society of his kind when the annual exodus begins. Then the immense and noisy company fall into two lines, which in front meet at an acute angle, so as to form a wedge-like figure, resembling the Greek gamma (γ). One of the flock always flies in advance of the main body, and constitutes the vortex of the angle; his place being taken by another as soon as he is fatigued by his efforts as a pioneer, and he retiring to the rear. Further, when the migrating phalanx meet with a lofty mountain, they utter shrill cries, apparently of anxiety and warning, and falling out of rank, ascend spirally, one by one, until they have attained a sufficient elevation. When the mountain is left behind, they resume their original formation.

The characteristics of the common crane and those of the demoiselle or Numidian, and the paradise crane, are virtually identical. In describing one we shall describe all.

The crane, then, is a peculiarly graceful bird, while, at the same time, he is one of singular prudence and intelligence. An enthusiastic writer avers that his intellectual faculties recall those of man! All his movements are elegant; all his ways interesting. This large, well-shaped, nimble bird, with his senses so well developed, and his intelligence so considerable, is perfectly aware of his advantages, as he shows

by all his actions. His steps are light, measured, calm, and dignified; he runs only when hard pressed; without effort he rises from the ground, after one or two preparatory bounds; with a few blows of his powerful wings he gains a sufficient elevation; then, with neck and feet outstretched, he continues his flight, tranquilly but rapidly, towards the object which he has in his mind's eye. Yet there are moments when this same bird, this embodiment of grace and dignity, abandons himself to various recreative exercises,—unbends, as wise philosophers will do in their lighter hours. Then he leaps with joy, assumes the most singular postures, opens his wings, and dances, or rather flies, describing circles of the most superbly graceful character.

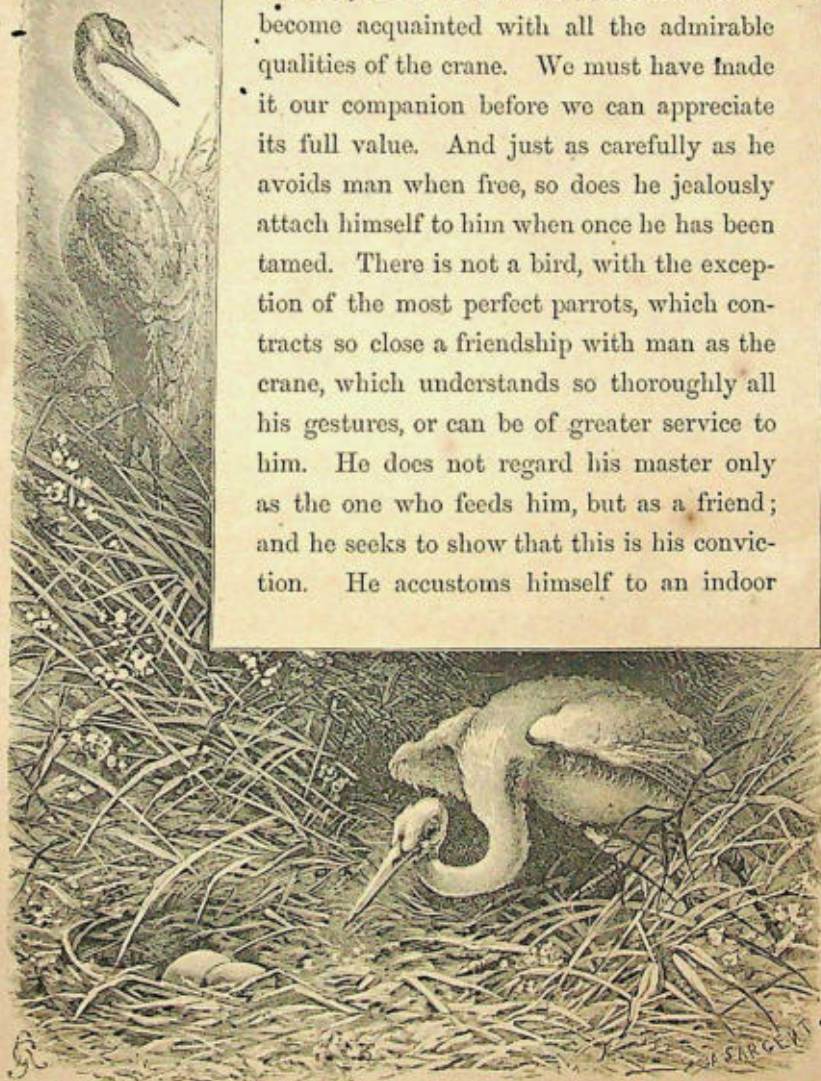
Linnaeus allied the cranes with the herons; other naturalists connect them with the storks: but the fact is, they differ greatly from both. The heron is prone to assume the most ridiculous postures, and, says Brehm, under more than one aspect is quite a caricature. The stork, too, has its absurdities. But with the crane every movement is graceful, even when the bird is in his joyous mood. He picks up tiny pebbles and fragments of wood, throws them in the air, endeavours to catch them; curves his body rapidly, and several times in succession; beats his wings, dances, leaps, runs from side to side; and seeks in every way to express his gaiety and good-humour, while always and ever remaining beautiful and gracious.

His prudence is really astonishing. More rapidly than any other of the stilt-birds does he learn to judge of things, and to adapt his way of life accordingly. He is not timid, but he is prudent to a degree, and therefore very difficult to "catch napping." Alone, his vigilance is incessant; in the company of his congeners, he throws out sentinels to watch over the common safety; and if he is disturbed in any particular locality, he sends out skirmishers to reconnoitre before he returns to it. Says Brehm:—"It is with real pleasure I have seen examples of the prudence of the African cranes, when they have become aware of the hostile intentions of the sportsmen. They sent out a spy or scout, then several; these examined everything, looked into all the nooks and corners, and returned to the community, who had not always full confidence in their report. A fresh company, of



PARADISE CRANES.

scouts was despatched, as if to decide whether it could be trusted; and, finally, the whole band arrived. It is not only in his state of freedom that we become acquainted with all the admirable qualities of the crane. We must have made it our companion before we can appreciate its full value. And just as carefully as he avoids man when free, so does he jealously attach himself to him when once he has been tamed. There is not a bird, with the exception of the most perfect parrots, which contracts so close a friendship with man as the crane, which understands so thoroughly all his gestures, or can be of greater service to him. He does not regard his master only as the one who feeds him, but as a friend; and he seeks to show that this is his conviction. He accustoms himself to an indoor



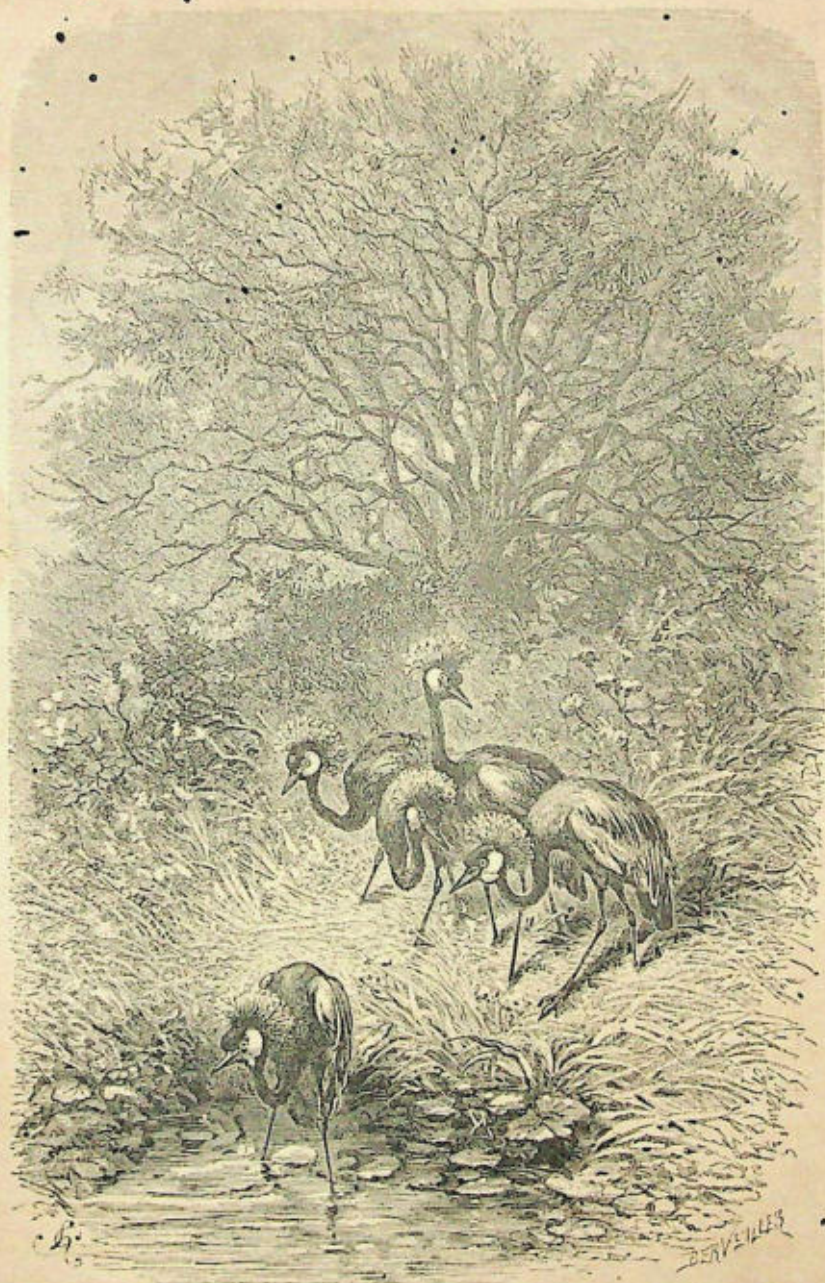
life more easily than any other bird; knows every corner of every room; he judges the exact degree of intimacy to which different persons

or animals are admitted in the household; for order and regularity he has a perfect passion; he allows in the courtyard no dispute; watches the cattle as well as the best-trained dog can do it; punishes those who molest him, by uttering piercing cries and striking with his beak. He shows, on the contrary, his gratitude and kindly sentiments by courteous inclinations of the body and lively dances; is very partial to persons who treat him well, and seeks their society; but of any ill turn he preserves the remembrance for months and years;—in a word, he has a man's heart and mind under the plumage of a bird."

The reader's breath will almost be taken away by this impassioned eulogium, compared with which the warmest panegyrics of our English naturalists must seem frigid enough. But let us turn to Toussenel, who writes of birds with scientific accuracy and poetic fervour. The crane inspires him as it inspires Brehm.

The European crane, he says, stands three to four feet high. He is a bird of noble presence, with black tarsi and beak; his body plumage of a uniform ashen-gray—almost of the same tint as that of the heron, but darker. He wears a black collar, and the top of his head is bare, and vermilion-coloured. He seems to have been fashioned on a better model than any of his congeners; the proportions between the different parts of his body are more harmonious; lightness is combined with strength, and grace with majesty. "A peculiar disposition of the secondary feathers"—we must here translate Toussenel literally, to do justice to his enthusiasm—"such as is found in the Australian swan, forces their extremities to rise up behind in a sumptuous plume, which gives to the *ensemble* of his attire a stamp of distinction and coquetry. All the family seem, by the way, to attach great importance to their toilette; which is very natural, since the dance is the favourite pastime of most of the members. We do not go to a ball in thick boots and a frock-coat!"

In Toussenel's opinion, the most coquettish and sportive of the cranes is the crested crane of the Senegal. This bird, he says, is possessed of an archness and a gaiety which not even captivity can seriously affect. She is fond of decking herself with feathers and glass beads; and wears them from the tip of her wings to a point below the eyes. Her great



CRESTED CRANES.

partiality for bright-coloured stuffs sometimes leads her astray. Velvet-black and purple, the white of silver and the yellow of gold, are frequently so strongly contrasted in her costume, that it comes to resemble a harlequin's, and is deficient in distinction if not in originality.

The Numidian demoiselle has "more fashion, more reticence and decency," and skilfully blends choregraphic suppleness and graceful poses with dignity of bearing. She is a great lady of the age of Louis Quatorze, who loves, before all things the stately minuet, and has a sovereign contempt for the galop and the waltz. Her attire, exceedingly artistic without any show of art, is a model of good taste and simplicity. These "demoiselles," as they are not inappropriately called, love to contemplate their portrait in the crystal of the waves and the mirrors of Venice. According to Aristotle, they are so passionately fond of the dance, that it sometimes leads them to forget the sentiment of their personal safety, and in their rapturous enjoyment of an entrancing figure they allow themselves to be surprised by the enemy. We hardly turn to the Greeks, however, for accurate observations in natural history. They indulged too largely in the imaginative and ideal, and thought more of grace of fancy than of exactness of statement.

It has been suggested that they owe their name of "demoiselles" to the habit they have of bridling up when examined by the admiring spectator; like, says Toussenel, the young coquettes of a village when they pass under the fire of the ardent glances of a regiment on leaving church—a comparison which would never have occurred to anybody but a French naturalist! And of old, it is said, hard-hearted men took advantage of the fondness of these poor creatures for elegance of dress and the performances of the toilette, to devise for them an unworthy snare. The process was this: the sportsman first washed his hands and face at a certain distance from the birds, who never failed to watch him carefully; then he poured some birdlime into the basin instead of water, and retired softly. The curious cranes, immediately on his departure, essayed to repeat the performance. Of course, they besmeared head, feet, and breast with the adhesive substance, and quickly fell victims to their curiosity.

The cranes of Europe and Asia naturally share the partiality of their congeners for the dance. Kempfer relates that in Japan they

were formerly trained to the exercise, and by skilful instructors were taught to execute the most ingenious pantomimes and sprightly measures. Persons who have watched the mazy motions of domestic turkeys, will find nothing surprising in this statement. But the turkey, says a French writer gravely, without being an enemy of dancing, has, however, much less natural vocation than the cranes for this art.

The moral characteristic which distinguishes the genus "crane" from every other, is their respect for discipline and order. Nothing in their commonwealth is promulgated or carried out which has not been previously discussed in public session; and obedience to the law is then esteemed the primary duty of all citizens. The day and hour of their migrations are regulated by a *senatus consultus*, in the enactment of which every adult bird takes part. The leaders of the expedition are appointed in public assembly by the majority, or rather by a unanimous vote; for intrigues are impossible where the attainment of rank confers no other advantage than that of serving the republic in the most perilous post. Accordingly, all the suffrages are given to merit and capacity,—to the most vigorous wings, the keenest sight, the most consummate geographical erudition. When the fate of an expedition depends on the experience and wisdom of its leader, we can conceive that the choice of that leader will be for all interested a matter of close investigation; and as all are equally concerned, there can be no reason why any vote should go astray, and fall on an unworthy individual. The genus *Homo* is, in this respect, much less advanced than the genus *Grus*, humiliating as such a confession must be felt. The genus *Homo*, moreover, has explicitly recognized the wisdom evidenced in the deliberations of the genus *Grus*, by giving to its political and diplomatic assemblies the significant name of "congress," which is derived from the Latin *congruere*, "to gather together like cranes." A congress therefore means the assembly *par excellence*.

We have described the order assumed by the cranes in their periodical migrations as triangular, or wedge-like, which was also the order of attack of the celebrated Macedonian phalanx. The directing and controlling power of the number Three, and of the triangle, are well known, says Toussenel; and no doubt they played an important part

in the old magic and the philosophy of the Cabala. It is more to the purpose to say that the wedge-form is well adapted for attack, as well as resistance; and for this reason, probably, has been intuitively adopted by the swans, geese, ducks, and other migratory birds.

Cicero, in his "Natura Deorum," has an ingenious passage, in which he explains that the order of march of the cranes is so arranged that the rear-guard pushes forward the *corps de bataille*. Whether the Roman philosopher's reasons are wholly satisfactory, may be doubted; but it seems probable that, from the perpetual displacements which occur in the ranks of all birds whose flight describes a triangle, or rather an acute angle, the most difficult post is that of the apex of the angle. The bird who occupies it has to cleave the current of air and carve out a path, so to speak, for those who follow him. Therefore it is that, when his wings are exhausted by the continuous effort, he gives place to another, and falls back into the rear-guard. It has been observed that the soldiers in the central or main body are not affected by these manœuvres; and hence we conclude that the intermediate ranks are composed of young birds, and that the adults arrange themselves in such a manner as to relieve them of all difficulty and exertion. This is not the only instance of fraternity and prudence which the ways and manners of the cranes present to the careful investigator.

The ancients, if not very accurate, were at all events very loving observers of the aspects of Nature, and especially of the flight of birds. They were of opinion that the cranes never abandoned their triangular array except on the occurrence of some grave atmospheric perturbation, or the appearance of the eagle, their formidable enemy. And on this slender basis of fact they founded numerous airy structures of fiction, which have amused the credulity of the moderns. For example: they pretended that when the cranes of the lands bordering on the Euxine approached the Taurus mountains, which interpose on the route from Thrace and Scythia into Egypt, where they spent the winter, the fear of falling into the clutches of the eagles which people that great chain made them adopt the most notable precautions. A first order of the day prohibited diurnal marches; a second required every one of the nocturnal convoy to take a pebble in his beak, effectually to prevent

him from "giving tongue" on the way. Through these devices the passage was accomplished securely: or if a catastrophe took place through the indiscretion of a member of the society, at least it was easy to detect at once the guilty wretch; and so punishment followed immediately on detection—the "terrible example" cured the gossips of their propensity to chatter.

The Greeks, however, did not err in affirming that many timorous birds change their hours of departure when they have to traverse a formidable pass. This is as true of the crane as of the goose, the duck, the thrush, and other feathered wanderers.

Having noticed also that the cranes had the soldiers' custom of posting sentinels at night round the place where they determined to feed and sleep, the Greeks felt impelled to introduce another pebble into their voracious narrative. Though the new fable is but a variation of the former, it has had more success; in fact, so much success, that the crane has become by virtue of it the official emblem of vigilance, and the craft of printers on the Continent have adopted it as their emblem.

"I have told the history," says Toussenel; "now for the romance. It happened one night that, through want of vigilance on the part of a sentinel who had fallen asleep, a ferocious enemy, whom we will suppose to have been a fox, introduced himself into the camp, and gathered there a rich harvest. To prevent the recurrence of such a disaster, it was decided that for the future the sentinels should be obliged to stand on a single foot, and hold a pebble in the other, so that the fall of the stone might waken them if they should be on the point of yielding to drowsy influences. And thenceforth the hieroglyphic sign of watchfulness was a crane on guard, holding a pebble in his claws. An Elzevir *à la grue* is worth, now-a-days, an almost fabulous sum."

It is not from yesterday, we can assure the reader, that the good relations date between the cranes and letters. An opinion as old as the classic world or as the game of chess will have it that these birds suggested to Palamedes the invention of the letters Y and V (*n* Greek), both representing the acute angle which the cranes describe in their flight. Thence comes the name of "the bird of Palamedes," sometimes given to the crane.

The mute but eloquent testimony which the cranes bore in the matter of the assassination of Ibycus also contributed greatly to their popularity. The story runs that Ibycus was a lyric poet who had many enemies, and that the latter killed him one day when he was musing in the fields. It happened that a flock of cranes passed above the scene of murder. The victim, calling these birds to bear witness to the crime of the assassins, exclaimed to them, "Be ye my avengers!" Though the murder made much noise, its perpetrators remained unknown, until, one fine evening, two strangers who were walking in the public place* of Corinth, on perceiving in the air a company of cranes, allowed the imprudent exclamation to escape them, "Behold the avengers of Ibycus!" Hearing the well-known name, the bystanders were aroused; and the mysterious expression was repeated by a thousand mouths. The crowd surrounded the two friends; the magistrate ordered their arrest, and questioned them with so much closeness and intelligence that eventually they confessed their guilt. The phrase, *αἱ Ἰβύκου γέραναι*, became proverbial.†

The wars of the Cranes and the Pygmies had also a reasonable amount of popularity in the old days. They have been immortalized by Homer:—

"As when the cranes,
Flying the wintry storms, send forth on high
Their dissonant clamours, while o'er the ocean stream
They steer their course, and on their pinions bear
Battle and death to the Pygmean race."

According to Aristotle, the Pygmies were located near the sources of the Nile, and thither the cranes migrated annually to take possession of their fields. Both Pliny and Aristotle have endeavoured to explain the fable, but not very satisfactorily. It may be conjectured, perhaps, that the Pygmies, those little men, two feet in stature, who lived in caverns, were really monkeys, on whom the cranes levied black-mail when they fell in with them on their return from pillaging the stores of the farmers. We may add that recent travellers have discovered in Equatorial Africa a race of men below the average stature, some account of whom, travelling as far as Greece, and gaining embellishments on the way, may have suggested the poetic fiction.

* Some say the theatre.

† This legend has been finely treated by Schiller.

Interesting as is the crane from the mythological point of view, he is not less so in relation to the once popular pastime of falconry. In Europe, during the Middle Ages, and in Asia, everywhere and always, the crane has been considered a royal or imperial bird of the first class. In Japan, where he is and has ever been reserved for the sovereign's use, he is treated with great distinction. Nor is less consideration shown him by the Tartars, who are well known to be skilful falconers.

We conclude our notice of this remarkable bird, in which we have introduced so much of the pleasant fancy of the author of the *Ornithologie Passionelle*, with an extract, plain and sober, from an English traveller and naturalist, Sir J. Richardson, who speaks not less enthusiastically than the fervent Frenchman of the migratory array of the cranes. Immediately after landing, he says, we were surprised and delighted with a flight of birds, which we discerned at first like a thick dark speck in the heavens, gradually enlarging as it approached, and revealing at length the manner and order of their flight. They wheeled along in airy movements in the form of a semicircle, enclosing within itself numbers of smaller circles; the component parts of which were constantly shifting their relative positions, advancing to the front as if by a sudden impulse, then falling back to the rear, alternately occupying and giving place to others. The lively competition was constantly maintained; each of them every instant passing or passed by his fellows. All was grace and harmony, adds Sir J. Richardson, not one discordant movement throughout the whole array; everything appeared as if regulated by a preconcerted plan, in which each member understood and performed his part with freedom and precision, alike the subordinates and the superiors. They held on their steady flight from north to south, following the course of the river as far as the eye could accompany them.

PHEASANTS.

Is it not Pope who describes so well the death of the pheasant, brought down by the gun of some relentless sportsman?—

“ See from the brake the whirring pheasant springs,
And mounts exulting on triumphant wings!
Short is his joy; he feels the fiery wound,
Flutters in blood, and panting beats the ground.

Ah, what avails his glossy varying dyes,
His purple crest, and scarlet-circled eyes,
His vivid green, his shining plumes unfold,
His painted wings, and breast that flames with gold !”

Wherever pheasants are found—and they are found in all the temperate regions of Asia and Europe—they commend themselves to the lovers of good cheer. In England they have long been of good repute as a gastronomic delicacy. They figure in the banquet imagined by the fine old Devonshire poet, William Browne :—

“ Pheasant and partridge into jelly turned,
Grated with gold, seven times refined and burned ;”

And Ben Jonson makes his Sir Epicure Mammon say :—

“ My foot-boy shall eat pheasants, calvered salmons,
Knots, godwits, lampreys.”

In that great feast made by Archbishop Neville, two hundred pheasants smoked upon the board. It was not until 1250, however, that they were known in Europe; and we may well condole with the shades of our ancestors who had gone over to the majority before this memorable event, and never known the flavour of roast pheasant. We find it difficult, however, to believe in this ignorance, when we remember that the bird was a necessary concomitant of a Roman banquet; and that Heliogabalus fed his lions upon pheasants' flesh. And as early as 1210, a



French preacher was good enough to inform his hearers that the pheasant was food for the clergy only, so that, made part of their glorious bodies, it might be raised to heaven, and not with profane eaters descend to the infernal regions. So highly was it esteemed, as to acquire an almost sacred character. In 1415, the Duke of Burgundy, at a sumptuous entertainment, swore a solemn oath, over a roasted pheasant, that he would lead his warriors against the infidel Turks.

The favourite habitat of the pheasant is the thick leafy forest, with its ferny growth and intertangled grasses; or the hazel copse watered by a rippling stream; or the reedy coverts of a low osier-fringed island. Such were the features of ancient Colchis; such the character of the valley of the classic Phasis, whence our bird was imported into Europe, and whence he derives his English name, through the Latin *phasianus* and the French *faisan*. Such, at all events, are the favourite haunts of the *Phasianus colchicus*, or common pheasant. And a glorious creature he looks,—to quote the language of a popular writer,—as he fares along the grassy glade of a wood, now raising his head as if to listen, while perchance a sunbeam falls upon his burnished neck, then stooping to pick up a fallen acorn, while the long plumes of his tail sway in the wind like silken pennons, or, startled by the murmur of the long reeds which revealed the secret of Midas, plunging among the underwood, or rising with labouring wings to the ivied branch of a tree. He loves the open woods, but not the dense shades of the forest; and always and everywhere seeks the vicinity of water. The more thickly the ground is covered with low bushes, the better he is pleased; for his natural timidity makes him desirous of a ready refuge in case of danger. Of one thing you may be sure, he will never be found in dry and unfertile fields, or in the neighbourhood of coniferous trees.

A day's life of a pheasant is easily sketched; its incidents are few, and unless the sportsman or the poacher intervene, they present little variety. He goes forth early, and spends hour after hour in gliding from one bush to another, skirting the thorny hedges, and wandering on the borders of the woods; with an occasional excursion into the neighbouring fields for the purpose of feeding, according to the

time of year, on the seeds entrusted to the soil or the gleanings left by the reaper. Evening comes; and he seeks a tree where he may pass the night. In shrubby plains he retires to a broom or a thorny bush, and feels that he may sleep secure. At the approach of an intruder, however, he at once flies off to a more complete concealment.

Naturalists do not speak very enthusiastically of his moral and physical characteristics. They admit that the male has a haughty and majestic march, but it is inferior, they say, to that of the domestic cock. He flies laboriously, heavily, almost clumsily. As for his intelligence, it



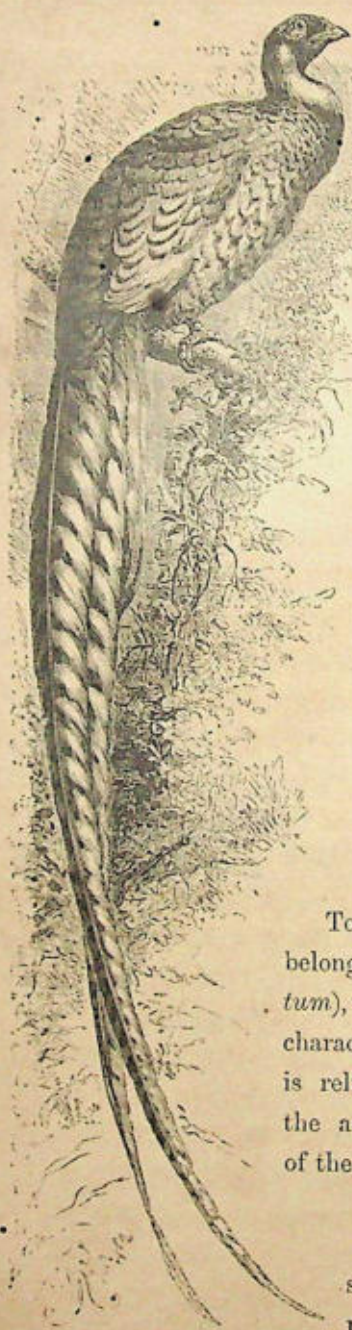
cannot claim our admiration. A French writer gravely says, that none of the pheasants are capable of taking, at the right moment, the right decision. As this, however, may be said of most men, it might not in itself be considered a proof of intellectual inferiority; but, sooth to say, the Colchican bird does not rank high among feathered sages. Let us place to his credit his love of freedom. When he has found a locality which suits his taste, he establishes himself there; but he delights to make continual excursions in the neighbourhood. Conscious of his feebleness, of his incapacity to defend himself against more powerful animals, he seeks retirement as much as possible. He can never be thoroughly tamed, for he does not learn to distinguish his master from any other person, and his idea is that everybody is an enemy, whom he ought to fly. He is constantly apprehensive, because he is not clever enough to conceal himself when danger threatens.

It would be difficult, says Winkell, to find a wild animal whom one can so easily put to discomfiture, and render incapable of taking a decisive resolution. If he be surprised by a man or a dog, he seems no longer able to remember that nature has given him wings with which to save himself; he remains motionless, hiding his head, or runs distractedly from one side to another. Nothing is more perilous for him than the vicinity of a stream of water. If he wanders on to its bank, he remains there with eye fixed on the wave, and takes no heed though his wings should be so soaked and bedraggled as to be unfitted for flight. Winkell surprised a pheasant in such a situation; but instead of making any attempt to escape, he advanced further into the water. When his feet no longer touched the bottom, he allowed himself to drift, with wings widely extended, patiently awaiting death. The naturalist, however, was a man of humanity, and with the help of a hook brought the melancholy would-be suicide to the bank, and rescued him. We have never met with any attempt to explain this curious infatuation. Is it due to timidity? Does the bird mistake the reflection of his figure in the water for an enemy? It is, at any rate, certain that he shows even greater helplessness and passive submission to an unwelcome destiny when pursued by some carnivore,—

for example, by a dog. To the pheasant, much more truly than to the ostrich, may be applied the saying, that he thinks he is in safety when he has hidden his head. Naumann declares that his cowardice—if we can call cowardice what is obviously a “constitutional infirmity”—is perfectly unlimited. It is not exceeded even by the hysterical panic of a sentimental young lady. A mouse throws him into an excess of terror. A crawling snail will so affright the hen-pheasant as to induce her to forsake her eggs; though she remains in a kind of reverie, motionless and, as it were, dead, when threatened by a real danger.

It is another interesting fact in the social physiology of the pheasant, that he shows no affection for or sympathy with his kind. He is the very impersonation of sullen exclusiveness. An American backwoodsman is not more indifferent or averse to the joys of friendship. There are hermits in the Bird World as well as among men. Two cock-pheasants meet one another; immediately they fall to blows; they fight furiously and breathlessly; their feathers are scattered in all directions; their blood flows freely; and often the combat has a fatal issue. Every pheasant-keeper knows that a couple of cocks must not be left together; they must be separated, or a third must be introduced as peace-maker. It may be added, that the male bird shows no affection for his mate or his young.

There are pheasants and pheasants. The common English species is a handsome bird, with steel-blue plumage about the neck, and a mixture of black, brown, orange, red, and light yellow on the back and wings; the breast and belly glowing with a golden red, and shot with lustrous tints of gold and purple. There is also the ring-necked, originally a native of the warm wooded districts of India and China. Java produces the *Phasianus versicolor*, with emerald prevailing in his glossy plumage; and the north of China Reeves' pheasant, whose predominant colour is white, and whose tail is nearly six feet in length. The golden and silver pheasants are also natives of China. Of the former Badius quaintly says: “Though he has been known for ages, the spectator contemplates him always with the same feelings of



REEVES' PHEASANT.

admiration. Even the power of habit cannot deaden the pleasure derived from the sight of his rich plumage; while he who sees the bird for the first time cannot remove his eyes from him."

This may be true; but at least the golden pheasant has a powerful rival in Lady Amherst's,—a species so called because introduced into Europe by the wife of Lord Amherst, English ambassador to China in the reign of George III. We are not about to attempt a description of him, lest we should be supposed to have in our memory the catalogue of an artists' colour-maker. But the bird rejoices in a crest of red and black; in a bright golden green about the upper wing-coverts and the back, passing into a golden yellow; to which the pure white of the under parts affords a delightful contrast.

To the highlands of China, east of Peking, belongs the ear-pheasant (*Crossoptilon auritum*), or *Ho-ki* of the Chinese. The general character of his plumage is sombre, but it is relieved by the whiteness of the throat, the auricular tufts, and the upper feathers of the wings.

To the numerous family of the Phasianidae, but occupying a kind of middle position between the pheasant proper and the peacock, belong the beautiful

Argus pheasants. Strange to say, they were not known in Europe until 1780; and, if we mistake not, the first accurate description of them was recorded by Marsden in his "History of Sumatra." They are even now not too familiar, for they are not readily acclimatized in European countries. But of their beauty no doubt can exist. Their native country is the peninsula of Malacca, where they seclude themselves in the deep lowland forests. Wallace says that during his Malayan excursions he frequently heard their cry; but on asking an old Malay attendant to try and shoot one for him, he replied that, though he had been for twenty years shooting in the forests, he had never yet shot a great Argus pheasant, and had never seen one except after he had been caught. The bird, adds Wallace, is so exceedingly shy and wary, and runs along the ground in the densest parts of the forests so quickly,



THE EAR-PHEASANT.



ARGUS PHEASANT.

that it is impossible to get near him; and his sober colours and rich eye-like spots, which are so ornamental when seen in a museum, must harmonize well with the dead leaves among which he dwells, and render him very inconspicuous.

The tail of the Argus pheasant resembles in character that of the peacock. It consists of twelve feathers, of which the two middle ones in the male are considerably elongated, and, as well as the secondaries of the wings, are covered with eye-like markings. The distinctive name of the genus alludes to a classical myth. Argus, or Panoptes, the "all-seeing," was endowed with a hundred eyes, and as some of these were always awake, it was not easy to surprise him. Hera therefore appointed him guardian of the cow into which her jealousy had metamorphosed Io. Hermes being commissioned by Zeus to carry off this cow, succeeded in the difficult task by lulling Argus to sleep with his exquisite flute-playing, and then cutting off his head. Whereupon Hera transferred the hundred eyes to the tail of her favourite bird, the peacock; evidently not knowing that the pheasant we speak of could

already boast of quite as many! Æschylus makes considerable use of this fable in his "Prometheus," in which Io appears, followed by the Spectre of the Many-Eyed:—

"Spectre of Argus, thou, the earth-born one—
 Ah, keep him off, O Earth!
 I fear to look upon that herdsman dread,
 Him with ten thousand eyes.
 Ah, lo! he cometh with his crafty look,
 Whom Earth refuses even dead to hold."

Afterwards she relates the story of her woes to the Chorus:—

"At last a clear word came to Inachos,
 Charging him plainly, and commanding him
 To thrust me from my country and my home.....
 And he, by Loxias' oracles induced,
 Thrust me, against his will, against mine too,
 And drove me from my home.....
 And then forthwith my face and mind were changed;
 And horned as ye see me, stung to the quick
 By biting gadfly, I with maddened leap
 Rushed to Kerchneia's fair and limpid stream,
 And fount of Luna. And a giant herdsman,
 Argus, full rough of temper, followed me,
 With many an eye beholding, on my track;
 And him a sudden and unlooked-for doom
 Deprived of life."

The giant Argus figures largely in Malay poetry; and the Malays affirm that he performs the *galangane*; that is, dances in an access of pride and vanity like the peacock. The Malays of Sumatra call him **kuwan*; the Bangerezi, who inhabit the southern parts of Borneo, *hamwe*. Rosenberg describes him, on the authority of the natives, as a polygamous bird; and asserts that he lives on insects, snails, worms, buds, and seeds. Marsden says: He is, perhaps, the most beautiful of all birds. When he has been captured in the forest, it is very difficult to keep him alive. He hates the light. If kept in a dark corner, he is lively and joyous, and makes his cry heard all around. His name, *ku-an*, is an onomatopoeia of it, and more plaintive and less penetrating than that of the peacock. If brought into the glare of day, he remains motionless.

There let us leave him, and pass on to another of the Phasianidae, —the Lophophores, or pheasant birds, which confine their habitat to the mountains of South-eastern Asia. The principal species is the monaul or Impeyan pheasant; the latter name referring to Lady Impey, who introduced it into Europe.

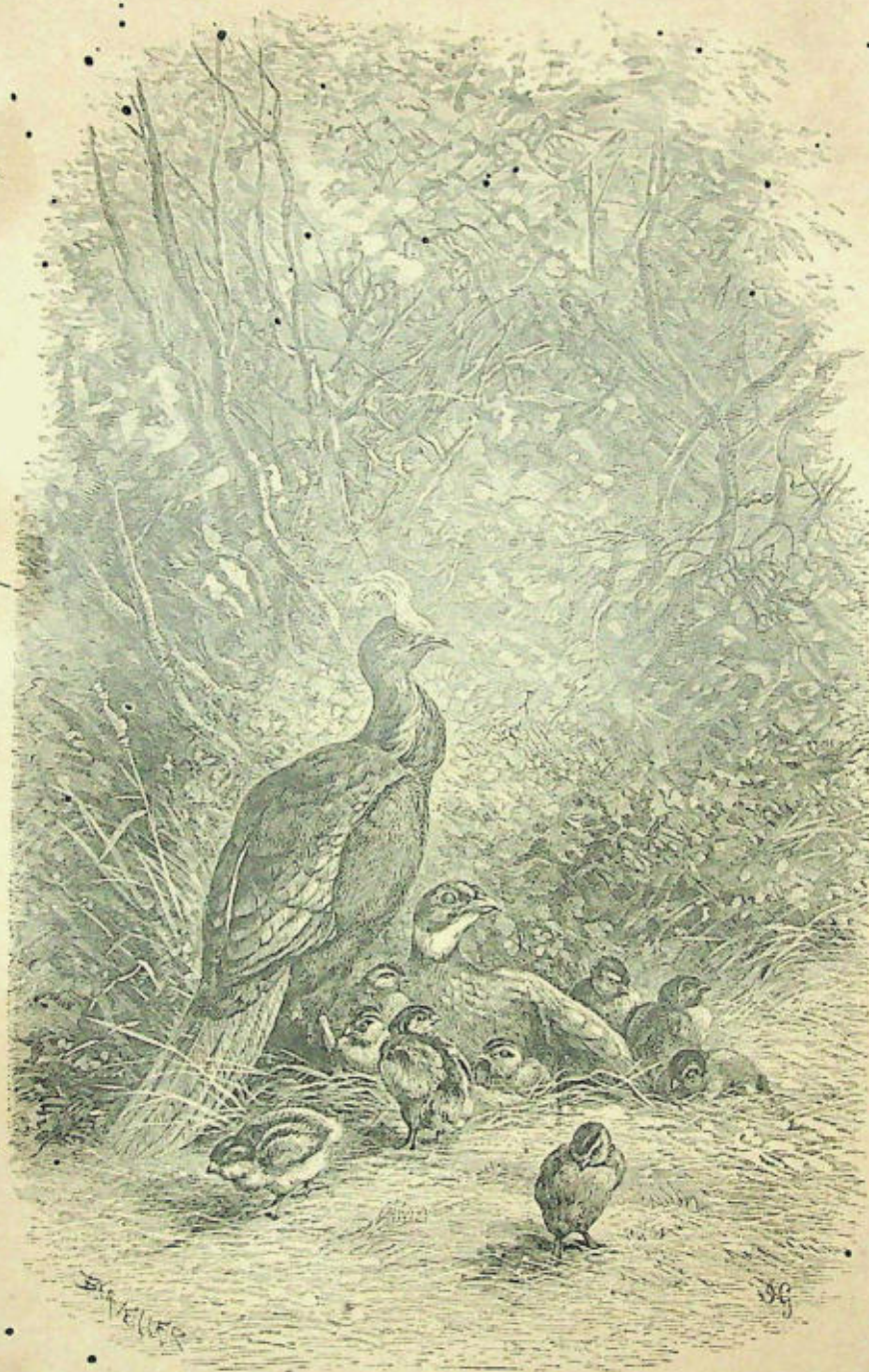
Among the gallinaceous birds, the monaul rightly claims precedence by virtue of his surpassing beauty. Imagine a crest of long slender feathers, with spatulated extremities, glistening of a fine metallic green; throat of the same colour; the nape of the neck and top of the back of carmine, with all the brilliance of the ruby; the back and lower part of the neck of a bronze green, with gleams of gold; the mouth, upper wing-coverts, and tail of a violet or bluish green;



PEACOCK PHEASANT.

some of the lower back feathers white; the under part of the body black, with green and purple tints flashing over the breast; the brown eye surrounded by a bluish ring;—imagine all this mixture and contrast of hues, blended together in perfect harmony, and lighted up with an indescribable sheen—imagine all this, and then wait until you see a monarch to realize fully his imperial magnificence. “Not Solomon in all his glory!”

As if disdaining to mingle with the “common herd,” our monaul



IMPERIAL PHEASANT.

confines himself exclusively to the mountain-heights of Nepaul and the Himalayas, rejoicing in the free pure air which he breathes at an elevation of six thousand to ten thousand feet above the sea. He never descends into the plains.

The following description is adapted from Mountain, and as the monaul is altogether an unfamiliar bird, will, we hope, prove both novel and interesting to our readers:—

When Europeans first penetrated into the mountains in the neighbourhood of Mussuri, he was very common there, and even now he is sometimes descried. In the summer-time he is rarely seen, the lianas and the luxuriant vegetation preventing the eye from plunging into the forest-shades; but at morn and eve he may still be seen on the very threshold of the region of perpetual snow. When the cold season sets in, and the lianas fade, and the plants which cover the ground wither up, the forest appears to be filled with him and his congeners. They congregate together in large companies, and in many places the sportsman, in a single day, may "start" upwards of a hundred. But in summer nearly all the males and many of the females mount towards the lofty peaks and pinnacles. When Autumn's decaying finger touches the earth's life, old birds and young assemble wherever the ground is covered with a harvest of dead leaves, seeking for insects and larvæ, and descending nearer the lowlands as winter advances. When the declivities are heavy with snow, they make their way to the southern slopes of the mountains, and to those points where the snow first melts, or to the hills where it does not lie for any length of time.

The females and the young frequently remain in the neighbourhood of the hill-villages, and may be seen in great numbers in the surrounding fields. But, on the other hand, the old male birds cling to their forest-haunts, however severe may be the winter-cold, however dense the winter-snow. On the first smile of spring awakening in the heavens, they all reascend the mountains.

Then the bands which in autumn and winter were gathered together in a limited area of the forest, spread over a surface of such extent that each bird seems isolated. The traveller may proceed a

mile and more without seeing one; then suddenly he may arrive at a locality, only a few hundred yards in circumference, where a score of birds start up one after the other. Elsewhere, they are scattered over all the country,—one here, another there, two a little further on, and so forth. The females, be it observed, are more gregarious than the males, and descend much lower. They quit the dim shelter of the forest, and seek open and sunny places, and even resort to the neighbourhood of man. The two sexes often separate. In the valleys, and on the humid flanks of the mountains, dozens of young birds and females are found, without a single adult male; while in the interior of the forests and on the heights we meet with males only. In summer they disperse still more widely; and it is certain that at no time does the male appear to feel any disquietude about the fortunes of his mate and their offspring.

From April until the beginning of winter, the monaul is timorous and wary; but under the influence of the cold and of the snow, which renders more laborious his search after food, he loses his fear, and even to a great extent his prudence. After October, he shows himself more frequently in the open places, is less solicitous about concealment. In the spring, when he is easily scared, he often flies to a great distance; and if disturbed a second time, will not again give you a chance of approaching him.

When hunted in the forest, he flies silently, without first running; in the meadows and clearings he runs before he flies, especially if he be not pressed very closely. When he rises there, it is with a loud rustling noise, and a shrill piercing cry, which he repeats several times, until he glides off into his usual note. If one or two monauls are roused by the sportsman, the others listen attentively to their voices: if they belong to the same flock, all rise simultaneously; if they are separated, they take to flight one by one. In winter they show a greater independence of one another—are always, as it were, upon their guard; but they seldom use their wings until they have been affrighted in their own persons. If incessantly hunted down, they grow very shy and timid, and will abandon their usual haunts—especially in spring, when their food is abundant everywhere; while in

winter they are confined, by the conditions of their existence, to more circumscribed localities. The female seems less timid than the male. The flight of the latter is very singular; when he has a long space to traverse, he glides in the air without beating his wings, but simply agitating his oar-feathers in a light and tremulous manner. It is at such a moment that he appears in all his splendour.

The monaul's cry is a plaintive hiss; it is to be heard in the wooded glades all day long, but more particularly in the evening, and in the morning before sunrise. His food is principally roots, leaves, young blades of grass, with every kind of berry, nut, and insect.



THE HORNED PHEASANT.

But we must pass on to the horned pheasant, the tragopan, which is exclusively limited to the Himalayan range and the mountains of Southern China. He resembles the Argus slightly; that is, the spots which cover his plumage are eye-shaped, and produce a very marked effect. He wears a garb of sober colouring, on the whole; black and brown predominating, with sombre red scattered here and there, and

a warm flush of scarlet about the neck. A handsome bird, frequenting the densest forests of the high mountains, and ascending almost to the boundary-line of the region of perpetual snow. In winter he seeks a lower level, and makes his home in the thickest shades of the morinda, walnut, and oak trees, where the intermediate bamboo growth renders access almost impossible. There he is found with one or two or a dozen of his congeners, but never forming any close intimacy or cordial alliance. On the contrary, they are always scattered over a greater or less extent of forest. Each company seems to return every year to the same spot, and to remain there though the soil may be covered with snow. If forced by a violent tempest, or any other circumstance, to emigrate, they make their way towards a wooded valley, or some place where trees and bushes provide a sufficient shelter.

It is a curious fact that the tragopan is silent in winter, or at least opens his mouth only when disturbed and affrighted. Then he utters the most dolorous cries—*Wae-wae-wae*—like the bleating of a young lamb. At first the sounds are isolated, slow, and quite distinct; but gradually they are accelerated, and run into one another, until at length they blend into a kind of incoherent strain, just as the bird is "up and away." His flight is very rapid, and easily recognized by the peculiar sound it makes. He passes the night upon the trees, and lives upon leaves and buds, flowers, berries, seeds, and insects.

TURKEYS.

From the pheasants we turn to the turkeys, with which the reader will probably be more familiar. They inhabit, in their wild state, the east and north of America, from Canada to the isthmus of Panama; the species known as the peacock-turkey being confined to the Bay of Honduras.

In Europe the turkey does not appear to have been introduced until early in the sixteenth century; but he is now naturalized in several countries, and has long been recognized as a bird fit to figure on any "board." With Christmas fare and Christmas festivities he is popularly associated. As for the wild turkey, he is given to wandering, like Ulysses; in summer frequenting the breezy highlands, in winter

descending to the warm, rich valleys; and, therefore, he and his mate take little thought as to their nest. They pile together some dry leaves on the ground, or in a coppice, and *voilà tout!* A favourite locality is a thicket of reeds and sumach; another, the border of a field of sugar-canes. Rough and ready as the nest is, much skill is always shown in concealing it from sight. The mother-bird never returns to it twice by the same path; and before quitting her eggs to



TURKEYS.

go in search of food, covers them so completely and carefully with leaves, that though an intruder may be able to see the bird, he is often unable to find the nest. This caution is by no means unnecessary, for the turkey has numerous enemies. Next to man, the most formidable are the lynx and the owl. The former sucks the eggs, and preys on the old birds as well as the young, watching for them with the persistence and vigilance of a cat lying in wait for a mouse. The latter seldom has an opportunity of banqueting

on an adult turkey, but fares sumptuously on the eggs and the nestlings.

THE WOODCOCK.

To the Snipe family, or Scolopacidae, belongs the woodcock, a bird dear to the sportsman, and highly esteemed by the gourmand. His range is extensive: he is found all over Europe, except its far northern isles, as well as in the north and centre of the African continent. A migratory bird, he travels yearly from Europe across the Mediterranean to North-west Africa; or from Northern Asia he passes into India, descending as far south as Calcutta, and even Madras. The general character of his plumage is sober: the back red or reddish, or rather rusty red, with spots of yellowish, brownish, and blackish gray; eight transversal bars—four brown, four yellowish-red—extending from the neck to the top of the head; the throat almost white; breast and belly shaded with yellowish-gray and brown; the wings black and brown, with spots of black; and the bright eye, a hazel-brown. If ever the reader have "flushed" a woodcock, he will know that this description is tolerably accurate.

Wooded districts, as his name implies, are the favourite resort of this bird. Not that he has a preference for any particular tree, or species of tree; he is found quite as often in woods of fir and pine as in groves of beech, oak, or elm. But he desiderates a damp soil, into which he can thrust his bill. It is said that he luxuriates in the wide forests of the Northern lands, which are composed of pines close-set as soldiers in battle-array; but avoids those open and scattered patches of conifers which struggle in a sandy soil.

It is not easy, on account of his timidity and suspiciousness, to observe his daily mode of life. He does not willingly appear by day; and when forced from his seclusion crouches against the ground, with the colour of which that of his plumage blends very naturally. When a calm prevails in the shady depths, and

"All the forest-leaves seem stirred with prayer,"

he ventures forth to trip along the turf; but still keeps to the more secluded glades, where he is sheltered from the eye of man and the



WOODCOCKS.

glare of day. It is at twilight only that he seems fully awake, and runs briskly from one place to another. His usual gait is slow, hesitating, abrupt, and he never crosses any considerable space without making use of his wings. He flies very high, and with moderate quickness; very skilfully, for he threads his way without injury through the densest branches, and knows when to slacken or quicken his flight, when to wheel to right or left, when to mount or descend. But during the day he never rises into the upper regions of the atmosphere. When alarmed, he takes to his wings with a movement which produces a peculiar harsh whirr, well known to the sportsman. If he have been hunted close during the day, when he sets out on his foraging excursions in the evening he soars into the air almost vertically, and is up and away with all possible swiftmess. Like many other birds, he can so swell and bristle his plumage as to look much larger than he really is. He advances sedately; at long intervals he beats his wings; in several respects he is more like an owl than one of the so-called "stilt-birds." It is a deplorable fact, which we cannot ignore, that two woodcocks no sooner encounter one another in the air—which is surely wide enough for both—than they fall to blows, and contend furiously. Not unfrequently they clutch and hold one another, so that neither can fly; and sometimes three woodcocks have been noticed to form in this way a group as intertangled as that of the Laocöon, and come to grief. Love is, we suppose, the motive principle of these aerial combats; but it is curious that they begin during the annual migration—that is, before the usual pairing-time. At first they are sharp and brief; afterwards, when the birds have arrived in their summer-land, they are longer maintained; and they generally take place at nightfall.

Did the reader ever notice the likeness of the woodcock's head and bill to the stem and bowl of an old-fashioned pipe, such as Shakespeare might have used in the best parlour of the Mermaid, or, at a later date, Dickens' Joe Willet in the snug sanctum of the Maypole? In the Elizabethan poets this resemblance is often noticed. As, for instance, by Ben Jonson:—

Fustidious (smoking). Will your ladyship take any?

Saviolina. O peace, I pray you; I love not the breath of a woodcock's head.

Fast. Meaning my head, lady?

Sav. Not altogether so, sir; but, as it were fatal to their follies that think to grace themselves with taking tobacco, when they want better entertainment, you see your pipe bears the true form of a woodcock's head.—*Every Man Out of his Humour*, act iii., scene 3.

Woodcocks would seem to have been more common in England than they are now, when the dramatist's allusion would certainly fail to be appreciated by ordinary playgoers. From a passage in Shakespeare's *Hamlet*, we know they were caught in snares or "springes;" and Beaumont and Fletcher say, "What pretty gins thou hast to halter woodcocks." But these were the days before Joe Manton, to say nothing of Westley Richards, Henry, and their competitors.

"Stupid as a woodcock." The proverbial phrase, like many other proverbial phrases, must have been founded on imperfect observation, for the woodcock is by no means deficient in intelligence. We must not judge him by his looks, which certainly do him an injustice. He is a prudent and even a crafty bird, with all his senses well developed. Every sportsman knows that he takes skilful advantage of the likeness of his colouring to that of the soil or of the bark of trees; and he displays a good deal of discrimination in the choice of a place of refuge. Even a well-trained eye will fail to notice him when he is lying supine among dry leaves and twigs beside the gnarled root of a tree, or close to a fragment of bark. In this position he remains until the danger is past. When pursued, he allows the sportsman to draw within a few paces before he rises; and he always contrives to place trees and bushes between himself and his enemy, manœuvring in this way as cleverly as a Red Indian on the "war-path." Generally, before stooping to earth, he describes a prolonged undulating line; and when he has reached the shelter of the leafy covert, plunges into it for some distance, often wheeling round so as to deceive the sportsman. He knows, apparently, that the latter will look for him where he thinks he saw him take the ground.

It is at the sweet hour of gloaming that our bird issues forth in search of food, frequenting the paths which wind through the forest, the low damp meadows, the marshy places. If you could follow him

unobserved, you would be pleased to see with what *aplomb* he plunges his bill into every heap of dry leaves, and turns them over to seize the larvæ, worms, and insects which are lodged therein; how cunningly he uses it to make holes in the moist and yielding soil; how perseveringly he hunts among ordure and refuse for the insects with which it teems. He does not remain long at one place, however. Probably it is his timidity which hurries him from point to point.

As for his nesting-place, he seeks an opening in the tranquil forest, where the patriarchal trees stand at some distance from each other. There, behind a bush, or among the protuberant roots of a venerable trunk, he and his mate excavate a slight hollow, which they line with mosses, herbage, and withered leaves. This is their home—the cradle and nursery of their young. In its construction they take no special pains; partly, perhaps, because they are migratory, and partly because they are exposed to the attacks of so many enemies. The kite and the hawk pursue them to their retreat; the falcon pounces upon them if they show themselves in the sunny air; the magpie and the jay destroy their eggs and devour their young. Among their most formidable adversaries, however, is the fox, whose subtle sense of smell unerringly tracks them to their hiding-place, and whose gastronomic tastes are gratified by the excellent fare they afford.

THE RUFF AND THE REEVE.

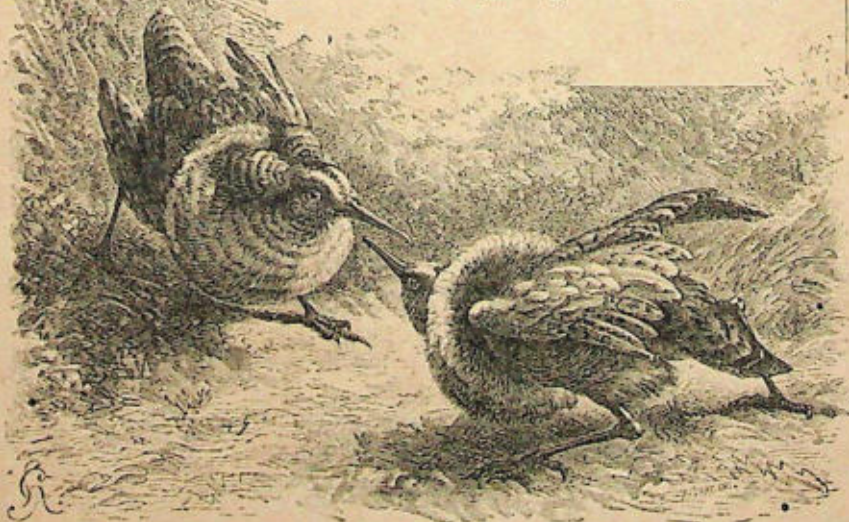
Woodcocks remind us of the birds so strangely called the ruff and reeve; the former being the male and the latter the female: the former girt about with a collar of silken plumes large enough to have adorned good Queen Bess; the latter, with her neck bare, altogether more staid and homely in appearance than her partner. The fen districts are their favourite habitat.

THE SAND-GROUSE.

But we are being led astray by thick-coming memories! Let us retrace our steps a little, before we close this chapter.

The name of the sand-grouse partly indicates the localities, or the character of the localities, in which they find a home. The arid sandy desert, the low bush-covered hills, and the rocky plains,—these are

their natural haunts; and, according to their species, they are found in the warmer regions of Europe, Asia, and Africa. The plains covered with the dry African grass, the *halfa*, and the fallow fields, are the localities they prefer. In Spain they resort to the bare and uncultivated *campos*. In India, too, they shun the rich luxuriant woods, and roam at large in the waste places thinly covered with a dwarf and scrubby vegetation. It is obvious why the forest is no home for them. In their swift, impetuous, but unskillful flight, they would dash themselves against the branches or the trunk of a tree before they could change their course. The instinct of self-preservation would seem to be very strong in them; for in the localities they choose, the colour of the soil is always as nearly as possible that of their plumage; the reddish-gray of the *ganga* (*Pterocles arenarius*) agreeing admirably with the



RUFFS FIGHTING.



GANGA OF THE STEPPES.

clayey tint of the *campos*, and the vivid yellow of the sand-grouse (*Pterocles exustus*) with the almost golden lights of the sandy desert.

According to Brehm, we may observe a certain peculiarity in the manners and habits of the gangas. They walk more in the manner of the pigeons than of the barn-door fowl, and they trot rather than run. They raise their bodies erect, keep their legs straight, slowly plant one foot before another, and incline their head at every step. Their rapid rushing flight is executed by uniform strokes of the wing, following one another precipitately, and resembles that of the pigeon, or rather that of the plover. They never hover or poise as the pigeons do, and only when about to descend do they adopt a gliding movement in the air without stirring their wings. When they first rise, they seem to creep, mounting in an almost straight line; and it is not until they have attained a certain height—say, above gunshot—that they begin to fly horizontally, in compact ranks, and uttering continuous cries. They do not appear to make any alteration in their array, each individual keeping to the place he occupies at the outset; but with them, as with the cranes, and rooks, and wild swans, some are thrown out as an advanced guard, while others are detached to bring up the rear.

There is something characteristic in the cry of these birds. The Arab name of *khafa* or *khadda* represents it with tolerable accuracy when they are flying. When they are running along the ground they utter a milder cry, which may be indicated by the syllables *gloock* or *aploock*.

As to the degree of development of intelligence attained by the gangas, we cannot speak with certainty. The hunter soon learns by experience that their powers of vision are considerable; the way in which the slightest sound attracts their attention proves the fineness of their hearing. They apparently understand that the colour of their plumage blends with that of the soil, and, at need, take advantage of this circumstance. They display sometimes a certain amount of cunning, and are quite capable of profiting by the lessons of experience. Generally full of confidence, they become exceedingly timid and prudent when they have been hunted; and, strange to say, appear much more suspicious when congregated in large numbers than when scattered

in small groups, or alone. Is this because the more wary among them turn their experience to the common good, and the whole flock consent to follow their counsel?

In the gangas, says Brehm, everything seems a mixture of the most opposite qualities. They are very sociable,—they live on the best of terms with other birds,—and yet at times, like the pigeons, break out into quarrels and contentions without any appreciable cause. You will see them, after sitting calmly and serenely side by side, suddenly fall to, and engage with one another in furious strife. Of course, such instances of unreasonable temper are never known among men or nations!

The life of a ganga is as regular and monotonous as that of a city clerk, who seats himself on his stool every day at the same hour, closes his ledger at the same moment, and takes his meals to the minute, day after day, and year after year. But then the city clerk is always "in session;" the ganga always in motion,—or, at least, always awake. He takes his rest only at noon and midnight. Brehm avers that he has seen the ganga running and flying all day, and has heard his voice all night. "I was not a little surprised," he says, "when for the first time that harmonious voice resounded in my ears at an advanced hour of the night; while by the pale rays of the moon I saw flocks of these birds winging their way towards a small mineral spring to quench their thirst."

He continues: "Before the day has risen—that is, before the first glimmerings of dawn, so brief in equatorial climes, appear—the babble of the gangas is heard on every side; and as soon as objects are discernible, they are seen impetuously running in the midst of tufts of herbage in search of their food. If not disturbed, they continue thus engaged until nearly nine o'clock, when, a little sooner or later, according to the season, they fly off to the nearest stream. In an hour thousands of these birds come thus to quench their thirst. Should the locality be deficient in water, they all hasten to one little pool; if it be intersected by a watercourse, the different companies arrive separately at various points. They allow themselves to drop obliquely from their aerial heights, run rapidly towards the water, drink three or four long draughts, then fly away—either immediately, or after having run for a

minute or two; at the most, they take time only to breathe, or to swallow a few grains of sand. Each flock directs its flight towards the quarter whence it came, and probably returns to the same place. If a ganga be killed when on the point of drinking, his crop will be found distended by seeds to such an extent that the feathers in that part have become puffed out. After having drank, the bird reposes, and the process of digestion begins. Then may be seen the flocks, divided into numerous groups, all abandoned to the sweet pleasure of repose. They sink into the holes which they themselves have dug, or settle down upon the sand, some on the belly, some on their side, expanding their wings and exposing them to the rays of the sun. For a while the gangas are silent, but their chattering recommences if anything suspicious makes its appearance. In the afternoon they take a second repast, and between four o'clock and six again resort to the water-side. Remaining but a moment, for the purpose of drinking, they repair immediately to the spot where they intend to pass the night."

THE PRAIRIE HEN.

Availing ourselves of our freedom of plan, we turn to a bird having some affinity to the ganga, but in several respects more interesting,—a bird which takes us away from the African plains and Asiatic wastes to the boundless prairies of America.

These prairies occupy a very considerable area of the southern basin of the Mississippi, and lie on both banks of the great river,—extending westward to the foot of the Rocky Mountains, eastward to the border of the cultivated and inhabited provinces. There are no prairies, says Sir J. Richardson, north of Peace River, and the level lands skirted by the Rocky Mountains do not stretch beyond the Great Salt Lake. Necessarily, under so wide a range of latitude, the plain embraces a great variety of soil, climate, and products, but being almost in a natural state, it is characterized in the centre and south by interminable grassy plains and immense forests, in the north by wildernesses not less dreary than those of Siberia.

Southward, a bare sandy waste, four hundred or five hundred miles, runs along the foot of the Rocky range to the forty-first parallel of

north latitude. The dry plains of Texas and the upper region of the Arkansas present all the features of the Asiatic table-lands; further northward, the lifeless, treeless steppes on the high grounds of the Far West are burned up in summer and withered in winter by the climatic extremes. Towards the Mississippi the soil improves; but the river-delta is a labyrinth of lakes and streams and patches of dense brush-wood, while the swamps and inundated levels at its mouth occupy an area of 32,000 square miles. The cultivated lands lie chiefly on the right bank of the river, and the produce is of a tropical character, including the sugar-cane, cotton, and indigo. Then begin the prairies:—"Leagues upon leagues of rolling meadow-land, sometimes as level as an English pasture, always as boundless, apparently, as the sea, covered with long rank grass of tender green, and lighted up by flowers of the liliaceous kind, which embalm the air with fragrance. Here and there, in the north, flourish clumps of oak and black walnut; in the south, groups of tulip, cotton, and magnolia trees. Occasionally the monotony of the scene is enriched by a lazy brook, the banks of which bloom brilliantly with azalea, kalmia, rhododendron, and andromeda; the low howl of the cayote or prairie-dog interrupts the silence; and life is given to the landscape by the frequent appearance of herds of deer, bison, and wild horses. At times, in the lonelier districts, the prairie-wolves will be seen in some leafy covert, awaiting the approach of a victim; or flights of birds darken the air, and tempt the traveller with the promise of an abundant provision." There can be little doubt that at one time all this area was clothed with masses of deep foliage; and even when North America was first opened up to European enterprise, the primeval forests spread almost uninterruptedly from the Canadian Lakes to the Gulf of Mexico, and filled the entire valley of the Mississippi—an ocean of vegetation swelling and sinking for upwards of one million of square miles.

"Then all the broad and boundless mainland lay
Cooled by the interminable wood, that frowned
O'er mound and vale, where never summer-ray
Glanced, till the strong tornado broke his way
Through the gray giants of the sylvan wild;
Yet many a sheltered glade, with blossoms gay,
Beneath the showery sky and sunshine mild,
Within the shaggy arms of that dark forest smiled."

In such a region bird-life is necessarily present in numerous forms. At some of the more typical of these we have already glanced; but the prairie hen, as she is called, a species of grouse, calls for special notice.

An inhabitant of different and very distinct districts of the great prairie-world, she shows peculiar care in the choice of her residence, selecting those places only which correspond in features and productions with her mode of life, and never visiting the immense intermediate tracts. Open dry plains, thinly besprinkled with trees, or partially overgrown with shrub oak, are her favourite haunts. Accordingly she is found on the grassy plains of New Jersey, as well as on the brushy flats of Long Island; among the pines and shrub oaks of Pennsylvania; over the whole extent of the barrens of Kentucky; on the luxuriant prairies of Indiana; and the vast and remote savannahs watered by the Columbia. Their selection of these localities would seem to be determined by the following considerations:—First, her mode of flight is generally direct and laborious, and ill adapted for the labyrinth of a high thick forest, crowded and intersected with arms and trunks of trees, which would necessitate continual angular evolution of wing, or abrupt turnings, to which, says Wilson, she is not accustomed. Second, her aversion to ponds, marshes, or watery places, which she always avoids—drinking but seldom, and, it is believed, never from such places. Third, the nature of her food, which consists of strawberries, huckleberries, partridgeberries, and the small acorn of the shrub oak. And, fourth, the low dense bushy thickets provide her with a secure asylum, being almost impenetrable to dogs or birds of prey.

The prairie hen, or pinnated grouse, is about nineteen or twenty inches long, and weighs about three pounds and a half. The neck is furnished with supplemental wings, each composed of eighteen feathers—five of which are black, and about eight inches in length, the rest shorter and of unequal lengths, but also black, and streaked laterally with brown. The head is slightly crested; and over the eye runs an elegant semicircular comb of rich orange, which can be raised or lowered at pleasure; under the eye is a brown streak. All the upper parts are mottled transversely with black, reddish-brown, and white, while the under parts are of a pale brown, transversely marked with

white. The throat is beautifully varied with white, black, and reddish-brown. But the most remarkable physical feature is the two extraordinary bags of skin about the neck of the male. These are formed by an expansion of the gullet, as well as of the outer skin of the neck, which, when the bird is at rest, hang in loose, pendulous, wrinkled folds. When these bags, in the breeding-season, are inflated with air, they equal in size and closely resemble in colour an ordinary fully ripe pear. By means of this curious apparatus, which is readily discernible at a distance, he is able to produce his strange call, or, as it



THE PRAIRIE HEN.

is termed, *tooting*. On a still morning it is audible for three or four miles; some authorities say as many as five or six. It is a kind of ventriloquism,—not striking the ear of a bystander with much force, but impressing him with the idea, though uttered within a few rods of him, of a voice a mile or two distant. It consists of three notes of the same tone, resembling those produced by the night-hawks in their swift descent, and is strongly accented—the last being twice as long as the others.

“When several birds are thus engaged,” says Wilson, “the ear is

unable to distinguish the regularity of these triple notes, there being, at such times, one continued humming, which is disagreeable and perplexing, from the impossibility of ascertaining from what distance, or even quarter, it proceeds. While uttering his call, the bird exhibits all the ostentatious gesticulations of a turkey-cock; erecting and fluttering his neck-wings, wheeling and passing before the female, and close before his fellows, as in defiance. Now and then are heard some rapid cackling notes, not unlike that of a person tickled to excessive laughter; and, in short, one can scarcely listen to them without feeling disposed to laugh from sympathy. These are uttered by the males while engaged in fight, on which occasion they leap up against each other, exactly in the manner of turkeys, and seemingly with more malice than effect." It should be added that this bellicose concert begins shortly before daybreak, and lasts until eight or nine o'clock in the evening, when the warrior-musicians are compelled to attend to the demands of appetite. Audubon remarked that the aerial sacs, or bags, before described, lost their fulness after the matutinal "tooting" ceased; and when he pierced them, the bird could no longer cry. In another case he perforated only one, and then the bird cried, but very feebly.

The food of the prairie hen consists of all kinds of vegetable substances, and a variety of insects, snails, and other small animals. In Audubon's time, the birds were so common in Kentucky that their flesh was no better esteemed than butcher's meat, and the hunter did not look upon them as game. They were treated, he says, with the contempt which we lavish upon crows in other parts of the United States; and this on account of the ravages they committed in winter in the gardens and vineyards, and in summer in the fields. The children of the labourers and the negroes were engaged from morning to evening in driving them from the plantations, and in arranging traps and snares for their capture. When the winter winds blew keenly, they frequently entered the farmyards, shared in the repasts of the domestic fowl, settled on the roofs of the houses, ran up and down the village street.

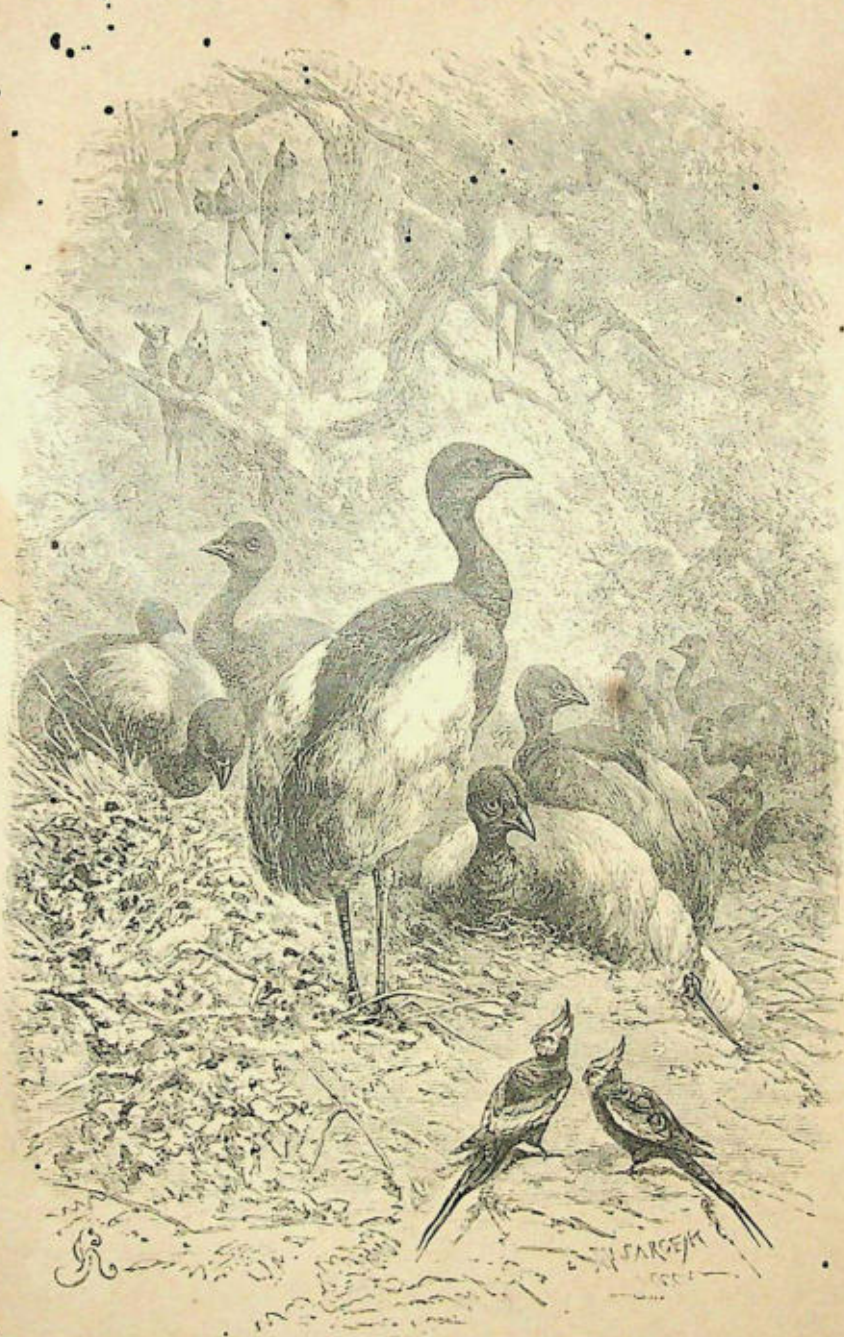
It is at the beginning of winter that the prairie hens, when they are common, collect in numerous flocks or troops, not to separate again until the coming of the welcome spring.

ONCE MORE IN THE VIRGIN FOREST.

In the wilds of the virgin forest, to the north of the rolling Amazons, is found the golden-breasted trumpeter, or agami—another species living to the south of the river. These birds occupy an intermediate place between the carianas, the cranes, and the water-hens. The forest is their home; and they live together in numerous companies, with, according to Schomburgk, as many as one or two thousand individuals in each. When not irritated or disturbed, their gait is slow and dignified; but they can run at a very rapid rate, and now and then they indulge in leaps and bounds that would do credit to a professional gymnast. Their capacity of flight, however, is limited; and hence, when they have to cross a stream of tolerable breadth, many are unable to reach the opposite bank, fall in the water, and can save themselves only by swimming. This fact explains the definite boundaries of the area of dispersion of the two species; the Amazon flows between them, an impassable barrier.

The moment a hunter makes his appearance, the agamis anxiously ply their wings, but they never go far at a single essay. Soon they descend to earth, or settle on the low branches of a tree, where it is easy to shoot them. It is in their moments of terror that they raise to the loudest pitch that peculiar voice which has obtained them their distinctive appellation. At first the cry is shrill and wild; then follows a hoarse, rolling sound, which the bird produces with closed beak, prolonging it for full a minute, and allowing it gradually to diminish in volume, as if it were receding to a distance. After a silence of some minutes, the cry recommences. The Indians assert that the second sound comes from the stomach, but an examination of the bird's vocal organs proves the erroneousness of this notion.

The tracheal duct, which, in its upper section, has the diameter of a swan's feather, narrows at its entrance into the thoracic cavity. It is connected with two lateral membranous, hemispherical sacs, of which that on the right is the more voluminous, and seems to be divided into three or four compartments. The movements of the thoracic cavity force the air into these sacs, through a narrow opening,



AGAMIS AND OTHER BIRDS.

and it is its passage at entering, and perhaps at issuing forth, that produces the trumpet-like, braying sound.

The agamis feed on fruit of various kinds, seeds, and insects. To all other food, the young birds prefer worms and insects; the old, in captivity, are easily accustomed to live on seed and bread. The female makes her nest on the ground, scratching a small hollow at the foot of a tree, and laying there generally a dozen eggs, of a clear green. The young, when hatched, abandon the nest as soon as they are dry, and follow their parents in their walks abroad. For several weeks they remain covered with a very compact, close, and soft kind of down.

Very easily is the agami tamed. In all the Indian establishments he roams about at perfect liberty, and acts as guardian or keeper of the poultry-yard. He quickly learns to recognize persons; obeys the voice of his master, follows him like a dog, precedes him in his march, gambols about him with the most comical antics, and exhibits the profoundest pleasure when he returns after a long absence. He is jealous of the other animals which share with him the master's affection. To caresses he shows a decided sensibility; but he has an equally decided antipathy towards strangers, and for certain persons even a bitter hatred. He extends his supremacy not only over the other birds, but also over the dogs and cats; bearing down upon them, "full sail," with all the courage imaginable—for the purpose, perhaps, of driving them to a distance from the flock over which he reigns and watches.

THE KAMICHI, OR SCREAMER.

Akin to the water-hens, and claiming, therefore, a distant cousinship with the agami, is the kamichi, or screamer, a big and strong bird, with a somewhat unwieldy body, a long neck, but a small head. He has a short beak, like that of a barn-door fowl, but crooked at the extremity, and covered at the base with a kind of cere. His wings are long and ample, and equipped with a couple of strong spurs; the tail is formed of twelve feathers, lightly rounded; everywhere, except on the neck, he rejoices in an abundant plumage. Like the agami, the kamichis belong to the Amazonian forest, or rather to the inundated marshes which intersect them. They live together generally

in small flocks, pairing off at the approach of the breeding-season. Of a peaceful disposition, they seldom make use of the weapons with which Providence has armed them; but, like the African secretary-birds, they pursue the serpent tribe with implacable hostility. Their movements are graceful. They walk lightly and swiftly; their flight is bold and sustained, like that of the vulture. They do not seem to be able to swim. Their voice is sonorous, and rings like a clarion through the forest-colonnades.

Their food is mainly vegetable, but, like most other birds, they do not disdain insects, reptiles, or small fish. They incubate in the inner recesses of the marshes, building a very large nest, in which the female lays a couple of eggs uniform in shape, size, and colour.

The distinctive character of the kamichi is the short velvety feathers of the head and neck. The horned kamichi is the aniuma of the Brazilians, a large beautiful bird, one of the "superbest ornaments" of the virgin forests of Brazil. On the summit of his whitish head his plumage is soft and velvety, each feather being almost black towards the point; the feathers on the cheeks, throat, neck, back, breast, wings, and tail are of a blackish-brown; those of the great wing-coverts glisten with greenish metallic reflections; the small coverts are of a yellowish colour at the base; round the neck and over the breast the tint is a silver gray, with a broad band of black; while on the under parts spreads a pure and snowy whiteness.

The Prince de Wied says of the aniuma, that he has never seen him except in the depths of the great virgin forest, and on the margin of the streams and shaded water-ways. There may be heard his loud peculiar voice, which resembles that of the wood-pigeon, but is much more piercing, and accompanied by some peculiar guttural notes. Sometimes he descends the sandy banks, and enters boldly into the water. In the breadth, and colour, and movement of his wings, he reminds one of the urubus. He takes up his position always on the elevated crest of a dense-leaved tree; so that often, when his cry is audible, the bird himself is out of sight.

During the breeding-season the aniuma is found in company with his mate; all the rest of the year he moves about with a little troop of



THE HORNED KAMICHI.

four or five of his congeners. He seeks his food on the sand-banks of the rivers, or those of the swamps and marshes which are so common in the treeless tracts of country. He appears to feed almost entirely upon vegetable substances.

We find his nest always on the ground, at no great distance from a pool or stream. It is built up with small twigs and bits of branches, and generally contains a couple of large white eggs. His flesh is not considered edible. The large and beautiful quills are used for pens or pipes, according to their size.

ABOUT THE JABIRU.

To the same family as the storks and adjutants belongs the jabiru,—his distinctive character being the slight upward curve of the bill. There are not many species, but they are widely distributed over Africa, Australia, and South America.

Let us take as a type the jabiru of the Senegal (*Mycteria Senegalensis*), which is popularly known as the "saddled stork." Rightly is he described as a strong and handsome bird. The head, neck, upper part of the wings, shoulders, and tail are of a glossy black, shining with metallic lustre; this forms a striking contrast to the dazzling whiteness of the rest of the body. The eye is of a golden yellow; the beak red at the base, black in the middle, and blood-red at the extremity; while the cere, which surmounts the beak in the shape of a saddle, and is surrounded by a narrow ring of black feathers, is, like the eye, yellow as "glistening gold."

To understand the full beauty of the bird, and the strong impression he produces on the naturalist, we need to see him in his state of freedom,—to see him running with graceful speed, flying with graceful boldness, and wheeling in bold circular sweeps above the forest-trees. He marches proudly, with body erect, like a soldier; and his long legs seem to give him a height which is not really due to his stature. He is splendid when on the wing,—the white *remiges* contrasting admirably then with the jet-black of the wing-coverts. Unfortunately, says Brehm, he is so suspicious and mistrustful that he affords few opportunities to the naturalist of studying his habits.

Why he should be called the Senegal jabiru, we are at a loss to comprehend, for he is found also in the south-east of the African continent, and on the banks of both the White and the Blue Nile. In fact, he ranges as far north as the fourteenth parallel of latitude. But, wherever he is met with, his habitat is the same,—the border of the river, the sand-bank, the margin of the lake, pool, or morass. In the rainy season he sometimes forsakes the neighbourhood of the rivers; sometimes, too, he is found on the sea-shore. Not unfrequently he mingles with the other birds of the marshes; but he and his mate are always faithful to one another.

The mien and gait of the jabiru, we are told, sufficiently indicate that he has a sublime self-consciousness of his own worth. The marabout stork, or adjutant, so famous for his beautiful plumes, is his equal in size, and not his inferior in intelligence; yet he cannot bear the ordeal of comparison as regards his "deportment," which would have charmed Mr. Turveydröp. All the movements and postures of the Senegal jabiru are elegant and graceful, harmonizing perfectly with the beauty of his plumage.

His dietary differs little from that of the European stork, and includes fish, reptiles, and insects. Like the stork and the adjutant, he is one of Nature's scavengers.

Bennett furnishes an interesting account of the ways and habits of the jabiru in captivity. He confirms the general statement as to the grace and becomingness of the bird's air and bearing; and adds that he is of a mild disposition, rapidly accustoming himself to loss of liberty, and apparently taking a great delight in being observed and admired. His large shining eyes are full of intelligence. One of Bennett's jabirus had been tamed before he acquired possession of him, and he quickly adapted himself to his new conditions of life. On the evening of his arrival at Sydney, as soon as the lamp was lighted in the ante-chamber he entered the house, ascended the stairs as if to look for a place where he might pass the night, explored the whole place in a moment, and finally established himself inside a carriage, which he thenceforth adopted as his abode. During the day he kept to the courtyard, seeking especially all the sunny places. The



JABIRUS.

fowls in the yard attracted his attention; he bore down upon them, and gave them a terrible fright, but apparently did not wish to injure them. A sturdy little bantam cock encountered him gallantly, and endeavoured to drive him back; the jabiru regarded him with contemptuous indifference, but the cock having attacked him, he threw him on the ground. However, in a few hours jabiru and fowls thoroughly understood one another. As to the other inhabitants of the courtyard, he troubled himself little, or not at all; and, in return, the horses and other animals did not interfere with him in the slightest degree. On one occasion he burst into a fit of passion, bristling his plumage, extending his wings, and making a clacking noise with his beak. This was because a couple of cassowaries disturbed him with their curiosity and importunity; but a single blow from his beak induced them to treat him with becoming respect.

The jabiru walks with silent and measured steps; his neck slightly curved back, his beak inclined towards the ground, and the lower mandible resting almost on the neck. Sometimes he rears himself on one foot; anon he rests, seated upon his tarsi; and again, he lies prone upon the stomach. Unlike the cranes, he dances not, neither does he leap or jump; but now and again he runs rapidly round his little domain, with wings extended, as if to give him an impulse. He uses his beak with surprising dexterity, almost as the elephant uses his trunk. He picks up the smallest objects, turns them over and over, throws them into the air, and catches them, like a juggler performing his favourite feat of catching coins; and with this invaluable implement he rids himself gravely of the parasitical insects which adhere to his plumage. He has also a habit of clacking it in different ways, so as to express his changes of sentiment. This habit, we need hardly say, he shares with the stork.

Bennett's jabiru seemed tolerably indifferent to changes of temperature; he exposed himself to the rain with as much readiness as to the sun. When warm winds blew, he frequently opened his beak as if to breathe more easily. If placed in the shade, he returned immediately into the sunshine.

The jabiru is not one of Nature's gluttons; he eats but little in

proportion to his size. Mr. Bennett gives as his daily bill of fare a pound and a half of meat, or an equal allowance of fish and reptiles. He takes up his food with the tip of his beak, throws it into the air, and catches it as it falls; if it be hard or cartilaginous, he carefully bruises and pounds it before eating. He does not like spoiled meat, and will eat only what is quite fresh and good. He usually divides his fish into two parts; those which are long, like the eel, he swallows whole. A commendable regularity is preserved in his meals; he generally eats only in the morning and evening. Some of us, perhaps, might learn a lesson from the jabiru, and would thrive all the better if contented with two meals a day! He drinks, however, several times; and, *pour passer le temps*, hunts up a few insects, snaps at a gnat on the wing, and makes prize of a beetle or two.

Brehm quotes from Boderius the following account of the jabirus in the zoological garden at Cologne:—

"The jabiru," he says, "is one of our most remarkable birds. His high stature, the peculiar conformation and vivid colouring of his beak, the sharply defined tints of his plumage, all draw towards him the attention of visitors. So far as I can judge from the three specimens in our possession, he is a long-lived bird. Two of them, each about two years old, have not yet developed to the size of the third, whose age must be six years at least; the three colours of their beak are not as yet well defined; their plumage, though very like that of their companion, is still shaded with a dull gray. In spite of their youth, this couple seem already united by the bonds of a warm affection. They bill quite lovingly; and when they come together again after a short separation, salute each other with joyous clackings. Evidently their mutual sentiments overpass the limits of brotherly and sisterly regard. In relation to man they show a confidence and a prudence equal to that of the storks, and they quickly recognize all who are friendly disposed towards them. Meat they partake of with as much zest as fish; and to variations of temperature they do not seem particularly susceptible. They spend the summer on the brink of an artificial pond; and it is with lively pleasure that we watch them in their majestic promenades. All their movements are captivating.

They are very fond of resorting to the water. They trouble themselves only about their own affairs"—another lesson for humanity!—"and live in entire harmony with all the other inhabitants of the enclosure." Obviously the jabiru is a model bird! He is the *Jacques Bonhomme* of the Bird World; and in his avoidance of quarrels, attention to his own business, and general amiability, affords an example which most of us poor human creatures must honestly confess to be as worthy of admiration as it is difficult of imitation. To what a high standard of good breeding and intelligence has the *Mycteria Senegalensis* attained, since he has learned to despise that "low vice, curiosity," and to regard the concerns of his neighbours as something with which he has no right to meddle! "Curiosity," says Fuller, quaintly, "is a kernel of the forbidden fruit which still sticketh in the throat of a natural man, sometimes to the danger of his choking." Well, at all events, the jabiru seems never to have yielded to the temptation of tasting it!

THE AFRICAN TOURACO.

Among the African birds must be noticed the touraco, one of the Musophagidæ, remarkable for the pride of his bearing and the splendour of his plumage. Conceive to yourself a graceful creature about eighteen inches in length, with back and wings of a deep violet-shaded green; the tail of a violet-black, marked with small transversal lines of deeper hue; the tuft or crest shining with a pearly brilliance; the wings blushing carmine, and fringed circularly with a mellow green; and above and below each eye a patch of white, like a snow-wreath on the mountain-brow. Is not Abyssinia fortunate in the possession of a bird so comely?

He has a fine sense, one might say, of the beautiful in nature; for his favourite resort are the higher slopes of the well-wooded and well-watered valleys, where flourishes the *Euphorbia grandidens*, with candelabrum-like branches. Like the jay, he lives in bands or small families; and like the jay, too, he is constantly in motion. All day he wanders to and fro; but at night he returns regularly to certain trees, —the acacias and tamarinds, with their environing growth of low leafy bushes. This is the rendezvous of the company; and thence

- they set out every morning to seek their food, each on his own account.

It is impossible not to admire these handsome birds, whether leaping from branch to branch, or filling the echoes with their sonorous cry. Nearly all their life they spend "under green leaves." Only now and then do they stoop to "dull earth;" and once they have seized a fallen fruit or berry, they are up and away again. Their



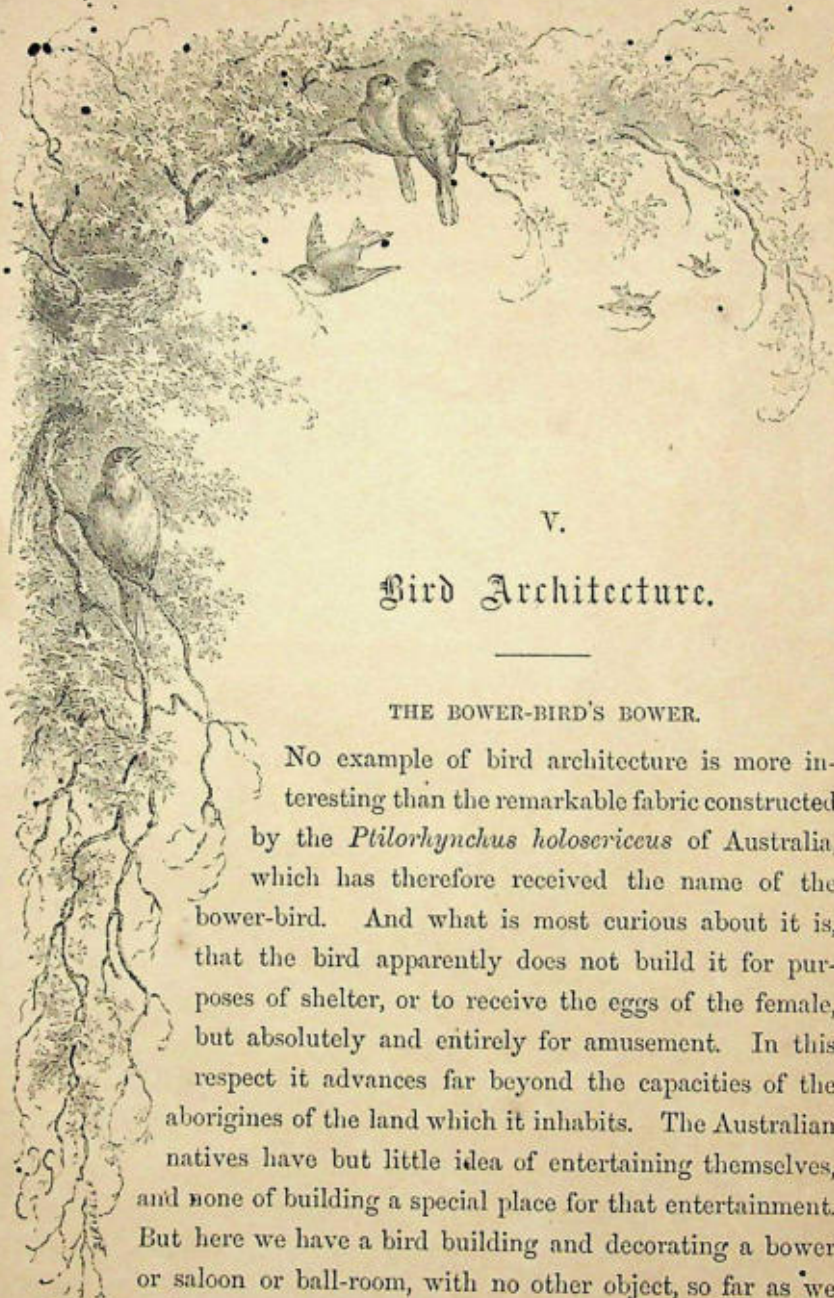
WHITE-CRESTED TOURACO.

agility is remarkable, and their flight rapid. They describe an undulating line, but do not sink very low. With numerous swift strokes of the wings they soar to a considerable height, and then expand the full sweep of their pinions, flash their splendid colours in the sunshine, and descend with sufficient dash to rise again before they touch the ground.

It is supposed that they build their nests in the hollow trunks of trees.



THE CRESTED LOPHÆTUS.—See Page 447



V.

Bird Architecture.

THE BOWER-BIRD'S BOWER.

No example of bird architecture is more interesting than the remarkable fabric constructed by the *Ptilorhynchus holosericeus* of Australia, which has therefore received the name of the bower-bird. And what is most curious about it is, that the bird apparently does not build it for purposes of shelter, or to receive the eggs of the female, but absolutely and entirely for amusement. In this respect it advances far beyond the capacities of the aborigines of the land which it inhabits. The Australian natives have but little idea of entertaining themselves, and none of building a special place for that entertainment. But here we have a bird building and decorating a bower or saloon or ball-room, with no other object, so far as we can discover, than that of securing an appropriate arena for the display of its saltatorial powers!

The bower-bird, it should be premised, belongs to the glossy star-

lings, a sub-family of the great Starling family, all the members of which are more or less distinguished for architectural skill. He has a strong compact bill, with sides compressed, and curved emarginated tip; pointed wings of moderate size; the tarsi strong, and covered with broad scales; and the toes both long and strong, the lateral ones being of unequal length. His habitat is the cedar-bush and the gum-tree forest—in the neighbourhood, if possible, of a river. He feeds on various fruits and berries, and ranges from place to place when he is in want of fresh supplies. He loves to perch among the great shady boughs of the huge Australian fig-trees, some of which rise to an altitude of two hundred feet; and here he feeds at will on the small white luscious fruits which load the far-spreading branches. In the "sweet spring-time" he is always seen with his mate; in autumn, small flocks descend to the river-side, choosing those points where the bushes fringe the immediate margin of the water. Generally he is very watchful and suspicious; but, while feeding, allows himself to be observed without showing any apprehension. It is very difficult, however, to surprise the old males. Perched as sentinels on the tufted tops of the trees, they no sooner descry the approach of any strange or novel object than they give warning to those of their companions who are scattered on the ground or among the branches,—uttering a piercing cry, followed frequently by a few hoarse guttural notes.

As we have said, these birds are accustomed to construct bowers of pleasure and amusement. Mr. Gould tells us that he saw several in the county of Liverpool, among the cedar-forests. They were always built on the ground, in the wildest depths of the forest, and covered generally by the thick overhanging branches. The base of the edifice consists, he says, of a broad and slightly convex platform, made of twigs interlaced together very finely. In the centre rises the bower, or rather cradle, constructed likewise of twigs or small branches, intertwined with those of the platform, but more flexible. These twigs, bent back at the top, are so arranged as to form a kind of vaulted roof; and the framework of the bower is disposed in such a manner that the forks presented by the branches are all turned out-

wards, and thus the interior is left entirely free for the passage of the feathered builder.

The elegance of this curious structure is much increased by the decorations lavished upon its entrance and interior. There the bird accumulates all the bright and glittering objects he can anywhere collect; such as feathers from the tails of various parrots, mussel-shells, shells of snails, bits of bone, pebbles, and the like. Some of the gorgeously-coloured feathers are stuck in and about the framework; others, with the bones and shells, embellish the entrance. The propensity of the bower-bird to seize upon every article which will add to the decorations of his ball-room is well known to the natives, who, when they have lost anything in the bush, straightway repair to the nearest "bower," with the certainty that there they will find it. Mr. Gould says that he himself has found, at the entrance to a "bower," a pretty tomahawk stone an inch and a half in length, very finely wrought, together with shreds of blue cotton, evidently picked up at some old camp of the natives.

In size the "bowers" vary greatly, and those which Mr. Gould examined had undergone frequent repair. It was easy to perceive, from an examination of the articles collected in them, that they had been in existence for several years. Mr. Coxen states that, having destroyed a "bower," and concealed himself in a hut which he had built close at hand, he enjoyed the satisfaction of seeing the "bower" reconstructed—the architects, he says, being female birds.

It seems certain that these structures are not used as nests. In Mr. Gould's opinion they are places of rendezvous, where a considerable number of individuals of both sexes meet for the sake of amusement, or to select partners. The females invariably incubate in the neighbourhood of the "bowers," among the thick bushes; and in the "bowers" themselves, which are evidently a favourite resort, and are seldom empty.

Another species—the *Chlamydera maculata*, or spotted bower-bird, which wears a rose-coloured band across the back of the neck—is even more remarkable. The bird's habitat is the bush-covered plains. Being

extraordinarily mistrustful, and taking to flight at the first sign of danger, it is but seldom that the Australian traveller catches sight of him; and to do so he must observe the greatest caution. His presence is indicated by his hoarse, disagreeable cry, which he raises at the moment he rises from the ground. Perched on the topmost branch, he afterwards surveys the surrounding country with wary eye, and directs his course towards the spot which seems to offer the greatest prospect of security. The sportsman has the best chance of "bagging" him when he goes down to the water to drink—especially in the dry season, when he has little choice of localities. Gould remarks that, suspicious as he is, his thirst eventually prevails over his innate prudence, and he will resort to the stream or pool not only in defiance of man, but of the great black serpents which lie in wait in the vicinity. The warier birds, however, always assemble in little companies on such occasions.

The pleasure-places of the spotted bower-bird Gould found in very different quarters: some in the plains overgrown with the pendent acacia, some in the midst of the bushes which clothe the hill-sides. They are larger and broader than those of the satin bird, and not unfrequently measure fully four feet in length.

The inventive and reflective faculties of these birds, says Gould, are exhibited in every detail of the fabric, and in its decoration; more particularly in the manner in which the stones are placed within the enclosure, 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, and the like, are accumulated in a heap at each end of the avenue. The "bowers" of this species are often discovered at a considerable distance from rivers; from the banks of which, however, must the shells and small round pebbly stones employed in their decoration have been obtained. A task of no small labour and difficulty must have been their collection and transportation; and as the bird feeds almost exclusively on seeds and fruits, they can have been collected for no other purpose than that of ornament. And, in further illustration of this conclusion, it may be mentioned



HORN BILLS.

that those only are made use of which have been bleached in the sun, or such as have been roasted by the natives, and by this means whitened. In fact, the bower-bird seems to have just the same partiality for bright and glittering objects which the magpie evinces; but instead of hiding his treasures, displays them to the best advantage.

THE HORNRAY.

A curious nest is constructed by the hornray (*Dichoceros bicomis*), which is, we may add, a curious bird. Let us say a few words respecting the builder first; afterwards we may speak of the fabric he rears. His plumage is, for the most part, black; but then the neck, the lower part of the wings, and the sub-caudal feathers are white; so that he has not the sombre and funereal appearance of the raven. The plumes of the neck and wings have, at times, a yellowish tint, which is due to a fatty secretion of the gland. The upper mandible is red, with "a suspicion" of yellow; the lower mandible yellow, with a red point. Both mandibles are long and strong. The upper part of the head is covered with a thick bony plate, which extends partly over the upper mandible, and gives the bird a peculiar and characteristic appearance.

The range of the hornray includes the hill-forests of India, from Cape Comorin to the Himalaya, and from the Malabar coast to the peninsula of Malacca. He is found also in Sumatra. He inhabits the mountain-side up to a height of 5000 to 5200 feet above the sea; but is more generally found in the dense jungles and shady thickets. He is a silent bird, only uttering at intervals a kind of low thin croak; unless he is in the company of his congeners, when he and they seem to gain courage from their neighbourliness, and give vent to a series of hoarse, piercing, and most discordant cries. When wounded, his howl is something astonishing. "I can compare it," says Hodgson, "to nothing but the braying of an ass." He seems to live exclusively upon fruits, which he picks from the trees; having gathered one, he flings it into the air, catches it as it falls, and swallows it.

When the female has laid five or six eggs, her mate proceeds to close up the entrance with clay, leaving only a small opening, through which the mother-bird may thrust her bill. Throughout the period of

incubation she remains a willing prisoner, her mate feeding her with the greatest activity. Here is Tickell's narrative in support of this statement: Learning from the natives of Karra that a hornray had settled in a hollow of a tree close at hand, to which for years these birds had been accustomed to resort, he hastened thither, and found the nest in the hollow of a branchless trunk, about fifty feet above the ground. The entrance was nearly closed up with a thick layer of clay; there was left but one small opening, through which the female projected her bill to receive the food brought by her mate. With much difficulty a native climbed up to the hole, and began to remove the clay. Meantime the male uttered grievous complaints, flying from side to side, and passing close to the intruders. The natives seemed to dread his attacks, and Mr. Tickell had much ado to prevent them from killing him. When the opening was sufficiently large, the man who had escalated the tree thrust his arm into the hole, but received so violent a blow from the female's beak that he withdrew it in hot haste, almost falling to the ground. At length, having protected his hand with a wrapping of linen, he succeeded in seizing the unfortunate bird, which was in a sad condition, frightened, dirty, miserable. On descending, he put her on the ground; she sprang or leaped from one side to the other, and made threatening motions with her beak; she could not fly. At length she climbed a small tree, and obtained some rest. In the bottom of the hole, at a depth of about three feet, and resting on a stratum of wood shavings, morsels of bark, and feathers, was a single egg, of a bright brown colour.

Such is the hornray's nest; a heap of wood and bark, deposited in the natural hollow of a tree, the opening of which is cleverly patched up with a coat of clay! The *Rhyticeros plicatus* (or hornbill) of the Eastern Archipelago makes her nest, as we have seen, in the same fashion.

THE PHILIPPINE WEAVER-BIRD.

Let us assume the seven-league boots always at the disposal of narrator and romancist, and cross from the bush-covered plains and cedar woods of Australia to the luxuriant landscapes of India and the Philippine Archipelago. The Philippine Islands can boast of a member

of the Bird World which possesses very remarkable architectural skill. He belongs to the Ploceinae, a sub-family of the finches, and is popularly spoken of as the Philippine weaver-bird. Like other species of the family, he builds a curious and interesting pendent nest, composed of grasses so neatly and compactly interwoven as to remind the spectator of the products of the loom. In order to protect it from the attacks of snakes and monkeys, he suspends this ingenious construction from the branch of a tree by a long cord—choosing a tree that overhangs the water. The nest is divided into two compartments—one for the male, and another for the female; and an opening is left at the bottom by which the birds obtain access to their respective chambers. It is asserted by the natives that the male plasters a bit of soft clay on the walls of his apartment, to which he attaches a fire-fly, and thus provides himself with a night-light! This statement, however, to the best of our knowledge, has not been confirmed by any European observer.

THE BAYA.

More is known of the ways of an allied species, the Indian baya, which ranges over the whole of Hindostan, and is found in Assam, Burmah, and the Malayan peninsula. Mr. Jerdan describes the bird as very common in the wooded plains, but seldom if ever found among the mountains or higher table-lands. In some localities he appears to be a bird of passage, and in others a sedentary bird. His food is seeds of every kind, but he shows a strong liking for rice. When at rest, he keeps up, with his companions, an incessant chatter.

At the approach of the breeding-season he builds a long horn-shaped nest, which he suspends almost always to the branch of a palm-tree; and evidently he selects, when possible, a palm with wide and numerous branches, and overhanging the water.

It is stated that in Burmah the baya frequently suspends his nest to the eaves of the houses; and in Rangoon huts may be seen adorned with as many as twenty or thirty nests, or even more. Mr. Jerdan visited a house where quite a baya colony was established; upwards of a hundred nests being pendent from its roof. It is singular that this bird, which in certain parts of India seeks the vicinity of human

habitations, in others retires into the densest coverts or to isolated trees, in the midst of the almost unfrequented rice-fields.

The nest is built up of the stems of various grasses, which the baya plucks while they are still green; and sometimes of the ribs of the palm-leaves. The latter nests are less capacious and less convex than the others; as if the tiny architect knew that so solid a substance did not need to be employed with the same liberality as the more pliant and less substantial grasses. But in form and appearance the nests vary greatly. When their construction is sufficiently far advanced, and the chamber intended to contain the eggs completed, the baya closes it up with a stout and slightly lateral partition. At this stage, the nest has all the appearance of a basket with a handle. Several naturalists aver that the separate compartment is reserved for the male; but, in truth, it is nothing more than a kind of vestibule or ante-chamber, separating the nest proper from its entrance-gallery: and this partitional or dividing chamber is necessarily strongly made, because there the adult birds perch, and afterwards the young.

Up to this point the two spouses labour together; but as soon as the partition is finished, the female retires into the interior of the nest, weaving the blades of grass brought to her by her mate, who completes the exterior without assistance. The work is not done in a day. On one side the entrance lies the egg-chamber; on the other, the gallery or corridor. After all is happily consummated, the builders enjoy an interval of well-merited repose. Meanwhile, the birds carry fragments of clay into the nest; a procedure which has given rise to many conjectures. To the idea of the natives, that they are used with fire-flies as cheap and convenient night-lights, we have already alluded. Layard believes that the birds sharpen their beaks upon them; Burgess, that they serve to consolidate the structure; Jerdan, however, after a careful examination, concludes that their intention is to maintain its equilibrium, and render it less easily affected by the wind. In one nest, he says, he found three ounces of clay, at six different places. It is generally admitted that the imperfect nests are constructed by the male, exclusively for his own use, and that only in these is the clay

found; but, more probably, these so-called imperfect nests have been for some cause or other deserted.

AFRICAN WEAVER-BIRDS.

Let us return to Africa, where we find the *Euplectes Franciscanus*, a weaver-bird, always busily at work. When, in the south of Nubia, the green dourra which flourishes in all the cultivated tracts along the banks of the Nile begins to ripen, the traveller is frequently witness of a superb spectacle. A loud babbling attracts his attention to a corner of the field, and there, on the tallest stalks, shining like a flame, he sees a splendid bird, which wheels about in every direction. This is the singer whose strain aroused him. Not long is he without an echo; others of his kind reply, and dozens—nay, hundreds—of these dazzling vermilion-plumaged birds sparkle among the sea of verdure. Each, as he appears, seems anxious to solicit your admiration of his brilliancy. He lifts his wings, he bathes them in the warm radiance of the sun; then away he flies, to reappear a moment afterwards.

He and his congeners belong to the species *Euplectes Franciscanus*, which ranges from Central Nubia far into the interior of Africa. No lovers are they of the waste and wilderness. The poet's aspiration, "Oh that the desert were my dwelling-place!" finds no response from them. The euplectes seeks the well-tilled fields, heavy with produce, and only as a last resource settles among the reeds and grasses. His paradise is a thriving field of millet; and from thence it is by no means easy to expel him. He climbs up and down the long green stalks, or runs along the ground, in between their narrow interstices, concealing himself when any danger threatens. When the crops have been garnered, and the bare fields no longer afford him an asylum, he prowls about the country.

Though a social and gregarious bird, it would be an exaggeration to say that the euplectes forms colonies, like the grosbeak. The males stimulate one another to sing, as they swing to and fro on the wind-rocked blades of dourra; but they never suffer their "angry passions" to drag them into hostile encounters. Their duels are bloodless; they entertain, instead of irritating one another. Artists in song, they are

also artists in the construction of their nests—employing the simplest materials, such as stems of grass, but weaving them into a light and graceful web. These they do not suspend from branch or bough, but hide among the low bushes, and in the heart of the taller grasses. In shape, as in size, they vary greatly. Some are rounded, others elongated. On an average they measure from seven to eight or nine inches in length, and from four to five inches in breadth. The sides are made like trellis-work, so that the eggs can be seen through the intervals.

The alecto weaver-bird, or *Texter erythorhynchus*, to which we have previously alluded under the name of the buffalo-bird, has some pretensions to be regarded as an architect. He is always found in small companies, which apparently live together, and hunt together; building their nests, from six to eighteen in number, on the same tree, which must be strong enough to bear their weight, and is carefully selected for the purpose. For each nest, as compared with the size of the bird inhabiting it, is colossal, measuring from four to five feet in diameter. It is built up of branches and twigs, and especially of thorny mimosas. These materials are deposited in the fork of a bough, but are loosely arranged; and care is taken to leave an entrance like that of a funnel, gradually contracting inwards until it is only just wide enough to admit of the passage of the bird.

The sociable weaver-bird is, however, a much more remarkable example of constructive intelligence; and what he accomplishes with his elongated, conical, and compressed bill moves the traveller to admiration. He belongs to a limited region in Africa; not being found, we believe, south of the Orange River, and certainly not venturing far north of the Equator. One of the earliest references to him and his work occurs in Mr. W. Paterson's "Narrative of Four Journeys into the Country of the Hottentots," published in 1789. There we read that in Namaqua Land are forests of mimosas, which yield abundance of gum, and the branches of which furnish the giraffes with a plentiful supply of food. Their extensive branches and flattened trunks shelter

a species of birds which live in a community, as a means of defence against the serpents which destroy their eggs. The structure of these nests is very remarkable. To the number of eight hundred or a thousand, they dwell under one roof, which, like a roof of thatch, covers one large bough and its branches, and overhangs the nests suspended beneath in such a manner that no serpent or carnivore can reach them. In industry these birds vie with the bees. They are occupied all day in seeking the grass which forms the essential part of their structure, and in enlarging the latter, and perfecting it. Every year they build new nests, until the trees bend beneath the weight of these aerial cities. Underneath the roof a number of openings lead each into a kind of corridor, along the sides of which are deposited the nests, at a distance of an inch and a half from one another.

Le Vaillant's description is well known. He tells us that on his journey he caught sight of a tree which supported one of these republican communities, and he ordered it to be felled that he might examine the huge nest, or congeries of nests, with particular attention. This having been done, he dismantled the nest, and ascertained that its principal and fundamental portion was a mass of the tough wiry grass known as Booschmannie grass, woven into so close a texture that it was impervious even to the heavy African rains. This forms the nucleus of the intended fabric, and here each bird constructs and attaches his own nest. But Le Vaillant remarked that the nests were built only around and beneath this nucleus or foundation, the upper surface remaining unoccupied. As it is a little inclined, and has projecting ledges, it serves to carry off the waters, and preserves each little habitation from the rain. Let the reader figure to himself an enormous irregular clump or "bulk," the summit of which forms a kind of roof, while all the other sides are entirely covered with cells, set close to one another, and he will have a tolerably accurate idea of this truly singular structure.

Each cell or nest is three to four inches in diameter, which suffices for the bird; but as all adhere to one another, they seem to the eye to form a single mass, and are only distinguished by a small external aperture, which serves as an entrance to the nest, or sometimes to a

group of three nests—one being placed at the bottom, and another on each side.

As the members of the community multiply, so also must the nests increase; and as the addition can take place only on the surface, the new constructions necessarily mask the old ones, and compel their abandonment. Even if the latter, contrary to all possibility, could continue to exist, we may conceive, says Le Vaillant, that in the recess or depth in which they would be placed, the tremendous heat they would experience for want of a constant renewal and circulation of fresh air would render them uninhabitable; but though becoming useless, they remain what they were before—namely, true nests.

"The large nest, or nest-group, which I examined," says Le Vaillant, "and which was one of the most considerable I saw in my travels, contained three hundred and twenty cells; so that, supposing each to be inhabited by a male and female, they represented a society of six hundred and forty individuals. This calculation, however, is not exact; for the male has several mates among these birds, because the females are more numerous than the males. The same peculiarity is noticeable in many other species, but exists particularly among the sociable weaver-birds. Each time that I have shot at a flock of these birds, I have killed three times as many females as males."

An idea of the magnitude of these societies may be gained from the following well-known anecdote. A Hottentot, while at work, was surprised by a lion, and fled for safety to the nearest tree, a kameel-dorn.* Discovering a nest-group of the weaver-bird among the branches, he hid himself behind the shelter thus afforded. The lion stood baffled at the foot of the tree, wondering where and how his intended victim had disappeared. But the Hottentot, in his anxiety or restlessness, peering over the nest to reconnoitre, exposed himself to the fiery eyes of the lion, which straightway rushed at the tree, and, as he could not ascend it, took up a waiting position, much to the Hottentot's inconvenience. For hours the lion watched, and the Hottentot trembled; until the former was compelled by his thirst to abandon his guard, and go in

* That is, the giraffe-thorn (*Acacia giraffa*). The giraffe is partial to its leaves.

search of water. Thereupon the man effected his escape with all possible celerity.

What a suggestive subject would this republic of birds have proved to Plato, had he but been acquainted with it! With what images and illustrations it would have supplied Shakespeare! It seems to be animated by a spirit of the most entire equality; it has not even an effective chief. One bird is as good as another; and all have an equal voice in the affairs of the society. They appear, moreover, to live on terms of admirable harmony, realizing to the full that description of "little birds agreeing in their nests" which has hitherto been regarded as an amiable poetic fancy. It is true they are united by one of the strongest bonds, that of self-interest; for it is only by union that they are strong—only by union that they are able to defy the attacks of the monkeys which rob their eggs, and the snakes which rob both birds and young. The structure of the great nest raised by their combined and accumulated efforts proves, however, a tolerably effective safeguard against every enemy. And if self-interest should seem but an ignoble motive, it is only fair to remember that it secures peace and order in our bird-commonwealth, which is more than it can effect in human societies!

A word as to the architectural genius of the yellow oriole, or *Ploceus ocularius*, another of the African weavers. According to Captain Drayson, he is not quite the size of a thrush. His plumage is of a bright yellow, except the ends of the wings, which wear a brownish tint. As soon as a suitable locality has been found, he and his comrades begin to build with alacrity and cheerfulness; and before long several hundred nests will be suspended from about a dozen trees, these being always close together. The nest is suspended to the most pliant branches, and in such a position that it overhangs the water, which is thus utilized both as a protection and for sanitary purposes.

"The birds make a great disturbance when building, there being usually a regular fight in order to secure the best places. In building, the birds first commence by working some stout flags or reeds from the branch, so as to hang downwards. They then attach the upper

part of the nest to the branch, so as to form the dome-like roof. By degrees they complete the globular bulb, still working downwards; and, lastly, the neck is attached to the body of the nest. Great skill is required to keep the nest even and open, and yet no machine could accomplish the work better than do these ingenious little architects. The upper part of the nest is very thick, and firmly built; more than twice as thick as the neck, and the material of which it is made is far stronger. In some instances I have seen one nest attached to another; and when this is the case, the second builder strengthens the first nest, and then attaches his own work thereto. Should by chance a hawk or monkey venture into the vicinity of a colony of birds, he is chased and chirped at by hundreds of these little creatures, who make common cause against the intruder, and quickly drive him off. During the building of the nests, the river-side is a most interesting place, as the intelligence and diligence of the birds are most remarkable."

PENSILE NESTS.

It will not fail to be observed by the reader that the architectural instinct or intelligence of the birds is more or less developed according to the conditions under which it is exercised. We have no example in England of sociable birds, as distinguished from the purely gregarious, like the rooks, because no need is felt here of the protection and strength which association affords. And it is specially against the serpent and the monkey that the nest-grouping proves effective. But pensile nests are obviously capable of being used for defensive purposes in many localities; and accordingly we find them constructed by birds which show no tendency to unite in a single community. Take, for instance, the Baltimore oriole,* which ranges over America from Brazil to Canada, but everywhere constructs his nest in the same manner.

"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 wraps them warm;

* So named because the colours of his plumage, orange and black, were those of Lord Baltimore, the founder of Baltimore.

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."

Though nearly all the American orioles build pensile nests, it is certain that none build with the skill, and care, and prevision of the Baltimore. He shows much prudence in the selection of a site. The tree chosen is always sound and vigorous, and the particular branch high up, well covered with leaves, and not likely to be torn from the trunk by passing winds. Round a couple of forked twigs, at the extremity of such a branch, the distance between the twigs corresponding to the intended width of the nest, he fastens strong strings of hemp or flax. Then, with the same materials, mixed with a good deal of loose tow, he weaves, or rather felts, a wonderfully stout and compact texture, not unlike that of a hat "in its raw state;" and this he deftly shapes, with his strong pointed bill, into a bag or purse some six or seven inches in depth; lining it substantially with various soft substances, well interwoven with the external felt, and finishing off with a layer of horse-hair. The fabric thus ingeniously constructed is carefully protected from sun and rain by the overhanging foliage, which forms a kind of natural pent-house.

It is interesting to know, on the authority of Wilson, that in these nests there is a certain individuality of character, as there is in the makers. A particular form of building is common to all the birds of a species; but yet each nest has differences in point of detail. We have observed this to be the case in the nests of the chaffinch. Whether the differences depend on situation, or the comparative abundance or scarcity of materials, or on the temperament of the birds, we do not undertake to determine. But, as Wilson remarks, some appear far superior workmen to others; and it is possible that age may improve them in nest-building as it does in colours. Wilson describes a Baltimore oriole's nest, which he had acquired, as cylindrical in shape, five inches in diameter, seven inches in depth, and rounded at the bottom. The opening at top was narrowed, by a horizontal covering, to a diameter of two inches and a half. The materials employed were flax,

hemp, tow, hair, and wool, all felted into a complete cloth; the whole being sewed through and through with long horse-hairs, several of which measured two feet in length. The base was composed of thick tufts of cow-hair, likewise sewed with strong horse-hair.

This nest, adds the great American ornithologist, was suspended to the extremity of the horizontal branch of an apple-tree, facing the south-east, and was visible at a distance of one hundred yards, though shaded from the sun. It was the work of a very beautiful and perfect bird.

The Baltimore oriole shows such an anxiety to procure proper materials for his nest, and at the same time so conspicuous a disregard of the laws of *meum* and *tuum*, that, in his building season, the country-women are obliged to watch very closely any thread that may happen to be out bleaching, and the farmer in the same way to secure his young grafts. For the bird, 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 too heavy, and the other too firmly fastened, he will tug and pull with much pertinacity before he abandons the attempt. Skeins of silk and hanks of thread have been frequently found, after the autumnal leaf-fall, hanging from the Baltimore's nest, but so entangled and interwoven as to be entirely useless. Observe, that before the European settlement of America the bird could have had no such materials to make use of, and the aptitude he has displayed in turning them to good account is surely a clear proof of intelligence. It is not possible to refer this circumstance to the mechanical action of instinct.

The nest of the orchard oriole is very differently constructed to that of the Baltimore. The place chosen is generally an orchard or a fruit garden, and the favourite tree is an apple-tree—to the twigs of which, or the extremity of an outward branch, the pendent home is attached. Externally, it is formed of a long, tenacious, and flexible grass, knitted or sewed through in a thousand directions, and with so much precision and solidity as to suggest the inquiry, Could not the maker of such a nest be taught to darn stockings? The nest is hemispherical, three

inches deep by four broad; the concavity scarcely two inches deep by two in diameter. The fibres used in its construction are sometimes thirteen inches long, and in that length have been found hooked through and returned as often as thirty-four times. The inside is usually lined with the light downy coating of the seeds of the *Platanus occidentalis*, or button-wood. The outer work is here and there carried up to an adjacent twig, and strongly twisted round it, so as to ensure greater stability and protection against the wind.

When the orchard oriole builds, as he often does, in the long drooping branches of the weeping willow, he makes his nest much deeper, and of a slighter texture. The circumference is marked out by a number of pensile twigs descending on each side like ribs, and supporting the whole; at the same time they effectually screen the home from the curious gaze. The depth in such a case is increased to four or five inches, and the structure is slighter, or rather looser. The long branches of the willow, sweeping largely in the wind, render the first precaution necessary, to prevent the eggs or young from being rudely ejected; and the comparative looseness of the framework is explained by the shelter which the close foliage affords. "Two of these nests," says Wilson, "are now lying before me, and exhibit not only art in the construction, but judgment in adapting their fabrication so judiciously to their particular situations. If the actions of birds proceeded, as some would have us believe, from the mere impulses of that thing called *instinct*, individuals of the same species would uniformly build their nest in the same manner, wherever they might happen to fix it; but it is evident from those just mentioned, and a thousand such circumstances, that they reason *à priori*, from cause to consequence; providently managing with a constant eye to future necessity and convenience." In truth, the conclusion is forcing itself upon impartial inquirers that the sphere of instinct requires to be greatly limited. Formerly the word was used by naturalists like a magic spell, which was supposed capable of solving every problem, and removing every difficulty.

In the Southern States of North America, the oriole makes his nest almost exclusively of Spanish moss, and constructs it in such a manner

as to permit of a free circulation of fresh air through the interstices. Internally, there is no warm lining: and more, the nest is generally built with a westward exposure; the object evidently being to secure *coolness*. But in the Northern States the nest is placed so as to receive the benefit of the sun's rays, and it is lined with the finest and warmest materials. Is this adaptation to climatic conditions a mere matter of instinct?

THE CASSIQUES.

And now let us turn to the cassiques, of which there are several species, all of them inhabiting Tropical America, where they fill much the same place as in Europe is filled by the common crow. They are lively, agile, handsome, quick-witted birds, living in the green forest-depths, and feeding upon insects, the smaller mammals, seeds, and fruits. As fruit-eaters, they pay a visit to the orchard when the crop is ripening; and they are accused of achieving considerable havoc, though it is probable that they compensate, and more than compensate, for any injury to the fruit by their ceaseless pursuit of the insect-plagues.

Their voice, if not so softly melodious as that of the jacamar, has a charm of its own, and is remarkable for its flexibility. Schomburgk says that the European settlers in Guiana have baptized some of the species by the name of "mocking-bird;" and that they imitate not only the songs and calls of other birds, but also the voices of mammals. It is impossible to imagine, he asserts, a noisier or more restless creature than one of these so-called mocking-birds. We will suppose that the forest is hushed in silence; suddenly he raises his strain, which in itself is by no means disagreeable; then a toucan lifts up his lamentation, and the mocking-bird becomes for the nonce a toucan; the woodpeckers chant aloud, and he becomes a woodpecker; the sheep begin to bleat, and he responds to their bleating. Afterwards, if the other sounds subside, he resumes his own proper minstrelsy—to take up, before long, the gobbling of the turkeys and the quacking of the geese in the neighbouring farm. And while he is imitating this medley of utterances, he adopts the most singular attitudes,—bending his head in every direction, turning his neck, and his whole body,—and all in so comical a fashion as to provoke the laughter of the spectator.

Skilled as he is as a singer and posture-maker, he displays much greater ability in his rôle of nest-builder. He and his comrades form a compact little colony, and suspend their nests to the same tree—the form being that of a purse or bag. Like all the weaver-birds, they utilize the same nest for a considerable period, taking care to repair it annually. They are nearly all of them partially open at the sides, so that the family can be seen “at home.” Their construction, it has been truly said, necessitates a considerable expenditure of time, labour, and ingenuity.

Some species make use of fibres only, which they pluck from the fronds of the Maximilianææ. The bird perches on the frond, picks off with his bill the outer integument for a length of some inches, seizes the loosened end, and then, in a curious fashion, flies to one side, so as to strip the fibres over an extent of three or four ells. Other species employ long stems of grass, which they glue together with their saliva.

Man is, of course, the principal and most dreaded enemy of the ingenious and industrious cassiques. Against the smaller birds of prey they can defend themselves, but the large species of falcons are formidable. While both the shape and position of the nest shelter the young from many dangers to which those of other birds are exposed, Schomburgk describes a peril from which all their address could hardly save them,—an inundation of the neighbouring river. Great companies of cassiques, he says, surrounded their nests, screaming loudly; many had already been invaded and swept away by the waters. Some were anxiously seeking their nest, their eggs, their young; others, still out of reach of the flood, continued calmly to incubate, to nourish their offspring, to work at their nests, undisturbed by the lamentations of their companions. The life of one of these bird-colonies may be accepted as an image of the life of our great towns; in them, as in these, the dwelling-places of the community stand side by side, but none take heed of the misfortunes of their neighbours.

The great crested cassique is the most interesting species. This handsome bird inhabits the virgin forest, and does not approach the plantations unless they lie contiguous to it. He is never found in open

and treeless places. A bird of mercurial temperament, he is always in motion; flying from tree to tree, hanging to a branch by his strong claws, picking a fruit, carrying it away to eat at leisure, and keeping up a constant chatter while thus engaged. Berries and insects rank high in his bill of fare. When the fruits are ripe, he sweeps down in large flocks on the orchard-tracts, pilfering oranges, lemons, and bananas, and doing a fair amount of damage.

He is a very sociable bird.

In fact, even in the breeding-season these cassiques congregate together in couples,—thirty, forty, or more,—and suspend their nests from the branches of the same tree.

"One day," says the Prince de Wied, "at the bottom of a romantic valley, finely shaded, and surrounded on all sides by wooded heights, I fell in with an exceedingly numerous colony of *japus* (the Indian name for these birds). They so completely filled the forest with life, that we could not fix our attention on any particular point. Every glade resounded with their cries.

"Usually they utter only a brief hoarse call; occasionally they lift up their voice in other sounds—a shrill, laryngeal whistling, not unlike the tones of a flute, and ranging over half an octave. Other notes are introduced into the strain, with a result which is very curious, but not altogether disagreeable.

"The japu," continues the Prince, "builds his nest on trees of greater or less elevation. His nest, purse-shaped, is five or six inches in diameter, and frequently three to four in length. It is narrow, rounded at the bottom, and attached to a twig or a branch about as thick as one's finger." The entrance is on the top. Owing to the shape of this nest, and the flexibility of its materials, it becomes the plaything of the gentlest breeze. The bird weaves and felts it with the fibres of the *tillandsia* and the *grewatha*, and makes it into so solid a whole that it cannot be pulled to pieces without the greatest difficulty. At the bottom of this long purse is deposited a bed of moss, dry leaves, and bark; and on this bed lie one or two violet-spotted eggs.

Frequently one nest is attached to another; and then the first nest

exhibits midway an appendage shaped, like itself, after the pattern of a purse, and accommodating a couple of japus. The same tree will often hold thirty or forty nests, or more; all of them being suspended to the dry branches. Nor can naturalist, or sportsman desire a pleasanter spectacle than that of a tree thus loaded, and enlivened by the flitting in and out of these large and handsome birds. The males expand their superb tails, open wide their ample wings, lower their heads, swell out their crops, and make the welkin ring with their sonorous, peculiar voice. In flying, they produce with their wings a noise audible at a considerable distance. They allow a stranger to watch their movements for hours, without showing any sign of annoyance or apprehension.

Another species is the japíru, or *Cassicus icteronotus*, thus characterized by Mr. Bates:—

He belongs to the same family of birds as our starling, rook, and magpie, and has a rich yellow and black plumage, remarkably compact and velvety in texture. The shape of his head and his physiognomy are very similar to those of the magpie; he has light gray eyes, which give him the same knowing expression. He is social in his habits, and builds his nest, like the English rook, on trees in the neighbourhood of habitations. But it is quite differently constructed, being shaped like a purse, two feet in length, and suspended from a slender branch, generally very near the ground. The entrance is on the side, near the bottom of the nest. This bird is a great favourite with the Brazilians of Pará; he is a noisy, stirring, babbling creature, passing constantly to and fro, chattering to his comrades, and very ready at imitating other birds—especially the domestic poultry of the vicinity.

THE FLYCATCHERS.

Still keeping to the Western World, but passing from the virgin forests of Brazil and Guiana to the woods of the United States, we find in the great crested flycatcher a nest-builder of a peculiar turn of mind. What is most remarkable about his work is the materials he makes use of. In a hollow tree, deserted by the bluebird, or woodpecker, he puts

together a tolerably stout fabric of loose hay, guinea-fowl feathers, dogs' hair, hogs' bristles, and pieces of cast snake-skin. The last-named appears to be "an indispensable article," and is present in every nest. Why? Ah! that is a problem in ornithology which no one seems able to solve. It may be hung out like "banners on the outer wall," to prevent other birds or animals from intruding; or it may be that the silken softness of the snake-skin is acceptable to the young. The reader is welcome to either conjecture.

A very different kind of nest is that of the red-eyed flycatcher; a bird which ranges from Georgia to the river St. Lawrence, and is quite distinguished for the vigour, vivacity, and sonorousness of his song, which rises above that of all the other summer minstrels, and rings like a clarion-strain through the echoing avenues of the forest. His notes break up into short emphatic bars, of two, three, or four syllables; and in Jamaica are supposed to represent the words, "whip-tom-kelly," whence the popular name of the bird.

He builds, does "whip-tom-kelly," a small, neat, pensile nest, generally suspended between two twigs of a young dogwood or other small sapling, at an elevation of not more than four or five feet from the ground. The materials employed are fragments of hornets' nests, a little flax, shreds of withered leaves, slips of vine bark, and pieces of paper; the whole agglutinated into a firm compact mass with the silk of caterpillars and the bird's own saliva. Inside, the nest is lined and carpeted with fine slips of grape-vine bark, fibrous grass, and sometimes hair. So durable is the motley structure, that it frequently outbraves the atmospheric changes of a whole twelvemonth, and is sometimes occupied by mice after its owner has abandoned it.

Of the white-eyed flycatcher we are told that he builds an exceedingly neat little nest, which generally assumes a conical shape, and is suspended by its rim to the circular bend of a prickly vine, or smilax, which grows in low thickets. So great a favourite is this plant, that the bird seldom builds anywhere else. He is very jealous of any intrusion on his domesticity; and when a stranger approaches flies out.

to meet him, scolding vehemently, and endeavouring to daunt him with his little parade of anger. His nest is worked up of various materials, such as fibres of dry weed-stalks, bits of rotten wood, and so many pieces of newspaper that his apparent affection for this material has procured him, says Wilson, the sobriquet of "the politician." The different articles are well woven together with caterpillars' silk, and the lining consists of fine dry grass and hair.

THE KLECKO SWALLOW.

Mounting our Pegasus, or hobby-horse, we traverse lands and seas to arrive in the region of the sun, India and the Indian Archipelago.

Here we meet with the klecko swallow (one of the *Dendrochelidons*),—the *Manuk-pedang*, or "sword-bird," of the Malays; a bird of beautiful plumage, shining with emerald and azure reflections, thrown up, as it were, by the pure white of the under part of the body.

Like all of his race, he lives in the jungles and the thickets, but more particularly in the low-lying grounds, where he may be seen perched upon dry and leafless trees, but always, or almost always, in the neighbourhood of water. His flight is extraordinarily rapid. When at rest, he is incessantly raising and lowering the plummy tuft that crowns his head. When on the wing, he utters a piercing cry, which at once betrays his whereabouts; it may be expressed by the syllables, *kia, kia, kia*; while, when perched, he sings a little song, something like *tschiffel, tschaffel, kleko, kleko*.

The nest of the klecko is a curious structure. While the other *dendrochelidons* build along rocks or walls, in the chinks and crevices, he betakes himself to the loftiest branches of the tallest trees. There he plants his nest, hemispherical in form, and in the arrangement of its materials not unlike that of the *salangane*, which we shall presently describe. It is, however, smaller and more shallow. Attached to a small horizontal branch, which forms its posterior side, it resembles exactly a small cup, and is just capable of containing a single egg. The sides are as thin as a sheet of parchment. They are composed of feathers, lichens, and various kinds of bark, all welded together with



THE KLEUKO SWALLOW.

a viscous matter, probably saliva, but so small and frail is the entire construction, that the mother-bird, not daring to ensconce herself in it, rests upon the branch, and but partially covers with her body the solitary egg which she deposits in it.

EDIBLE NESTS.

Coming next to the salanganes, we may remind the reader that theirs are the edible nests to which the Chinese are so partial. The most common species is the salangane proper, or esculent swallow, the *Collocalia nidifica* of naturalists; a bird above six inches long, of grayish-brown plumage, with a touch of metallic green, and brownish black wings and tail. He is found in the Sunda Islands; also in Ceylon, in Sikkim, and among the Nielgherries and the mountains of Assam.

On the coasts of Java, these swallows may be seen skimming the waters with rapid wing, and seeking their food where the boiling waves break on the rocky reefs. Their flight is strong and swift; and even in the shades of night they dart with arrow-like rapidity and certainty through the narrowest passages. In caverns which open to the ocean-roar, where the floor is often formed by the sea itself—the entrance is narrow, and at high water completely concealed by the rolling waves—they build their nests. They take advantage of the ebb or flow to issue from or enter into their wave-resounding home.

Mr. Jerdan describes a visit which he paid to a cavern in the Island of Pigeons, near Honore. He was assured by his guide that the birds would return thither between eight and nine in the evening. He requested the man to secure some specimens for him; and, accordingly, next day he appeared with several living salanganes, which, at nine o'clock, in the evening, he had captured in their nests.

In another cavern, which Jerdan visited in March, he found from fifty to a hundred nests, some containing eggs, and most of them recently constructed. There were about twenty pairs of birds. He adds, that near Darjeeling they frequently appear in large numbers; generally in the month of August, and flying in a south-western direction.

The salanganes have long been famous for their nests. Thus Bontius, quoted by Brehm, says:—"On the coast of China are found little birds of the swallow genus, which come from the interior of the country to build their nests on the sea-cliffs: they gather from the ocean-foam a gelatinous matter, probably *spermaceti* or fish-spawn, and with it construct their habitations. The Chinese collect these nests, and export them to the Indies, where they are sold at a high price. When cooked in chicken or mutton broth, they form a dish in great esteem among epicures."

Until recently, all travellers agreed in asserting that the salangane thus procured from the sea the materials requisite for the construction of his nest. It was one of the popular old fables, hallowed by time and general acceptance, with which natural history abounded; like the development of the bernacle geese from barnacles, and the pelican's feeding her young with her own blood. Take Kæmpfer: the Chinese fishermen assured him that the nest was composed of the flesh of a great poulpe, which the salangane subjected to some mysterious process of preparation. Take Rumphius: he describes a tiny, soft, almost cartilaginous plant, semi-transparent, lissom and viscous, of a white and red colour, growing on the sea-shore, the rocks, and shell-fish; and of this plant, he triumphantly asserts, the salangane takes advantage to build his nest. Afterwards, however, a shadow of doubt creeps over his mind, and he admits the probability that the building material in use may really be one of the bird's secretory products.

Take Poivre: writing to Buffon, he says that the surface of the sea, between Java and Cochin-China, Sumatra and New Guinea, is covered with a substance like strong glue, half diluted; and that this substance, when coagulated, exactly resembles the material employed by the salangane. Take Sir Stamford Raffles, who in all that he saw himself may fairly be trusted: he does but repeat the opinion of Rumphius, that it is a secretory product; adding that it is streaked with blood, owing to the difficulty undergone by the bird in voiding it. Home, having opened the stomach of a salangane, found the excretory ducts of the stomachic glands considerably developed, with a tubular opening, divided into several lobes, like the petals of a flower, and he concluded that these lobes secreted the mucus of which the nest was formed. Marsden, the author of a truly valuable work on Sumatra, having chemically analyzed a nest, formed an opinion that the substance composing it was a mean between albumen and gelatine; that it resisted for some time the action of boiling water, swelling considerably in a few hours, and, on drying, turning hard again, but brittle. So much for these different authorities, in the multitude of whom there is neither wisdom nor truth.

Bernstein remarks, however, that we should not be astonished at the astounding diversity of opinion which we have concisely indicated. He apologizes for his predecessors, on the ground that they trusted to the stories told by ignorant and superstitious natives; and observes that it was impossible for them to arrive at an accurate judgment, so long as they were content to compare the external characteristics of the salangane's building material with those of other and completely different substances. To learn the truth, the naturalist must watch the procedures of the bird while alive. This is difficult, from his habit of building in caverns more or less impracticable, into which the light of day laboriously and only imperfectly enters. Fortunately, a kindred species inhabiting Java, and known there under the name of *kusappi*, can be observed with tolerable facility; inasmuch as he builds in accessible places—either at the mouth of caverns, or along the face of the cliffs. And Bernstein had several opportunities of watching the way in which his edible nest is constructed.

The shape it assumes has long been familiar to us. It resembles the fourth part of an egg-shell, taking it in its major diameter. It lies open on the top, and the rock to which it is attached forms the back. The sides are exceedingly thin. The upper edge is prolonged until it forms on each side a kind of substantial wing, which keeps the nest fast to the wall of the cliff. The substance is translucent, of a whitish or brownish tint, with transversal, undulating striae, disposed in more or less parallel lines. Bernstein thinks that the darker and browner nests, which are also the less valuable, are old nests, in which the young have been brought up; and that the whiter nests are those of more recent construction. Other observers refer these differently coloured nests to two distinct species of birds. "But, as I was never able," says Bernstein, "to procure any bird caught in a brown-coloured nest, I shall not venture to decide the question." Moreover, all kinds of intermediate shades are found between the white nests and the brown, and present the same arrangement; a fact which seems to show that they belong to the same species. In many nests, the internal surface is completely reticulated, owing to the drying up and contraction of the material employed; often, too, feathers are embedded in the sides.

The nest of the kusappi, or *Collocalia fuciphaga*, bears a close resemblance externally to that of the salanganes properly so called; but it differs essentially in being wrought of the stems of grasses. The gelatinous matter is used only for the purpose of fastening these stems together. Further, it is abundant chiefly on the posterior part, and notably in the two winglets which prolong rearward the upper border or rim. These winglets are often wanting, especially when the nest is of a solid construction.

In some Eastern lands the edible nests form the staple of a really important commerce. The most productive localities are the caverns on the south coast of Java. Epp describes his visit to some which exist in the limestone cliffs of Karang-Kalong, and are worked by the Dutch Government. These cliffs are washed at their base by the rolling waters of the Indian Ocean; their summit is crowned by a small fort, with a garrison of twenty-five men, for the protection of the

nest-hunters. A vigorous tree grows near the edge, and spreads its branches over the ocean-abyss. By cautiously clinging to one of these, the adventurous traveller, looking below him, may discover the salanganes—apparently no larger than big bees—fluttering about the face of the cliff. The hunters descend, one by one, by means of a rope some ninety fathoms in length. Whoso loses his grasp is lost! On reaching the interior of the cave in safety, they are menaced by the rush and whirl of the waters. There are inner caves, and they are accessible in no other way. The men engaged in this perilous occupation, before descending, partake of a solemn repast, with a small quantity of opium, invoke the goddess *Njai Kidul*, and place before her image an abundant offering of rice.

NESTS OF OCEAN-BIRDS.

In describing the ocean-birds, we have alluded generally to their nests, but these are seldom other than the clefts and



THE HOODED MERGANSER.



AFTER THE WRECK—THE MEWS.

figures, or wind-swept ledges of the cliffs. But a glance may here be given to an ocean-bird variously named the hooded merganser and the hooded goosander, which belongs to a distinct family, about intermediate between the ducks and the cormorants. There is much significance in his zoological name *merganser*, or diver-goose. It tells at once a world as to his habits. Of all the mergansers, we take the hooded to be the handsomest, with his greenish-black head, and white breast, marked by a curious triangular patch of black; his sides, brownish-yellow, but waved with black; and all his plumage glossed with emerald gleams. He is seldom if ever found in the south of England, but visits the deep-sea lochs and broad firths of the Scottish coast, and in large numbers gathers in the sandy bays of the Hebrides.

He sits the water much like a cormorant, but does not sink so deep. His diving is wonderful to see, and he cleaves the water with admirable speed and directness. Mr. Macgillivray has a pleasant description of the *modus operandi* of this bird and his congeners. You may suppose the observer to be jammed into the crack of a rock, bareheaded, and peeping cunningly at the advance-guard as they approach. There they glide along; and coming into shallow water, thrust their heads below the surface, raise them, and apparently look around to see that no foe is near. Now down goes one, with a jerk; then another; a third, a fourth, and at last the whole company, like a group of French bathers at Tourville. Now note how smartly they shoot along under the water, with wings partially outspread; some darting right forward, others wheeling and doubling. A throng of flounders, startled by the hurricane, shoot right out to sea, unpursued. How gracefully they rise to the surface! one here, another there, a whole covey at once emerging, and all without the least noise or splutter! They feed entirely upon fish, and spend most of their time at sea. Their nest, placed always among the sedge and water-grass, is a rude affair of grass and bent and roots, lined with down from the female's breast.

THE MEWS.

Equally inartificial in construction is the nest of the mews, which

breed along the coast on rocky headlands and wind-swept cliffs, as if they loved the "elemental war," and could sleep only when rocked to rest by the wild music of the waters. Their enemies are few, and their young are hardy; so that little care is necessary in the preparation of their "homestead." It is usually built up of withered herbage and fragments of turf; bulky, but rude, and in striking contrast, as are the nests of all birds of prey, to the delicate work of some of the fruit-eating or insectivorous birds. The mews are very numerous, and their discordant scream may be heard on almost every part of our island-shores. They show no great dread of man, and may often be seen far inland, hovering over the rippling stream and trout-haunted brook. Their scent for prey is very keen, and after a wreck they assemble in great numbers—so swiftly, that they would seem to have been actuated all at once by a common impulse.

The mews belong to the great Gull family. The species are many—as, for instance, the leaden-gray hooded mew, which to fisher-folk is generally known as the laughing gull; the brown hooded mew, which has several aliases; and the little mew, or little gull. The cry of the first-named is so like a screech of elfin laughter, as completely to startle a person unaccustomed to it. The bird is by no means uncomely. He is of slender form and graceful outline, with long wings of a light bluish-gray. The head and neck are of a grayish-black; the under parts white, with, however, a perceptible tinge of rosy red.

BIRDS OF PREY.

We have said that birds of prey are indifferent nest-builders. This is specially true of the eagle, whose eyrie, though of enormous dimensions compared with the size of the builder, is put together in the rudest possible manner. It is low, but very wide, and flat in the interior. The framework consists of stout branches, sometimes as thick as a man's arm; next to which is laid a stratum of finer branches and twigs; the whole being lined with substances of great softness. The same eyrie serves the same birds for several years, but is annually repaired and enlarged. It is planted generally upon trees, or on an inaccessible crag, high up in air; but in some cases is built upon the ground.



EAGLE AND VULTURE CONTENDING FOR PREY.

A very similar nest is constructed by the vulture, between whom and the eagle no love appears to be lost,—the two frequently engaging in fierce combat, and disputing with each other the possession of some hapless victim. So, too, the falcon is content with a heap of dry twigs; and the sparrow-hawk with a “rough-hewn” structure of the branches, leafless and lichened, of pine, fir, and birch. On the other hand, the wind-hover hawk makes no nest at all, but takes possession of any which has been abandoned by its proper owner. The tawny owl seeks the hollow of a tree; but the carrion crow builds a nest of considerable firmness and solidity, generally among the branches of the oak, the Scotch pine, or the spruce fir.

THE EGRETS.

To the Heron family belong the egrets, of which there are four or five species, neither very well known nor often found in the British Isles. You can tell them from the true herons by their longer neck and legs and slenderer body. In truth, they are of decidedly more graceful “build” than the heron, and some of them are superior in size.

The black-billed egret rejoices in a snow-white costume, but his feet are of flesh-colour, and his bill is black as jet. The little white egret is a charming bird, about twenty-four inches long, and therefore one of the smallest of his family. Then there is the white egret, sometimes called the white heron, which inhabits the south-east of Europe and Southern Siberia, and thence extends his rambles into the north of Africa and the south of Asia; appearing very seldom in European countries, except in the districts bordering on the Danube and the Black Sea. The *Ardea alba* and the *Ardea garzetta* are British species.

His favourite haunts are the lonely silent recesses of wide marshes, for he shuns the vicinity of man. His gait and bearing distinguish him from the rest of his family, and, on the whole, much to his advantage. He is taller than the other white herons, and his plumage is of dazzling whiteness. The postures he assumes would astonish a professional posture-maker! He hides his head under his feathers,—his head, his neck, and one of his legs,—till you would think his body,

supported by one frail limb, must certainly topple over ignominiously. He looks his best when walking, for he has a very dignified air; or when flying, his aerial movements being executed with equal vigour and swiftness.

Many enemies has the white egret; among these the lynx is very formidable,—but not so formidable as man, who pursues him in the marshes of the Danube with unflagging ardour, and carries off his brilliant plumes as a trophy of his skill.

THE CURLEW.

In "Geoffrey Hamlyn," the first and best book of Henry Kingsley, we are bidden to participate in the joy of Dr. Mulhaus at discovering in the Devonshire moors a new scolopax. None but a naturalist, perhaps, can feel the amount of enthusiasm proper on such an occasion; but every bird-lover rejoices in an addition to his stores of knowledge. Among the species of *Scolopacidae* well known in England, is the great curlew or whaup. She has a long decurved bill, with a robust body, supported on long slender shanks. She frequents the sea-coast from September to March, and then retires to the high purple moors in the interior, where her clamour is a constant sound, and welcome enough to the lonely wayfarer. Macgillivray, who almost deserves to be called the Ruskin of British naturalists, sketches with truth and vivacity her inland habitat.

Primroses bloom in patches of gold on the sunny banks, the brooks are fringed with the yellow catkins of the willow, and the mossy moor is enriched with the spikes of the cotton-grass. As we ascend the wild, rugged glen, loud on our ear fall the clear but melancholy whistle of the plover, the bleating of the snipe, and the scream of the curlew. Coming to a bog interspersed with tufts of heath, we startle the lapwings from their haunts; a black-breasted plover watches us from the top of a mound of green grass, and a ring-ousel springs from the furze on the brae. And see! what is that? Why, a curlew fluttering along the ground, wounded, and unable to escape. Let us seek her nest; and here, close at hand, in a hollow, and sheltered by two tufts of heath, we find it. Well, the curlew is not one of the art-workers of



WHITE EGRET ATTACKED BY A LYNX.

the Bird-World. There is little to admire in this structure of dry grass, twigs of heath, and bits of broken branches, loosely and even carelessly arranged; very shallow, and about a foot in diameter. Four are the eggs in number; pear-shaped; excessively large; three inches long, close upon two inches in diameter; in colour a light olive, or dull



CURLEWS.

yellowish-brown, or pale grayish-green, spotted and splashed with umber brown, especially towards the larger end; contrasting so little in their general tint with the surrounding objects, that had not the bird sprang up almost under our feet, we should not have observed them. Far up on the hill-side rings her loud note, to which comes a speedy response from the opposite slope: in another place a bird begins

a series of modulated cries, and springing up, performs a curved flight, flapping his wings and screaming as he proceeds. Presently the whole glen is vocal, but not with sweet sounds like those of the male and the merle.

It is in vain, however, to pursue these birds, for they are the males; and their suspicion and wariness are so great, that it is seldom they can be captured.

NESTS AT HOME.

"Deep in the hawthorn bush secure it lies,
Cunningly fenced and hid from prying eyes,
The little fabric, made of wool and hair—
Covered with ivy leaves, with feathers lined—
Where, o'er her eggs, in softest moss enshrined,
Broods the fond mother-bird, with loving care."

Of curious and remarkable nests having said thus much, we would relieve ourselves and our readers by glancing at a few of those familiar to us in our English gardens and hedgerows—neither curious nor remarkable, but in several respects interesting. A contemporary essayist remarks upon some of them very pleasantly. He speaks of feeling a distinct delight for every different nest—from the thrush's, the clay cottage floor of which sets off its blue eggs so well, to the goldfinch's, the very flower of nests, exquisitely perfect in shape, made of the gray moss upon the apple-trees in which this graceful bird loves best to build, lined with a beautifully wrought texture of hair and wool, and containing four dainty little pearls specked with pale red. The wagtail's or the linnet's nest is not unlike the goldfinch's; that is, it resembles it as a delf cup does a china one of the same pattern. The wren's nest is snug to a proverb. Besides being so completely walled and roofed, it is always placed in shelter. When the wren builds in an ivied wall, she frequently faces her dwelling with ivy leaves; and by these you may sometimes find her, for she does not seem to remember that they will fade. But be cautious in approaching it when found, for no bird is so easily induced to abandon her nest as Jenny Wren. She has a horror of strangers; a shy, domesticated, timid little bird, with as much objection to being "lionized" as the

late Miss Martineau. The nest of the tiny, golden-crested wren is more complete, and is larger than that of the common wren. As to the water-wagtail, it is almost as difficult to find his nest as to capture its owner. The usual *locale* is a disused lime-kiln or a leafy hollow, always near water. The sparrow builds beneath the eaves of house or barn, in the gutter, the chimney, or anywhere else near the house of man.

"The lark," it is said, "is the youngest apprentice among the bird-masons. The few blades of grass that he puts together on the ground look more like the lair of some small animal than like a nest. But the magpie is grand master of the craft. Once upon a time he



WAGTAILS.

undertook to initiate the rook into some of its higher secrets. When the lower part of the nest was made, the rook, seeing it to be so far very like his own, said, in his solemn, conceited way, 'I see nothing wonderful in all this; I knew it all before.' 'Well, if so, be off to do it; you want no teaching,' said the magpie, in a rage, and would never after show him how to roof a nest or put in a doorway, to floor it with clay, or to carpet it with hair and wool. In Ireland, magpies are called Protestant birds, because they only came there in the reign of Queen Elizabeth, and because they are chiefly found in the chicken-rearing, English-peopled parts of the island."

The magpie has long been considered a bird of omen, and the reader will remember the popular couplet:—

"One for sorrow, two for mirth,
Three for a wedding, and four for a
birth."

It was thought probable that the hearts of the unmated men could not fail to be moved when they saw the swallows clinging outside their happy nests, and patiently feeding their hungry fledgelings.

THE GOLDFINCH.

But let us examine a little more in detail the nests of our common English birds. To begin with the goldfinch's. Is it not a marvel of delicate and ingenious construction, a fairy piece of work, light, shapely and graceful, yet perfectly secure?

It is literally a cradle, as Mudie remarks; and the young are rocked by the winds in their hatching-place nearly as much as they will be afterwards on the tall and flexible stems on which they are to find their food. Externally it is constructed of green lichens, mosses, small roots, dried-up stubble, feathers, and blades of grass, all twined together by cocoon-filaments, and interwoven with the utmost com-



THE MAGPIE.

compactness and neatness; internally it is lined with thistle-down, the soft



RED MAGPIE OF CHINA.

filices of various plants, cotton, and the hair and bristles of the pig. It is generally planted in one of the forks of the top of a tree; and so well concealed, that even after the leaves have fallen it is seldom visible.

THE CHAFFINCH.

The goldfinch's nest, however, is considered less handsome than that of the chaffinch, though constructed with so much skill. It is more formal, certainly, and less richly varied in its colouring, the bird being wholly averse to a single blade of moss or lichen projecting, and filling the whole very neatly and smoothly with wool. According to Waterton, it is a paragon of perfection. Lichen is attached to the outside by means of the spider's slender web. "When I was on a plantation in Guiana," says the naturalist, "I saw the humming-bird making use of the spider's web in its nidification, and then the thought struck me that our chaffinch might probably make use of it too. On my return to Europe, I watched a chaffinch busy at her nest; she left it, and flew to an old wall, took a cobweb from it, then conveyed it to her nest, and interwove it with the lichen on the outside of it. Four or five eggs are the usual number which the chaffinch's nest contains, and sometimes only three. The thorn, and most of the evergreen shrubs, the sprouts on the boles of forest trees, the woodbine, the whin, the wild rose, and occasionally the bramble, are this bird's favourite places of nidification."

In those bright, fresh days which usher in the spring, the song of the chaffinch is heard on the air. It has a cheerful tone, as becomes the herald of happy hours of bloom and sunshine. Betaking himself to his last year's abode, he awaits there the advent of his spouse. As soon as she makes her appearance, the two birds set to work on their nest; and their natural ingenuity being stimulated by the sweet impulses of love, it is frequently completed before the trees have put forth the full glory of their leafiness. Watch them closely, and you will see them fly from tree-top to tree-top; the female carefully searching and investigating, her mate restless, agitated, and forgetful of his ordinary prudence. *She* has no other thought than to find a safe place for her nest; *he* is full of love and passion, and the victim

of an overmastering jealousy. At length, their song grows louder, clearer, and more joyous; for a suitable position has been discovered—a forked branch near the crest of a tree, an old knotty bough which will soon be hidden by a screen of greenery, a pollard willow, or even the thatched roof of a barn or a peasant's cottage.

Few, if any, of our home-birds build a prettier nest, or one more artistically wrought. Its shape is that of a truncated sphere,—which sounds very scientific, but may be Englished into the bowl of an egg-cup. The materials, we have spoken of; they are felted together with spiders' threads, and the general colouring is a brownish-gray, like that of the gnarled branch on which it rests. The interior forms a deep cavity, luxuriously lined with soft hairs and feathers, softer wool, and softest vegetable down.

THE LINNET.

"Through leafy groves the cushat roves,
The path of man to shun it,
The hazel bush o'erhangs the thrush,
The spreading thorn the linnet,"—

so sings Robert Burns, and his song reminds us of one of the most charming of British song-birds, whose soft, sweet strain seems to the traveller resting awhile by the wayside "gentle as the melody of the primeval groves of lost Paradise, filling the soul with pleasing thoughts." There is no depth in the song, however; none of that suggestion, so to speak, of exultant aspirations which we feel and recognize in the full, living melody of the lark; none of that richness of passion which wells out of the heart of the nightingale. It is blithe, sunny, agreeable, and harmonizes well with the glow of summer days and the brightness of green pastures and leafy groves. The linnet generally builds her nest among the brushwood, or in the heart of a furze bush; and approves herself a neat, and dexterous worker. Externally it is formed of blades and stems of grass, closely interwoven with bits of moss and wool, and lined with hair of various animals. Nothing to wonder at, perhaps, and yet quite worthy of admiration; especially when we remember that the compact and cozy structure is constructed with no other tool than the bird's tiny bill.

THE YELLOWHAMMER.

Equally neat is the fabric of small twigs and coarse grasses, closely plaited and twisted and felted, and comfortably lined with a layer of fine grasses, hair, and fibrous roots, which,

"Low in the garden's thorny bound,
Or under, on the shelving mound,
'Mid waving bent-grass, or the bloom
Of blossomed furze,"

the yellow bunting or yellowhammer plants. Generally, it may be observed, the nests of our British song-birds are nicely made; but they exhibit none of those remarkable characteristics which have occupied our attention in the earlier portion of the present chapter. And the reason is, we suspect, the absence of any formidable enemies. They have no need to guard by ingenious contrivances against the attacks of monkeys or serpents, or even birds of prey; and, consequently, the stimulus of necessity has never been applied to their inventive and constructive faculties. They build for comfort, and to make provision for their young; and in our temperate climate no special protection is required against deluges of rain, no special shelter from the rays of a burning sun. Moreover, many of the species are migratory—coming with the smile of spring, and departing with the first frown of winter; and for these any elaborately-wrought domicile would clearly be superfluous. Yet the skill shown in the composition of the humblest nest of the humblest songster is of its kind most admirable; and the chaffinch's nest is as much a matter for investigation and thought and pleased reflection as any of those wonders of Nature in which the devout soul acknowledges the influence of an All-Wise Creator.

THE SKYLARK.

This is true even of the skylark's nest, which is sometimes spoken of in careless and slighting terms. But examine it carefully, and you will find that it has been wrought with considerable industry, and that it is cunningly adapted to escape observation from the passer-by. The outside layer is composed of withered grass, which is almost

indistinguishable from the stubble or bent among which the nest is placed; while, inside, a lining of fine vegetable fibre protects the eggs, and afterwards the young, from injury. The skylark, it is worth noticing, prefers the vicinity of human habitations to the wilderness and the uncultivated plain. No sooner has man ploughed up the waste, and made the corn to grow where formerly throve only the rank vegetation of rush and bramble, heath and moss, than, though before unknown, the skylark comes with joyous song, as if to cheer the labourer in his toil. And what a song it is! How bright, how exquisite, how thrilling! Listen, listen! Is it not like a lyrical outburst of mingled gratitude and joy? At heaven's gate it echoes, as if to raise our thoughts above the world and its anxieties to the Giver of all Good. The higher the singer ascends, the loftier seems his song. If it breathes of the flowers and the leaves of the earth where he dwells, it breathes also of the light and the glory of the aerial heights to which his venturous wing has carried him.

"Ethereal minstrel! pilgrim of the sky!
Dost thou despise the earth where cares abound?
Or while thy wings aspire, are heart and eye
Both with thy nest upon the dewy ground?
Thy nest, which thou canst drop into at will,
Those quivering wings composed, and music still.

"To the last point of vision, and beyond,
Mount, daring warbler; that love-prompted strain,
Twixt thee and thine a never-failing bond,
Thrills not the less the bosom of the plain;
Yet mightst thou seem, proud privilege, to sing
All independent of the leafy spring.

"Leave to the nightingale the shady wood;
A privacy of glorious light is thine,
Whence thou dost pour upon the earth a flood
Of harmony, with rapture more divine.
Type of the wise, who soar but never roam,
True to the kindred points of heaven and home."

THE SAND-MARTIN.

But the strain of the skylark has carried us away from our subject. From nests woven and pensile, we now turn to the burrow of the sand-martin, which, with tiny bill, he contrives to excavate in the solid

rock. Not that he purposely and by preference undertakes a task so laborious. When he can find a more convenient locality, a locality where the sandy soil is loose, friable, and yet tolerably tenacious, he gladly takes advantage of it. Otherwise he attacks the hard sandstone with really wonderful courage. Having fixed on what appears to be a practicable spot, he proceeds to use his legs as a kind of pivot, and wheeling round and round works away with his beak as if it were an auger, until he has effected an almost cylindrical hole. The tunnel thus made slopes upward, to prevent the rain from lodging, and is frequently three feet in length. At the end of the recess is deposited a pile of dry grass and soft feathers, on which the female lays her eggs, and hatches them.

The sand-martin is a sociable bird; and a sandstone bank or cliff will sometimes be found quite honeycombed with holes. Less than five couples are seldom met with; generally the colony consists of twenty to forty, and sometimes of no fewer than one hundred.

It is certainly a remarkable thing that a bird so small and comparatively so feeble as the sand-martin should be capable of executing a work so gigantic, in so short a time. We say "gigantic;" and the epithet is not inappropriate, when we consider the size of the worker, and that the work is the result of the labour of only two individuals. In a couple of days a sand-martin and his mate will bore a cavity of two to three inches diameter at the mouth, wider still at the bottom, and three to six feet in length. While thus engaged, their activity is prodigious. They may be seen painfully collecting with their claws the sand which they have thrown aside, and removing it from their habitation. Not unfrequently they will abandon the work they have commenced; or having finished it, will begin it again in another quarter. It is not easy to explain these vagaries. During their labour they are so completely absorbed in its anxieties that they take no rest or pleasure; and one might suppose that they had deserted the countryside. But strike upon the ground with your stick, and immediately a rush of wings will be heard from every tunnel.

Wilson says:—The sand-martin (or bank swallow, as he is also called) appears to be the most sociable with his kind, and the least

intimate with man, of all our swallows; living together in large communities of sometimes three or four hundred. On the high sandy bank of a river, quarry, or gravel-pit, at a foot or two from the surface, they commonly scratch out holes for their nests, running them in a horizontal direction to the depth of two and sometimes three feet. Several of these holes are often within a few inches of each other, and extend in various strata along the front of the precipice, sometimes for eighty or one hundred yards. At the extremity of this hole, a little fine dry grass, with a few large downy feathers, form the bed on which their eggs, generally five in number, and pure white, are deposited. The young are hatched late in May; and the common crow, in parties of four or five, as well as the magpie and the kestrel, wait and watch at the entrance to the burrows to pounce upon the hapless fledgelings in their first attempts at flight.

THE LAPWING.

Says Thomas Aird, a Scottish poet too little known in proportion to his merits:—

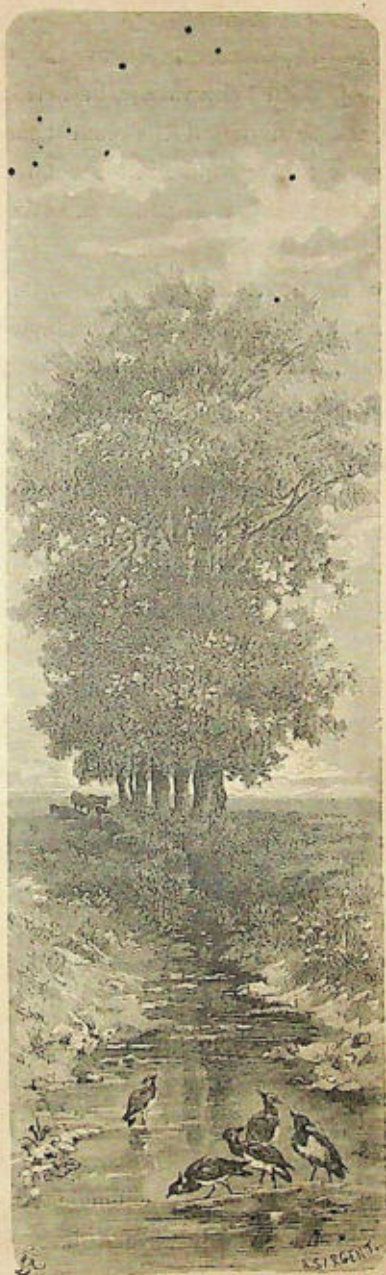
“Trooping down the barren shore,
The lapwings wheel their veering flight
The sandy ferry o’er and o’er.
Now they’re black and now they’re white
Hoarser brawl the wind-curl’d rills;
From out yon gap in the far hills
The hail-blast drifting white and slow
Seems to come on, but thin and rare,
Disperses as it hangs in air.”

The lapwing, to us English people, is perhaps best known as the peewit or peesweep, whose shrill melancholy cry so often rings over lonely moors, or the open sands of the broad river-mouths, or the barren hill-side swooping seawards. He is an elegant bird, with plumage of shining black and green on the upper part of the head and body, and white beneath, which he shows alternately—now black, now white—as he flies round and round in the air, with a swift abrupt motion, easily distinguishable from that of any other bird. His “manners” and “habits” are well worth the study of the amateur naturalist. It has been amusingly but not inaccurately said, that during the breeding-

season he seems to be an ornithological compound of the shrill fishwife, the pugilist, and the mountebank. He allows no intruders within his temporary domain. Even the combative rook finds in him a master. And then he is as active as he is pugnacious. When on the attack or the watch, the dexterity and rapidity of his flight are really remarkable. He does not seem the same bird as he whom we whilom saw dabbling in the clear cool waters of the burn, and leisurely regaling on a worm or fly. He rises with a bold sweep above his adversary, and then swoops down with a rush and a scream, as if he would bear him to the earth. Then, when the trespasser has been driven into retreat, he joins his mate in a kind of airy dance or fantasia, very curious to see.

It is said by a French ornithologist, that whoever has had opportunities of observing the ways and habits of the lapwing soon learns to love him; and yet he sometimes excites the wrath of thoughtless man. The sportsman abhors the vigilant bird which so often warns the water-fowl of the presence of an enemy; but then to such an one as the present writer, who is

no sportsman, he is always a favourite object of study, whether he walks



LAPWINGS IN THE STREAM.

or runs, dips his wings in the clear cool stream, or with a thousand and one devices seeks to draw the stranger from the neighbourhood of his nest. Like the swallow, he heralds the return of genial spring; he comes back to us about the same time as the lark, and is often to be seen in the later days of winter, when he must be hard pressed for food. In his case, as in that of some other birds, it has been remarked that the great migrating band is preceded by certain skirmishers, or precursors, whose duty we may fancy to be the choice and preparation of suitable abodes. Too frequently their hopes are blighted by a sudden change of weather. A snowstorm, occurring late in spring, buries their food beneath its deep white shroud. However, they seem sanguine of a brighter future, and, far from beating a retreat, wander from stream to stream, and roam far over heath and moor. But, as with mortals, while they hope they suffer; they grow thin and feeble, and at last they perish. Generally the immigrants are more fortunate, time their arrival happily, and endure without loss or injury the last chill frowns of winter. At the season of their migrations their characteristic cry often disturbs the silent night; while by day we may see them, especially in the plains and valleys, and on the river-banks, pursuing their apparently trackless way in numerous bands.

As we have said, the lapwing flies well, and his flight is very various. Above water or near the ground he advances with a slow beat of the wings; but as soon as he has gained the heights of air he gives himself up to the fullest enjoyment, and every movement becomes expressive. It is interesting to watch him when any danger threatens; then it is that he executes his most audacious performances: he dashes headlong towards the ground, to rise again almost immediately; he darts to right, to left, tumbles over and over, sinks to earth, runs a few steps, remounts, and a second time goes through the whole series of feats. The female, when frightened from her nest, does not take wing immediately, but first runs to a considerable distance, preserving the utmost quiet. When she rises, she breaks her silence, and fills the echoes with her reiterated and most doleful *pee-wit*. As she approaches and wheels about the intruder, her tones increase in

volume; and while she tosses and tumbles in the air they often deepen into a scream. The further she flies from her nest, and the more successful her stratagem appears, the louder does she cry, as if seeking to impress upon the mind of the intruder that his course is directed towards the spot she wishes him not to discover. Herein lies her exceeding skill. But if the nest be really chanced upon, she at once subsides into silence, as if feeling that further attempt at deception is vain, and all is lost. To the lapwing's peculiar habit Tennyson refers:—

"To come and go, and come again,
Returning like the peewit."

By the way, the same close observer refers to another peculiarity of the bird—his change of plumage at spring and autumn:—

"In the spring the wanton lapwing gets himself another crest."

The lapwing's nest is usually to be found among the coarse rank herbage that grows on a moist moorland soil. It consists of a slight hollow, or depression, elegantly tapestried with fibrous roots and a few straws or bits of stubble. Considerable tact is shown in the choice of a locality, so as to insure the safety of the brood. The bird is not one of the best of feathered architects, and yet he is clever in his adaptation of means to an end. At all events, he deserves our notice here, from the pains and artifices he and his mate exhibit in their endeavour to draw away from it any rash, intrusive steps.

THE WAGTAIL.

Very different is the nest constructed by the wagtail, that gay and lively bird which might almost be taken as the type of perpetual motion. Only while he is singing his sweet but simple song is he at rest; at all other times he flutters incessantly from side to side, or else he jerks and wags his tail. Swift is his flight, and easy; consisting of a succession of curves alternately ascending and descending, which form a long sinuous line. He feeds upon all kinds of insects, larvæ and chrysalids, which he seeks along the running streams, beneath mossy stones, in the thatched roof of the old barn, and in the meadows where

the kine pasture. His nest he builds in any convenient chink or cranny—in the crevice of a wall, in a hole in the ground, under the roots of a tree, in the "wood pile," or a hollow trunk. The bottom is composed of roots, twigs, dry leaves, mosses, bits of straw; on this is laid a second course of long grasses, and the finer straws and fibrous roots; the whole being lined with hair, wool, horse-hair, lichens, shreds of cotton, and similar materials, which are fitted together with much neatness, and form a soft and comfortable substance.

Akin to the true wagtail is the swallow-wagtail (*Enicurus*) of the hill-countries of India and Malaysia. He differs from our British favourite in being of a more robust build, while he has a stronger bill, shorter and rounder wings, and thicker tarsi. He frequents the mountain-heights, where the stream falls from ledge to ledge with a murmur and a sparkle, and in the immediate vicinity of the stream he constructs his nest. That is, he seeks out a depression in the soil, or a cleft in the rocks, or a thick tuft of moss, and in the concealment this affords he piles up a little hemisphere of dried mosses, which he lines with dry leaves, or rather with leaves that have rotted through damp, until only their framework or skeleton remains. Leaves in this



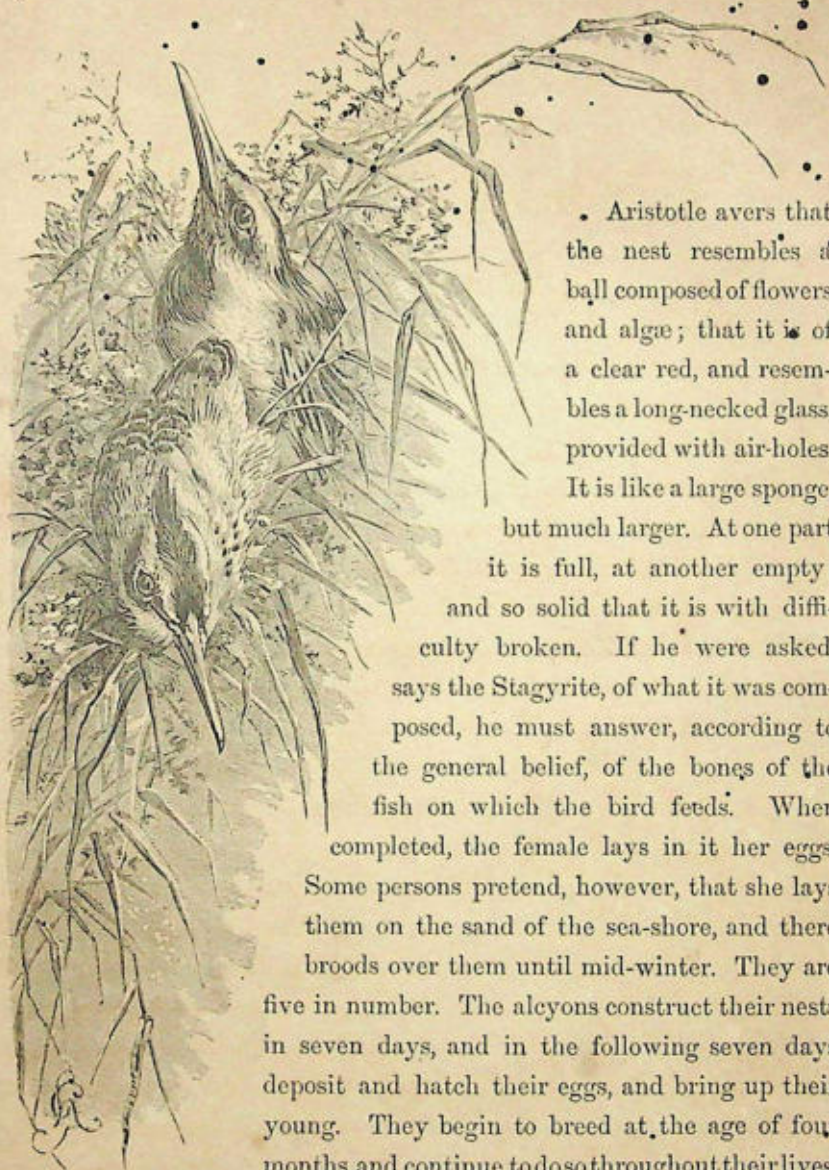
SWALLOW-WAGTAIL.

condition are soft and flexible, and afford as yielding a couch as a bed of rose-leaves.

We may observe, in passing, that a bird of very different character, the crested lophæetus, which is found in the upper Nile Valley, rejoices in a very similar nest; building it among the green boughs, and lining it with soft wool and softer feathers.

THE KINGFISHER.

Another burrowing bird is the kingfisher, the classical Alcyon, of which so many pleasant fables were told by poets and naturalists. Thus says the credulous Gessner:—The Greeks named the kingfisher Alcyon, because he lives in the sea. He is little known; which is not astonishing, for we see him but seldom, and only in April or in the rays of the winter sun. When he has flown once round a ship, he departs immediately, and returns to it no more. The male is named *cuzylus* and *ceyx*. In Plutarch's opinion he is the wisest and most remarkable of all marine animals! To what nightingale, he asks, can we compare his song, to what swallow his agility, to what dove his conjugal faith, to what bee his industry? The construction of his nest is a marvel of ingenuity, for the alcyon employs in it no other tool than his beak: he builds it like a ship, and in such wise that the waves cannot submerge it; the bones of fish he twines and laces together; some he arranges horizontally to serve as the base, others he raises up along the sides, to others he gives a circular sweep; and the whole nest he lengthens out like a swift galley. And when he has terminated this work, he labours at the consolidation of the exterior; the waves beat against and penetrate the sides, but the bird toils on, and renders it so solid that it can with difficulty be broken by blows from a stone or a bar of iron. The opening of this nest is wonderful; it is made in such a manner that none but the kingfisher himself can enter. For all other birds it is completely invisible. The water is unable to gain admission, because the material of which the nest is formed swells like a sponge, and in swelling closes up every issue. However, when the bird desires to enter, he compresses this substance, expels the water it has absorbed, and makes his way into the interior without difficulty.



THE BLACK-AND-WHITE
KINGFISHER.

Aristotle avers that the nest resembles a ball composed of flowers and algae; that it is of a clear red, and resembles a long-necked glass, provided with air-holes. It is like a large sponge, but much larger. At one part it is full, at another empty; and so solid that it is with difficulty broken. If he were asked, says the Stagyrte, of what it was composed, he must answer, according to the general belief, of the bones of the fish on which the bird feeds. When completed, the female lays in it her eggs. Some persons pretend, however, that she lays them on the sand of the sea-shore, and there broods over them until mid-winter. They are five in number. The alcyons construct their nests in seven days, and in the following seven days deposit and hatch their eggs, and bring up their young. They begin to breed at the age of four months, and continue to do so throughout their lives. The female loves her mate, and remains always faithful to him; in his days of decrepitude and decay watching and feeding him, consoling and supporting him, never forsaking him, carrying him on her back, and rendering him loyal and affectionate service until he dies. And then she ceases to eat or drink; mourns

for him incessantly, and eventually follows him; but, just before her death, she utters a plaintive song; *ceyx, ceyx, ceyx*, repeating it frequently, and then subsiding into silence. We do not desire that others or ourselves should hear that song, for it is a presage of misfortune and of death.

Such is the credulous narrative of old Gessner, compiled from the wondrous stories of the ancients. It is curious that he should have been content with implicitly recording them, when a little well-directed observation would have convinced him of their folly. But it is still more curious that many of them should have been handed down to modern times. Our ancestors believed that after death this remarkable bird was useful in warding off the lightning, in indicating concealed treasures, in endowing the person who bore him with grace and beauty, in creating an atmosphere of peace in a house, in spreading calm over the sea, in attracting fishes, and prospering the fisheries. A tolerable catalogue of blessings to be procured from one dead bird! Why were people ever without such a talisman? Even in the present day certain Asiatic tribes, such as the Tartars and the Ostiaks, repeat similar fancies from mouth to mouth; ascribe to the bird's beak therapeutical virtues, and believe in his feathers as a love-philtre!

The kingfisher frequents the neighbourhood of fresh and limpid streams and rivers, preferring those which flow in the shadow of the great forests, or bathe with their waters the drooping boughs of the willow. When the bank is dry, steep, and bare of herbage, offering no facility to rat, weasel, or other carnivore, he and his mate prepare to fix their nest. About fifteen or twenty inches below the margin he excavates a circular hollow, fully two inches in diameter, and two to three feet in depth. This burrow or tunnel, like the sand-martin's, always inclines upward. The mouth is bifurcated, and the opposite extremity terminates in a rounded cavity or chamber three inches high, and five to six inches broad. The roof of this cavity is very smooth; the floor is very dry, and lined with fish-bones. Upon the fish-bones the female lays her eggs, six or seven in number, relatively very large, almost round, and of a lustrous white.

In working at this burrow or tunnel the kingfisher spends two or

three weeks. If he meets with stones in the course of the excavation he endeavours to remove them; but if he proves unsuccessful, he leaves them where he found them, and digs at the side. The entrance-gallery is frequently rendered very devious by such obstacles; and sometimes the bird abandons the spot, and tries his fortune in another locality. When once the nest is complete, he dwells in it, unless disturbed, for several successive years. If the mouth of the tunnel should be enlarged by any accident, no more eggs are deposited there. The nests which have been inhabited are easily recognized by the quantity of heads and wings of dragon-flies mixed with the bones of fish.

Mr. Bates describes the kind of locality which the Brazilian kingfishers affect. He speaks of a tract of level beach covered with trees, which form a beautiful grove. About April, when the water rises to this level, the trees hang out a full array of blossom, and a handsome orchid, with large white flowers, which thickly clothes the trunks, bursts into luxuriant bloom. To this scene of sylvan beauty resort several kinds of kingfishers, and four species may be seen within a small space; the largest as big as a crow, of a mottled-gray hue, and with an enormous beak; the smallest not larger than a sparrow. The large one makes its nest in the clay cliffs, three or four miles distant. The South American species, however, are not so brilliant as our English kingfishers.

THE COCK OF THE ROCK.

In strange places do the birds sometimes build their nests! As, for instance, the cock of the rock, the *Klippenhuha* of the Germans, the *Rupicola crocea* of naturalists, which inhabits the mountains and highlands of Guiana and north-eastern Brazil, in the neighbourhood of the great rivers. His nest is always planted in the clefts of the rocks and granite cliffs which hem in the rolling tide of the Orinoco; attaching it to the stone with a resinous substance of singular adhesiveness, he makes it serve his purpose year after year. As soon as a brood has been hatched, the interior lining of roots and vegetable fibres and feathers is carefully renewed, and the exterior receives a fresh coat of resin. That our rupicola is a sociable bird, appears from the fact that several nests are often found in the same fissure or cranny...



COCK OF THE ROCK.

It is an interesting circumstance in connection with him that he seems to have a passion for the sound of falling waters. His favourite haunts are deep, broken valleys, through which the river tumbles in a foaming cataract. In the open plains he is never seen; but in June and July he quits his rocks and waters for a while, and repairs to the forests to gather a harvest from their prolific fruit-trees. Sir Richard Schomburgk describes his ascent of a steep, almost precipitous height, where the path was obstructed by blocks of granite, green with mosses and ferns. On reaching a narrow table-land, his Indian guides signed to him to hide silently behind a bush. He waited a few moments, and then heard in the distance a cry like that of a young cat, and imagined it to be the voice of a quadruped. The last sounds had scarcely died away before one of the Indians proceeded to imitate it with surprising fidelity. This drew forth a response, and very soon similar cries resounded on every side. Then, with swift flight, out of the bushes dashed a number of beautiful rupicoles, resplendent in their bright orange plumage and purple-bordered crest; pausing an instant to look for the comrade whose voice they fancied they had heard, and disappearing with the rapidity of lightning on discovering the deception.

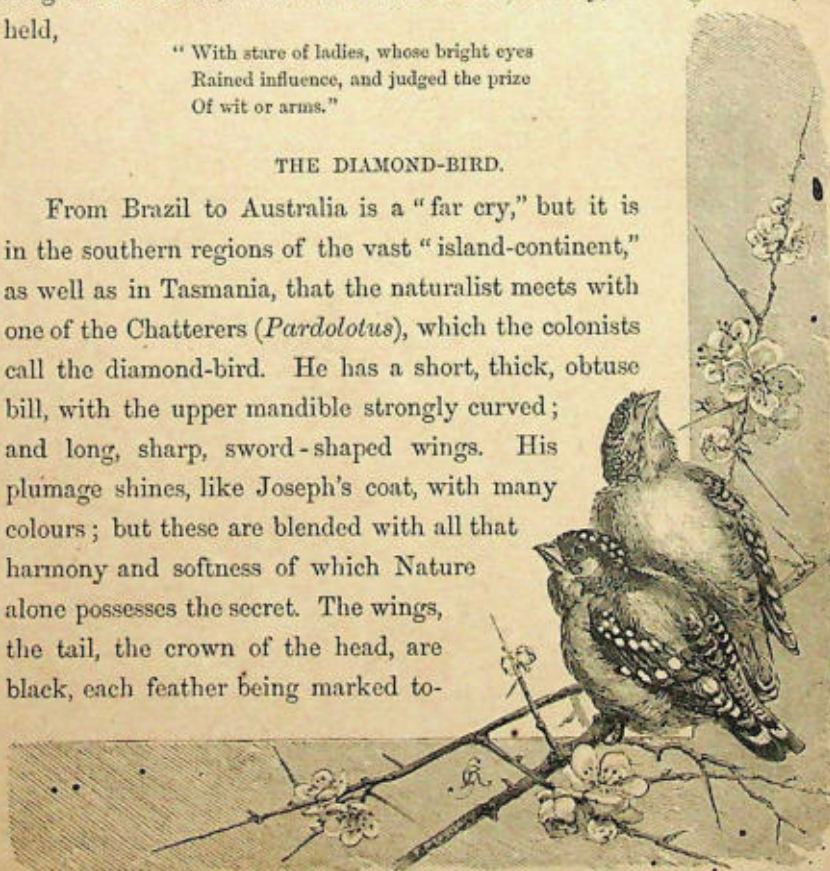
After a painful journey of several days, Sir Richard Schomburgk arrived at a place where a strange and elfin-like spectacle seemed to have been reserved for him. While halting to take rest, he and his companions heard the calls of several of these dazzling cocks of the rock, and a couple of Indians advanced, crawling along the ground, to discover their whereabouts. One of them quickly returned, with signs to Schomburgk to follow him. After stealthily creeping through the herbage for about a thousand yards, he suddenly descried the other Indian prone upon the ground, while among the bushes flashed the bright orange plumage of the rupicoles. A large company of these birds was engaged in a kind of dance on an enormous rock, forming as fantastic and pretty a sight as ever traveller beheld. Perched on the surrounding bushes were a score of spectators, male birds and females; on the summit of the cliff was a male, traversing it in every direction, and executing the most surprising steps and move-

ments. Sometimes he half unfolded his wings, jerked his head to right and left, scratched the stone with his claws, and performed a series of leaps and bounds, like an athlete; sometimes he expanded his tail, and with dignified step paced around the platform until, fatigued, he uttered a cry quite different from his ordinary voice, and flew away to a neighbouring branch. Another male then came forward, and displayed all his agility and gracefulness, after a while giving way to a third performer. The hen-birds apparently never wearied of watching the *tours d'adresse* of their mates, and as each executant retired rewarded him with approving voices. No doubt they fully understand that all is done in their honour and to win their approval, as the knights of old tilted with each other in the tourney, and high triumphs held,

"With stare of ladies, whose bright eyes
Rained influence, and judged the prize
Of wit or arms."

THE DIAMOND-BIRD.

From Brazil to Australia is a "far cry," but it is in the southern regions of the vast "island-continent," as well as in Tasmania, that the naturalist meets with one of the Chatterers (*Pardolotus*), which the colonists call the diamond-bird. He has a short, thick, obtuse bill, with the upper mandible strongly curved; and long, sharp, sword-shaped wings. His plumage shines, like Joseph's coat, with many colours; but these are blended with all that harmony and softness of which Nature alone possesses the secret. The wings, the tail, the crown of the head, are black, each feather being marked to-



DIAMOND-BIRDS.

wards the extremity by a small round spot of white; a streak of white surmounts each dark-bright eye; the upper feathers of the tail are warm with the glow of cinnamon red, while the lower feathers and the breast and throat are vividly yellow, the yellow merging into tawny on the belly and sides. But what is remarkable in connection with this bird, is the way in which he builds his nest. The chatterers and manakins usually frequent the hollow trunks of venerable trees; but the diamond-bird excavates in the soil, or down the side of a steep bank, a hole just large enough to admit his body, and from two to four feet in depth. At the bottom he widens it considerably, and there he plants his nest, but always at a level higher than that of the opening, so as to protect it from rain. The nest, a masterpiece of workmanship, is made of strips of the inner bark of the eucalyptus, or gum-tree; is spherul in shape, with a diameter of about three inches, and a lateral opening. Mr. Gould remarks that the home of the diamond-bird is not easily found, the entrance of the cavity in which the nest is placed being concealed by spots and grasses. The only way to discover it is to watch the bird on the occasion of his exit or entrance.

THE OVEN-BIRD.

In the neighbourhood of the South American rivers is found the oven-bird, one of the Certhiidae, or creepers, which is certainly deserving of notice among the builders and architects of the Bird World. He is a bold and lively little fellow, with rich reddish-brown plumage, bright eyes, an air of great activity, and a hard shrill cry. He makes his nest of the clay or sun-dried mud which he procures from the river-banks, welding it into a singularly solid substance with the stems of various plants, grass, weeds, and vegetable fibres. It assumes the shape of—but no, there is nothing on the earth or under the earth which it exactly resembles; but it is rounded and domed, though with no pretence at accuracy of outline. After a brief exposure to the heat of the tropical sun, it becomes as hard and of the same colour as brick or earthenware. Its walls are an inch thick, or more; and the opening is lateral. In the interior it is divided into two compartments by a partition of the same substance as the nest itself, running from side to

side, and reaching rather more than half-way up. The inner chamber is reserved for the female, who there lays and hatches her eggs; in the outer the male bird sits on guard. Such a structure is not completed without an extraordinary expenditure of time and labour on the part of both male and female. They begin, says Burmeister, by laying down a first course of clay which has been moistened by the rains. This is composed of little pellets, which the birds transport to the branch selected for their building operations, and spread out and flatten by using their feet and beak. As we have said, this mud is generally mixed up with vegetable matter, on the principle recognized in days of old that bricks cannot be made without straw. When this layer is eight or ten inches long, the birds surround it with a border, slightly bent outwards, and reaching to a height of two and a half inches, but raised at each end, and shaped so as to describe a concave line. Upon this rim or border, as soon as it is dry, is set a second and similar ledge, inclining slightly inwards; then a third, and a fourth, and so on, until the dome-like roof is completed. As a whole, the nest may be likened to a small kiln or furnace nearly eight inches high, nine to ten inches broad, and four to six inches deep. Its weight exceeds nine pounds.

THE CAVE MUDWALLER.

The cave mudwaller (*Acesitta cunicularia*) is also a native of South America, inhabiting the dry plains of Chili, and the open llanos of the Argentine Republic, and ranging over the lofty table-lands of the Bolivian Cordilleras to a height of 3500 and 5000 feet above the sea.

In his habits and characteristics the cave mudwaller seems akin to the lark. His plumage is of a reddish-gray, which harmonizes perfectly with the tint of the soil. He appears never to perch upon bush or tree, and in walking he jerks his tail almost incessantly, but never at any time expands and folds it. In the reddish hue of his attire he resembles the oven-bird, and other points of likeness are his piercing cry and the curious staccato way in which he runs.

The Spaniards name him *casarita*, or "the little mason," though his nest differs considerably from that of the oven-bird. He builds it, in fact, at the bottom of a narrow tunnel, which penetrates the ground

horizontally for some six or seven feet. The natives told Darwin that children had frequently attempted to unearth this nest, but had never succeeded. For the locality of his abode the bird chooses a small sloping bank of sandy but solid soil, on the margin of a roadway or a stream. In Bahia, says Darwin, the walls are built of earth; and he remarked that those enclosing the courtyard of the house where he was residing were pierced in several places with circular holes. When he questioned his host on the subject, he was informed that they were the work of the accursed mudwallers; and afterwards Darwin saw the birds engaged in making them. It is a curious fact that they seem to have no idea of thickness; otherwise, they would surely not attempt to excavate their burrows in walls of clay, the dimensions of which, as they are constantly flying round them, they can hardly fail to know. Mr. Darwin states his belief that when, after having worked through the slender wall, the bird bursts suddenly into the light of day, he is completely stupified, and utterly at a loss to account for so extraordinary a circumstance.

A similar account is given by Dr. Gray, who adds that the cave mudwaller is a bird of very gentle disposition, living peaceably and alone, and from morn to eve continually in motion. If scared or disturbed he flies some distance off, and there remains so immovable as to expose himself to death beneath the wheels of a passing vehicle, without making any further attempt at flight.

THE HOOPOE.

The last of the bird-builders to whom our space permits us to call the reader's attention, is the hoopoe, a bird of splendid plumage, distinguished by the *huppe* or plumed tuft which adorns his head. The common hoopoe, or *Upupa epops*, has a sufficiently wide range, being found in most parts of Europe, in the north of Africa, and in Central Asia as far as Kashmir. In the more temperate climes he seems to prefer the lightly-wooded plains for his habitat; or he has no objection to the cultivated fields and pastures, if they are besprinkled with a few venerable trees. In Africa he is met with in every village, and even in the heart of the larger towns, where, like the stork and the

vulture, he plays the part of scavenger with praiseworthy industry and completeness. Were it not for his labours, the air, with rank and poisonous breath, would scatter everywhere the germs of disease; but he and his companions form a kind of sanitary police, whose labours are as unremitting as they are beneficial. As if conscious that his usefulness entitles him to immunity from ill-usage, he stalks to and fro with perfect confidence, taking no notice of the passer-by, and even following him into his habitation.

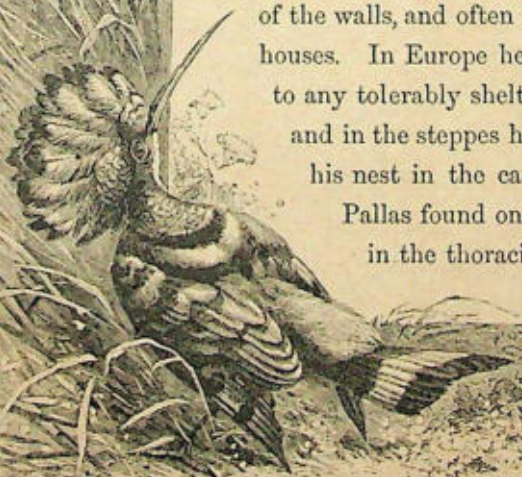
It has been well said that the hoopoe is a very interesting bird, and that there is something peculiar in his habits. For while he shows all this confidence and familiarity in the south, in the warm African lands, in the north—that is, in the temperate provinces of Europe—he manifests the greatest caution and timidity. It may be assumed, however, that at bottom he is no hero; for even in Africa the appearance of a dog arouses his alarm; a cat scares, and a cow affrights him; while the ominous shadow of kite or hawk throws him into a panic of terror. He crouches on the ground, spreads wide his wings and tail, turns his head over his shoulder, raises his gaping beak, and remains in this attitude of direst apprehension until the danger has passed, the enemy disappeared. Naumann asserts that he is afraid of a swallow. It is quite amusing, he says, to watch this bird from a place of concealment. Everything startles him; he is constantly running to take shelter in the thick foliage of the nearest tree; and in his flight he raises aloud his sonorous voice, and performs the most singular movements. Generally he does not display his crest, but keeps it closed up and turned back; when irritated, however, he agitates it; and displays it in all its glory when he is perched on a tree or whiling away the time with a song.

In convenient localities the hoopoes make their nests beside each other; yet it would be erroneous to class them among the sociable birds. The members of a family seem to live on cordial terms, but with their neighbours they are incessantly at war. Not that they come to blows—they are too cowardly to proceed to such extremities; but they chase one another with little intermission; and in various significant ways make known their mutual antipathy. Nor do they



cultivate friendly ties with other birds. Some they fear; to the rest they are completely indifferent. This may not seem a very favourable character; but we are no professional eulogists, and our business is to tell the truth. The reader must take the hoopoes, as he takes his fellow-men, just as he finds them!

But our object is to speak of the hoopoe's nest. Well, when in search of a residence for his intended mate and expected family, he seeks the hollow trunk of an aged tree, or a hole in a wall, or the crevice of a rock. In Egypt, he builds almost always in the holes of the walls, and often in those of inhabited houses. In Europe he will resort, at need, to any tolerably sheltered field or corner; and in the steppes he sometimes conceals his nest in the carcasses of animals—Pallas found one, with seven young, in the thoracic cavity of a human



skeleton. As a rule, these birds do not even take the trouble to line the interior of the hollow in tree or wall selected as a place of residence; but sometimes they deposit there a few blades of grass, some roots, or a little cow-dung. When building on the ground, they construe a nest out of ordure, roots, and dried herbage.

The tree hoopoes, however, as the name implies, build always in the cavity of a tree,—making their bed on the mould or compost accumulated at the bottom. Here they feed upon the insects which they dig out of the decayed or decaying wood; in the course of this digging process enlarging their abode considerably, and constantly increasing a deposit of chips.

Other birds, it may be mentioned, utilize the hollows of ancient trees for their nests. We have spoken already of the toucan, which, in the great South American forests, can never be at a loss for places of shelter. But more familiar examples—examples well-known to many of our readers—are the cole-tit, which is partial to fir plantations, the nut-hatch, the wry-neck, the tree creeper, and the starling.

Here, however, we must close our notes, having already accomplished our object—namely, to illustrate the intelligence of the Bird as an architect, and to show the variety and ingenuity of his constructions, and the skill with which they are adapted to his necessities, to the conditions which govern his little life. The subject is so fertile, that we might expatiate on it through several volumes; yet these volumes could prove only what these pages sufficiently demonstrate,—the wonderful fertility of resource and evidence of design which characterize the works of the Creator.

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* This description is accidentally misplaced. The reader will be pleased to consider it as an appendix to our account of the heron (pp. 139-140).

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