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BIRDS AND ALL NATURE.

ILLUSTRATED BY COLOR PHOTOGRAPHY.

VOL. IV. OCTOBER, 1898. NO. 4.

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EARS.

By W. E. Watt.

THE air is an elastic fluid surrounding the earth. The motions of things whether alive or not, set it in a state of vibration that rarely ceases. At all times and in all places it is pulsing responsively to all that is going on.

Animals are interested in what is moving about them. It may mean life or death, pleasure or agony, and most animals are keen to know which is for them at any given period. They are therefore equipped with organs that respond to these waves of the air. They are variously equipped, some hearing certain sounds feebly where others are acute to them and deeply moved. Some sounds are full of moment to one organism arousing it to nervous activity while another organism knows nothing of what is so distinctly heard by the first.

Can a Mule hear more than a Mouse is a question which has agitated many young people who have considered the length of the former's ear and its versatility. A series of experiments once conducted in youthful sport by the writer, seemed to settle the matter that each can hear sounds which are unnoticed by the other, and that the ear of the Mouse is much better adapted in hearing powers to the occupation of the Mouse than is that of his long eared neighbor. Certain shrill sounds of whatever degree of loudness, cannot be heard by the Mule even when oats might be secured by attending to them, while distant sounds of a heavy character seem to fail to affect the ear of the Mouse.

The same is noticeable in the hearing of people. To some persons a note one octave higher than the highest note of a piano, cannot be heard. Others can hear such a tone, and yet others are made painfully nervous by it without knowing quite what the trouble is. To some the chirp of the Sparrow is the upper limit of hearing, others can hear the voice of the Bat, yet others are able to hear the notes of insects that range higher in pitch than the voice of the Bat. Dr. Wollaston says, "As there is nothing in the nature of the atmosphere to prevent the existence of vibrations incomparably more frequent than any of which we are conscious, we may imagine that animals like the Grilli (Grasshoppers) whose powers appear to commence nearly where ours terminate, may have the faculty of hearing still sharper sounds which we do not know to exist; and that there may be other insects, hearing nothing in common with us, but endowed with a power of exciting, and a sense which perceives vibrations of the same nature, indeed, as those which constitute our ordinary sounds, but so remote that the animals who perceive them may be said to possess another sense agreeing with our own solely in the medium by which it is excited." [Pg 122]

The human ear is capable of hearing musical sounds produced by vibrations ranging from twenty-four in a second of time to forty thousand. This indicates that humanity is confined in interest to the motions of the atmosphere within these limits. The possibilities of higher and lower fields of music are such that one writer has said that it may be that the air about us is constantly resounding to the music of the heavenly hosts while our dull ears with their limited powers are unable to catch the poorest note in that celestial harmony.

Sound travels about one thousand ninety feet in a second in the air. Through other elastic mediums it varies in speed. The beholder of an explosion of dynamite in a harbor receives three shocks, one coming by way of the air, another by water, and the third through the earth, all arriving at different times.

It is a fortunate thing that low sounds travel as rapidly as high ones and loud sounds no faster than soft ones. Thus the playing of a band upon the water, at a distance, is beautiful, because all the tones powerful enough to reach the listener do so at the right time to preserve harmony. If it were not for this equality in traveling power, no music on a grand scale could be possible, for those sitting at a distance from the performers would be in a sea of discord from the late arrival of tones which should have blended with those gone before. In spite of the fact that our highest appreciable note is but one-third of an inch in length of wave and the wave of our lowest note exceeds forty feet in length, all sounds produced in harmony travel in harmony till exhausted in space.

The ears of various animals are beautifully adapted to their respective habits. The watch of the Dog is most valuable because distant noises are so readily detected by his faithful ear. The Thrush has been observed hopping along the ground with frequent stops to listen. So keen is his hearing that the presence of a Worm below the surface is detected by the sound of the Worm's occupation. By judiciously beating the ground he brings the Worm toward the surface as if to escape its enemy, the Mole. At the proper instant the turf is torn up and nearly always the Worm secured.

The form of the outer ear is adapted to the needs of the animal. Most grass eating animals have ears that turn readily in all directions to listen for enemies, but the ears of flesh eating animals that pursue their prey are set only to reach forward to hear the sounds of escaping prey.

Many insects and lower orders of animals are looked upon by man as incapable of the pleasures of hearing. But this is often a mistake. Snails have been known to enjoy the voice of their human friends and come forth when called by familiar voices.

The fondness of the Cobra for music and the powers of charming this hideous animal partly by appealing to his esthetic hearing are well known. Moths have good hearing as one may observe

while walking in the woods where the crackling of dry sticks alarms them so they fly up from their noonday slumbers in great numbers. The antennæ of the Butterfly are supposed to act as hearing organs. Crabs and Shrimps hear with their inner antennæ, Clams with their feet, and some of the crustacea with the bases of the lobe of the tail.

Many animals seem to enjoy the voice of man and the sounds of the various musical instruments which he uses. Frogs and Toads may be taught to know their master's voice. Canaries, Parrots, and Doves enjoy human singing and instrumental music as well. A Woodchuck has been known to manifest his refinement of soul by coming forth from his hole at the sound of a piano and to sit with the air of a connoisseur criticising the selections with which he was being favored.

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Not only is the ability to hear different in different persons, but the thoroughness with which they hear varies largely. Few sounds consist of simple waves of air. As the waves of the sea are noticed to bear smaller waves upon them and these in turn to carry wavelets, so the waves of sound are rarely smooth, simple waves. There are many more waves upon waves in sound production than can be observed on the surface of the sea. A note from the piano not only sounds the note which the key struck represents, but also a great many tones that chord with this tone higher up the scale. These overtones are not so loud as the fundamental tone and cannot readily be detected by the uncultivated ear. But they give character to the tone. The overtones make the note of the violin and the cornet differ. No two voices have the same overtones, and while we are unable to hear these overtones by themselves, yet we are able to distinguish the voices of our friends instantly by means of them.

As voices differ in the overtones they carry, so do ears differ in the number of overtones they are able to receive. Some people enjoy hearing high voices only. For them the soprano or tenor is always in demand. Others prefer deep voices and admire altos and basses. I have stood beside a friend at a concert where a first class artist was pouring forth a baritone song with the most delicate and artistic tone and finish, and had my friend turn to me and say: "What on earth do people find in that man's voice to pay money to hear?" The singer's voice was full of rich overtones which made it valuable to the average cultured listener, but in the ear of my friend they produced a jarring that was decidedly unpleasant to him, although he was fond of the singing of the untrained voices of the members of the choir where he attended church.

A large part of the business of the voice culture expert is the adjustment of the vocal organs in singing so as to produce the right sets of overtones to give the voice a carrying quality and the richness we enjoy in the finished artist. One notable example of the production of too much of a good thing was instanced in the fate of a soprano who came to America a few years ago with an extensive operatic repertoire and a voice that could not be drowned by a full orchestra as it soared to the greatest heights and displayed a flexibility most remarkable. But she failed to please us. A neighbor of mine said to her friend: "Just wait till you hear Madame Blank begin. She has a voice that will cut you like a knife."

Both the inner and outer ear formations are responsible for the differences in hearing in different people. Cultivation does much for any sense, but for him that has no ear for music cultivation will not construct an ear. It is easy to see what a difference in hearing will be produced by a slight change in the position of the outer ear. While listening to a steady sound, draw the ear forward with one finger, relax it to its normal position, then push it back against the head. The quality of the sound heard and its intensity will be varied in each instance.

So we may be lenient with our friends who do not enjoy the same sort of music with ourselves. And the same music will not always be the very same. A pistol shot upon a mountain top sounds much like a fire cracker in a valley, and the condition of the atmosphere frequently modifies music almost as much as the shape of the room in which it is produced.

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THE KINGBIRD OF PARADISE.

Wouldn't you little folks like to see a number of us brilliant, gem-like Birds of Paradise flitting among the trees as do your Robins and Woodpeckers and Jays? To see us spreading our wings in the sun, and preening our ruby and emerald and topaz and amethyst tinted plumes, ribbons, and streamers?

Ah, that would be an astonishing sight, but you will have to journey to an island in the South Pacific Ocean to see that; an island whose shores are bathed by a warm sea, and where the land is covered with the most luxuriant tropical vegetation.

It was about three hundred years ago that the people of Europe first knew that such superb birds existed on this earth. Traders visited one of the Malayan islands in search of cloves and nutmegs, and upon leaving, the natives presented them with a few dried skins of a wonderfully beautiful bird. The natives called them "God's Birds," and in order to propitiate heaven for killing them, cut off the feet of the dead birds and buried them beneath the tree upon which they were found.

The dried bodies of the birds were exported as time went on, and as the people of Europe had never seen one alive, but always the skin without legs and feet, they came to consider them as heavenly birds, indeed, formed to float in the air as they dwelt in the Garden of Eden, resting occasionally by suspending themselves from the branches of trees by the feathers of their tails, and feeding on air, or the soft dews of heaven. Hence they called us the BIRDS OF PARADISE.

It was not till one hundred years after, when a writer and collector of birds visited the island, and spent years in watching and studying us, that the truth became known. Certainly, the gentleman must have laughed, when, instead of heavenly dew, he saw a BIRD OF PARADISE catch a Grass-hopper and holding it firmly by his claws, trim it of wings and legs, then devour it, head first. Fruit and insects of all kinds we eat instead of dew and air.

He also saw a party of twenty or thirty males dancing on the branches of huge trees, raising their wings, stretching out their necks and elevating their plumes all for the purpose of admiring themselves or being admired. Some of them have finer plumage than I, but only the KINGBIRDS OF PARADISE have those two dear little rings which you see in my picture.

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From col. Mr. F. Kaempfer. KINGBIRD OF PARADISE. ¾ Life-size.

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THE sublime is no nearer the ridiculous in literature than in the things of nature. An instance of this is the close relation of the common Crow to the most glorious bird of them all. Not only are they very much alike in general form, including shape of feet, bill, bones, and ordinary feathering, but also in habit. They seem to delight in the same sorts of food and secure it in much the same manner. When they are happiest and attempt to pour forth their songs of joy the voice of the Crow is fully as melodious and satisfactory to the human ear as is that of the Bird of Paradise.

The old fable in regard to their having no feet and living only on the dews of heaven and the delicacies which they were supposed to be able to collect from the atmosphere as they floated perpetually free from the earth and its contaminations was so grateful to Europeans that when Antony Pigafetta, who accompanied Magellan around the world and secured a great deal of information at first hand, described them as birds with very ordinary, in fact, almost ugly, feet and legs, he was not believed, and Aldrovandus publicly brought accusations against him for audacious falsehood.

While the males have not only a splendid growth of delicate floating feathers of very unusual length and glossy fineness of texture, the females have but little more to boast of than our American Crow, and they even lack the degree of lustre which our black friend frequently exhibits. But the males are adorned with a wealth of color display, rich in velvety softness and blazing with metallic lustre. This lustre cannot be appreciated from the appearance of the faded specimens so often seen in the museums which may have suffered, not alone from dust and exposure for years to the chemical action of light but have also been sadly diminished in glory by

the rude arts of the natives who fumigate the skins with burning sulphur, their principal care seeming to be to get enough of it deposited to make sure of the skins' not being attacked by insects.

To be seen to best advantage one needs to watch them as they make their short migrations in flocks from one island to another with the change of the seasons from the dry to the wet monsoon. They prefer traveling against the wind rather than with it because their plumage is so elaborate and delicate in its structure that an attempt to fly with the wind frequently brings disaster to the glorious males and causes them to tumble ignominiously to the ground, after which they are a long time in arranging affairs for another attempt at navigation of the air.

The King Bird of Paradise is a small bird, measuring but little over six inches in length. It is extremely vivacious, flying about and running with but little show of the dignity of its family. Very fond of fruits, it is not satisfied with attacking those which other birds of its size would choose, but enjoys showing its gormandizing powers by devouring as much as possible of the largest specimens within its reach.

The fan-shaped tuft of feathers which adorns each side of the bird are subject to his will, being raised and spread out or lowered as the weather or the feelings of the bird seem to demand. At the ends of the long feather shafts springing from its tail are markings which strongly resemble the eye-like ornaments of the Peacock. The shafts seem not content with stretching themselves out to a greater length than that of the bird itself, but at the extremities they curve inward coiling compactly into spiral discs flashing with emerald green.

THE PECCARY.

Looks very much like a little Pig, does'nt he, children? Well, so he is, a species of wild pig found in the canebrakes of Texas, and native of South America.

You would hardly think so small an animal could be so ferocious, but the inhabitants of South America dread and fear him as much as they do the Wild Boar. He is a fearless little creature, too, attacking any object which comes in his way no matter how big it is. Even an Elephant wouldn't scare him, though, as Elephants are not found in South America or Texas, I presume a Peccary never saw one.

His jaws, as you see, are armed with tusks, like those of the Boar, but they are straight instead of curved, are sharp at the edges, and although no longer than your finger can inflict a terrible wound on account of the great strength of the animal's neck.

When a body of them charge an enemy they will fight till every one of them is slain. You will not wonder then that Men, Horses, and Dogs fly at the approach of a herd of Peccaries, the poor Horses being so easily brought down by having their legs cut to pieces by the sharp tusks.

In the canebrakes of Texas, where the trees are of enormous size, the Peccaries make their home. A fallen tree overgrown with thickets of the cane, matted together with strong and thorny vines, is their favorite lodging. Into one of these hollow logs a drove of twenty or thirty will enter at night, each one backing in, the last one to enter standing with his nose to the entrance and acting as sentinel.

On dark, drizzly days they never leave their lodgings, and it is on these days that the farmers who have suffered by their ravages on grain-crop and stock, succeed in putting an end to many of their enemies. As soon as daylight appears and the protruding snout and watchful eyes of the sentinel on duty can be seen, a sharp report of a rifle is heard; with a spring the sentinel leaps out and soon rolls lifeless upon the ground. Instantly a low grunt is heard, and another snout and sharp pair of eyes appear in the opening. A flash, a report, and out he leaps to his death, also; thus they go on till every "lodger" is disposed of.

Of all animals the Peccary alone, it is said, resists the terror of the gun, its flash and report serving only to enrage him.

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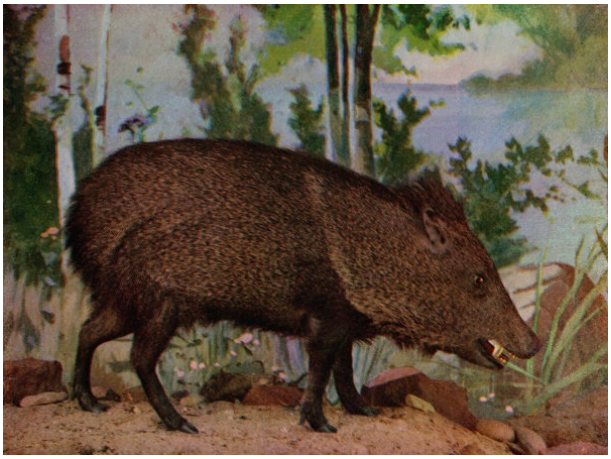


From col. Chi. Acad. Sciences.

PECCARY.
⅕ Life-size.

THIS interesting animal, which is of common occurrence throughout the forests of South America, roams through the woods in large herds and is constantly migrating, being often driven by scarcity of food to make long journeys. Rendgger, the well known naturalist, states that one may follow the Peccaries for days without seeing them. In their wanderings they keep to the open country, which ordinarily they rarely frequent, and even streams cannot stop them. If they reach a field they cross it at a run, and if they arrive at the banks of a river they do not hesitate but swim at once across it.

They have been seen crossing the Paraguay river at a place where it requires about a half hour to do so. The herd keeps together in a close throng, the males in advance, each mother having her young behind her. The noise made by the animals can be heard a long distance, not only on account of the dull, hoarse sounds which they make, but still more by reason of the cracking of the dead branches which they break in their impetuous progress.

Both day and night the Peccaries search for food. They eat all kinds of arboreal fruit and roots, and their teeth are so strong that they can easily open the hardest of palm seeds. They often do great mischief to the crops. Besides vegetable food they are said also to eat Snakes, Lizards, Worms, and Grubs, in this respect being useful animals. They are much more cleanly in their habits than the Wild Boars, and Beehm asserts that they never eat more than they require, and seek water only during periods of the most intense heat, and then they wallow only in pools. During the day they hide in tree trunks, in which they sleep also at night.

The female gives birth to a single young one, in rare instances to two. The cry of the young is like that of Goats. They are easily tamed and domesticated if treated well. The flesh is eaten by the poorer classes, the skin being chiefly used for bags and thongs. On account of a gland which the animal bears in its haunches and which has an evil effect on the meat, causing it to become unfit for use in a very short time, the flesh is not considered to be particularly excellent.

It has been said that the Peccary is totally devoid of fear. It is small, rarely exceeding eighteen inches in height, and yet it is not less dreaded than the most savage Wild Boar would be. Many an unlucky sportsman, to escape a herd of these wild creatures has been glad to climb a tree in time to save his life. Men, Horses, and Dogs fly in haste, for the Peccaries fight like a well drilled army, and by swarming about an enemy they are sure to conquer with their strong, sharp tusks. They avoid conflict with man, and shyly run into the thick woods on his approach, but when fired upon or brought to bay they seem possessed only with rage and desire for vengeance.

The Peccary is peculiar in his anatomy, having several sacs in place of a single stomach, thus resembling the cud chewing animals. This resemblance is traced still further in the feet, where the metacarpal and metatarsal bones of the two greater toes are united into a sort of cannon bone.

This specimen came from the canebrakes of Texas.

AUTUMN.

"Lightly He blows, and at His breath they fall,
The perishing kindreds of the leaves; they drift,
Spent flames of scarlet, gold aerial,
Across the hollow year, noiseless and swift.
Lightly He blows, and countless as the falling
Of snow by night upon a solemn sea,
The ages circle down beyond recalling,
To strew the hollows of Eternity.
He sees them drifting through the spaces dim,
And leaves and ages are as one to Him."

THE summer wanes; the days grow shorter and the evenings longer, heralding the advent of Autumn, and the woods and fields are mellowing under the genial glow of the sun. All Nature is taking on a warmer tinge, gladdening the eye with its fullness of beauty—rich in the promise of autumnal harvest.

It is a sad fact, but none the less true that a great many of us go through life with unseeing eyes. Why must we be *taught* to see the beauties around us? What a tale might be told by the little flower that we pass carelessly by, or tread upon in our haste; if we would but listen!

There is beauty everywhere—in the early dawning when the iris-tinted morning-glories are radiant with glittering dew drops; when the sun is high overhead; when the soft twilight has enveloped the land in its mantle of calm; whether the rain is falling or whether the skies are blue and sunny beauty is everywhere.

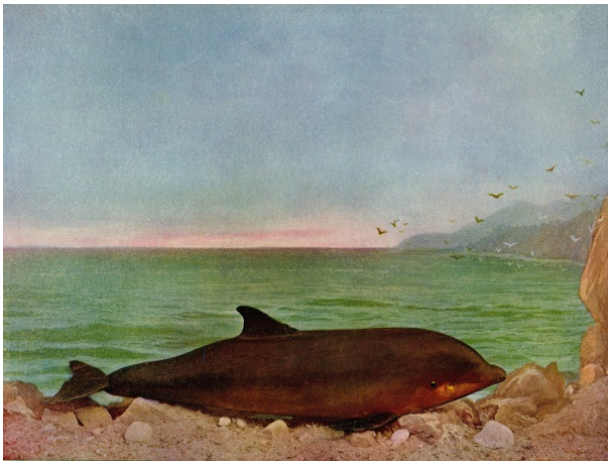
"How strikingly the course of Nature tells by its light heed of human suffering that it was fashioned for a happier world!" Listen to the songs of happy birds. How care-free! How joyously they outpour from over-flowing little throats their God-given melodies of love and gladness! Is not the world brighter and better for their being?

Overhead in the maple a little life was struggling for being. It was only a pebble thrown by a thoughtless boy "to see if he could hit it," but the cruel act was done, and the little songster, the happy bird whose early morning matins together with the carolings of his mate, had greeted us all through the summer lay in the little nest greviously wounded. The hurried, distressed movements of his little mate told of her anxiety to do what she could for the sufferer. She seemed to know it would not be long, now,—that he would never sing with her again.

After awhile everything was still in the maple bough. It was growing dark as we softly approached the nest, and we thought the remaining bird had flown away. It had not, however, for as the inquisitive face of our little girl peeped into the leafy retreat we heard a rustle of wings, and the bird flew out from its place of repose. Perhaps she was watching the little dead form of her mate, sure that her vigil would be rewarded and that he would greet her in the morning with love as he had done for so long. Who knows?

Next day we buried the little martyr and the other bird went away. She has not returned since, but the nest still remains in the old place. The boy who had done the mischief went on his way unconscious of the thing he had done, but

"He can never, never repay
The little life that he took away."
—E. S.



From col. Chi. Acad. Sciences.

BOTLE NOSE DOLPHIN.
1/7 Life-size.

THE BOTTLE-NOSE DOLPHIN.

DOLPHINS, according to the best authorities, inhabit all oceans, and undertake great migrations, but are the only Whales which frequent the rivers or even spend their whole lives in them, or in the lakes connected with them. They are all gregarious, some of them collecting in very large shoals, and roaming about the sea together for weeks and weeks. Their liveliness, playfulness, and lack of shyness have earned them the friendship of sailors and poets from the remotest ages.

The Bottle-nose Dolphin is one of the best known members of the family. The snout is very long, like a beak, and protrudes from twelve to twenty-four inches. The range of this Dolphin seems to be restricted to the Arctic Ocean and the north of the Atlantic, but it is known to make regular migrations a considerable distance south of it. Occasionally it appears on the coast of Great Britain. Cuttlefish, Mollusks, and small fry compose its food.

Kuekenthal declares that its diving powers are remarkable; 300 fathoms of line were taken off by a harpooned Bottle-nose which remained forty-five minutes under water. They swim with such extraordinary speed that they not only follow the course of the swiftest steamer with ease, but gambol near it on their way, circling around it at will, and without being left behind. Occasionally one of them jerks himself up into the air, and, turning a somersault, falls noiselessly back into the water and hurriedly resumes his former position.

Several years ago we saw a school of Dolphins swimming and frolicking in the East River on the way from New York Bay to Long Island Sound. They seemed to us like gigantic Swine, their motions being similar to those that precipitated themselves, according to the New Testament, into the sea. They are very interesting to watch, and travelers find great pleasure in their company in crossing the ocean. Sometimes a small school of Dolphins will play about the ship for days at a time, affording constant amusement to the spectators.

NEW CHAMPION FOR THE SPARROW.

The Sparrow has found an unexpected champion in the Prime Minister of France. The farmers have recently been agitating in favor of the extermination of the little bird, and succeeded so far that a decree was submitted to Premier Meline for signature, giving orders for the destruction of the bird throughout the country by all available means. Before giving his sanction to the measure the Prime Minister determined to make an investigation, in the course of which he has received so much information in favor of the birds, especially from the Forestry Department, that he has not only refused to sign the decree, but has announced that he is about to take steps to promote the increase of the species in consequence of its usefulness. It seems that the harm they do to the crops is more than counterbalanced by the benefits which they confer in destroying the Caterpillars, Worms, and other insects that are so detrimental to trees.

It seems incredible that the matter of the usefulness or noxiousness of this little bird cannot be settled finally by those vested with authority to act. It is either beneficial or a pest. We think it is both, according to circumstances.

THE VOICE OF NATURE.

Who could not sleep in this embowered room
    Perched high above the suffocating ground;
Where clinging vines, and tree-tops in their bloom
    Cast grateful shade and fragrance all around;
When, added to the magic spell of flowers,
    The night bird's song fills up the witching hours!

Who could not rise refreshed at early dawn
    In this same sweet, enchanted nook;
When, to the half-unconscious ear is borne,
    From Lark and Robin, Sparrow, Thrush and Rook,
The gentle warning of the opening day—
    God's earliest sermon to humanity!

What soul could feel the burdening weight of sin
    When, from these tiny, upraised throats,
The songs of Nature's praise begin
    And Heavenward pour, in liquid dulcet notes!
We gladly join our grateful voice to theirs
    And turn our thoughts to God in earnest prayers.

E. D. Barron.

IN THE ANIMAL WORLD.

The organs of smell in a Vulture and a Carrion Crow are so keen that they can scent their food for a distance of forty miles, so they say.

The wings of birds are not only to aid locomotion in the air, but also on the ground and water. One bird even has claws in the "elbows" of its wings to aid in climbing.

The Elephant does not smell with his trunk. His olfactory nerves are contained in a single nostril, which is in the roof of the mouth, near the front.

Humming Birds are domesticated by placing in their cages a number of paper flowers of tubular form, containing a small quantity of sugar and water, which must be frequently renewed. Of this liquid the birds partake and quickly become apparently contented with their captivity.

Rightly considered, a Spider's web is a most curious as well as a most beautiful thing. When we were children, the majority of us supposed that the Spider's web was pulled out of its mouth, and that the little insect had a large reel of the stuff in his stomach, and that he could almost instantly add feet, yards, or rods to the roll. The facts are that Spiders have a regular spinning machine—a set of tiny tubes at the far end of the body—and that the threads are nothing more nor less than a white, sticky fluid, which hardens as soon as it comes in contact with the air. The Spider does not really and truly "spin," but begins a thread by pressing his "spinneret" against some object, to which the liquid sticks. He then moves away and by constantly ejecting the fluid and allowing it to harden, forms his ropes or wonderful geometrical nets.

Birds have separate notes of warning to indicate whether danger is in the shape of a Hawk or a Cat or a man. If a Cat, a Hawk, or an Owl is on the move, the Birds, especially Blackbirds, always utter a clattering note, constantly repeated, and Chickens have a special sound to indicate the presence of a Hawk. But when disturbed by man the Blackbirds have quite a different sound of alarm and the Chickens also.

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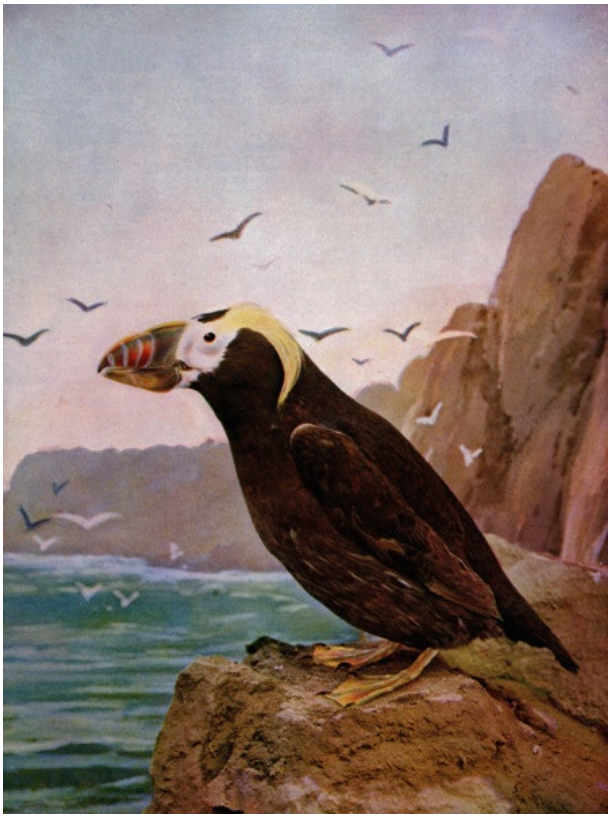

From col. Chi. Acad. Sciences.

TUFTED PUFFIN.
⅖ Life-size.

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THE TUFTED PUFFIN.

THESE birds nest in colonies, the family consisting of about thirty species, nearly all found in the northern parts of the northern hemisphere. Audubon is said to have procured the specimen figured by him at the mouth of the Kennebec river, Maine, the only record of its occurrence on the Atlantic coast.

The Tufted Puffin breeds upon the rocks and in the Rabbit warrens near the sea, finding the ready-made burrows of the Rabbit very convenient for the reception of its egg, and fighting with the owner for the possession of its burrow. Where Rabbits do not exist, the Puffin digs its own burrows, and works hard at its labor. The egg is generally placed several feet within the holes, and the parent defends it vigorously.

Like most of the sea birds, both sexes assist in incubation, says a recent writer, referring to the birds found at the famous rookery in the open sea two hundred miles west of Fort Wrangell, an island often visited by the Indians for birds and eggs, and are close sitters, a great amount of probing with a long stick being necessary to dislodge them. A grassy hill side is a favorite retreat and here it is dangerous to travel about on account of the Puffins constantly coming blindly out of their dark holes with a force sufficient to upset one if fairly struck by the flying birds. When specimens are wanted they are easily captured with snares set over their holes during the night. The vari-colored pear-shaped eggs are well known and make good eating.

The Farrallones are the home of vast numbers of Puffins, as well as other sea-birds, though less numerous than formerly. The nests have been robbed for the eggs to an extent that threatened their extermination until a recent law was enacted for their protection. A portion of the island is a veritable rookery, the grotesque birds standing guard all about the rocks. They are very awkward on land, moving with a comical waddling stride, but on the wing are graceful, rapid flyers. They dive and swim with ease, pursuing the fish in the water, which, with crustaceans and insects, constitutes their food.

The Farrallones have become largely known from the wholesale collection of the eggs of sea birds for market purposes. As they nest chiefly in colonies, the eggs therefore being numerous, it has been, hitherto, a considerable industry. The eggers starting together soon separate to cover their various routes over the cliffs, the birds appearing in rows all over the hill side. "As an egger climbs his familiar trail toward the birds, a commotion becomes apparent among them. They jostle their neighbors about the uneven rocks and now and then with open bills utter a vain protest and crowd as far as possible from the intruder without deserting their eggs. But they do not stay his progress and soon a pair, then a group, and finally, as the fright spreads, the whole vast rookery take wing toward the ocean. Instantly the Western Gulls congregate with their hollow *kock-kock-ka* and shrill cries adding to the din, to secure their share of the booty, and the egger must then work rapidly to secure the eggs."

"THE TALK OF ANIMALS."

[This is the title of an article from the *London Telegraph*, which is so well written, and is so interesting that we cannot deny ourselves the privilege of making liberal extracts from it..]—*Ed.*

NATURALISTS have recently been discussing the interesting question whether or not Bees can talk with each other. Those best informed on the subject are, we gather, inclined to regard it as perfectly possible. Such a view would, perhaps, astonish many minds not familiar with these and others of the lower creatures by daily observation. Yet the more people live in close notice of animals and insects the less inclined they will feel to draw that very difficult line which divides instinct from reason, or to set any hard and fast limit to the wonders of Nature. In fact, the very word "lower" becomes sometimes an insult, a positive affront to the wonderful life about us, which even proud Man himself has scarcely a right to offer. There could, for instance, be nothing well conceived humbler than the Earthworm. Until the illustrious Darwin took up the subject of that despised being no one comprehended the vastness of man's debt to this poor, ugly, trampled creature. The numberless millions of that obscure tribe, none the less, have created all the loam and all the arable land of the whole globe, passing through their bodies the fallen leaves and decaying vegetable matter; and by their single sphere of labor in this respect rendering cultivation and harvests possible. When we tread on that Worm we destroy an agricultural laborer of the most respectable class. To those eternal and widespread toils of the creeping friend of men we owe the woods, the meadows, and the flowers. This is, of course, only an example of the importance, not of the faculties of the lower creatures.

Nevertheless even Worms communicate sufficiently to have and to observe their seasons of love; and Bees are so much higher in the scale of life, and so richly gifted in all details of their work, and so sociable in their habits, that it would not be at all a safe thing to say they possess no means of intercourse. Certainly no skillful and watchful bee-master would ever venture upon such an assertion. He knows very well how the sounds in the hive and those produced by individual Bees vary from time to time, and in a manner which appears to convey, occasionally at all events, mutual information. A Wasp or a strange Bee entering a hive without permission seems mighty quickly to hear something not very much to its advantage, and when two or three Bees have found a good source of honey, how on earth do all the others know which path to take through the trackless air, except by some friendly buzz or wing-hint? Now, the bee-masters tell us that there is surely one particular moment in the history of the hive when something very much like actual language appears to be obviously employed. It is when the young queen is nearly ready to move away. She begins to utter a series of faint, staccato, piping noises, quite different from her ordinary note, and just before she flies off this sound becomes altered to a low, delicate kind of whistle, as if emanating from some tiny fairy flute. How this small cry, or call, or signal, is produced nobody understands. The major portion of sounds in a hive is, of course, caused by the vibration more or less rapidly of the wings of the Bees. But whoever has examined the delicate machinery with which the Grass-hopper makes his chirp would not be surprised to find that the queen Bee had also some peculiar contrivance by which to deliver what may be called the royal speech on the one or two great and signal occasions of her exemplary life. [Pg 141]

We should, however, confine the subject in the boundary of far too close a fancy if it were imagined that sound was the only way in which speech and intercourse may pass among these humble creatures. Human beings naturally gather up that idea by living themselves in an atmosphere of which they agitate the waves for objects of mutual communication. No scientific Bee or highly educated Ant, if such creatures were possible, seeing and hearing men and women talk to each other, would dream that they could equally well exchange thoughts by making marks upon paper, or send their messages of love and business by seas and lands through a quivering wire. Nay, if report is to be believed, we are soon to be able to transmit, at a flash over long distances, a face, a map, a plan, a picture, a whole page of a newspaper, or an actual scene. As, therefore, those lower creatures, if they indeed could hear us speak, would have no notion of how we make the air waves into words, and still less grasp knowledge of any subtler form among human intercourse, so it is not quite safe for man to think and call all these strange families of the silent world alike dumb, or to despise them for being free of grammars and dictionaries. As a matter of fact, it is obvious that some power of mutual communication assuredly comes to all creatures that live in societies. Nobody can watch the flight of a flock of birds, the behavior of a herd of cattle, or, lower down, the marvelous accommodations for common existence of the small creeping and flying things, without perceiving that they know each other's minds in some way or other in a very satisfactory manner. Evidently there is, to begin with, a common language—a *lingua franca*—of the fields and of the forests. All sportsmen know how the particular cry of a frightened bird will put all the wild animals on the alert who would otherwise quite disregard the bird's ordinary note. And the evil success with which poachers can imitate the cries of love and defiance from denizens of the woodlands, proves that its inhabitants possess a vocabulary which can be stolen.

But, who, in truth, loving Dogs and Cats and such-like humble friends ever can doubt their high intelligence and the strong and clear significance attaching to certain among their habitual utterances? Even London cab and cart Horses, though they cannot—fortunately for some among us—speak, grow to understand the few invariable words of direction which their drivers address to them. In the inferior orders of life there are doubtless many other methods of intercourse, and almost certainly there exists a plain and very useful language of touch. Nobody can read the delightful researches of Sir John Lubbock into the habits and customs of Ants without feeling persuaded that those little beings transact their business perfectly well by touching each other's

antennæ. When Ants meet, a rapid passage of these wonderful organs takes place, gliding like rapiers above and below, and this quickly informs them whether they be friends or enemies, which is the nearest respective road home, whether any food is to be procured nigh at hand, and what is the general news in the formicatory world. Truly it would be more desirable to learn what Bees talk about rather than to discuss the problem whether they talk at all. The views of Bees upon the purposes and colors of flowers, upon the moral duties of frugality and loyalty, and as to the real meaning and lovliness of a Rose, would be worth hearing. Of this much we may be all assured, that the little things of the world evade our knowledge as much and are quite as marvelous as the very largest and highest.

THE BUTTERFLY.

By Emily C. Thompson.

IN THE western part of England if the first Butterfly you see in the spring is white and if you succeed in killing this Butterfly, good luck will surely come to you. Some gentlemen on their way to church one day saw a friend dashing down the road wildly brandishing a cane. He could not stop to explain. He was as a rule a sedate, calm man, so this excitement alarmed them. As nothing could be done, they went on their way and soon met the father of their friend, an old man who usually hobbled painfully along on two canes. He too was excited and was doing his best to make his way down the road with only one cane. His first words were, "I'm afraid he has missed it." "Missed what?" thought the gentlemen, and finally after many efforts to quiet him enough for conversation learned from the old man that his son had seen his first butterfly, that it was white and that without more ado he had snatched his old father's cane and set off in pursuit. Still the old man was perfectly willing to hobble along as best he could, if only good luck and prosperity could be procured by the slaughter of the pretty little insect. The color of its wings is due to what seems to us a fine dust scattered over them, but in reality this dust is made up of little discs fastened by stalks to the wings, arranged usually in rows somewhat like the shingles on a house.

Notice its two great round eyes and remember that each of these is composed of thousands of perfect little eyes. Its trunk you will find coiled up under its head and sometimes this Butterfly of ours completes its toilet by opening its trunk and cleaning it. By the antennæ of the Butterfly you can tell it from, the Moth, for those of the former are immovable and furnished with knobs, while those of the other have not the knobs and can be stowed away under the wings. If you wish to distinguish the Butterfly from the Moth, remember this fact, and also that Butterflies fly only in the daytime and always rest with the wings erect. These facts are trustworthy, for no Moth has ever been found to possess all three of these characteristics, though some do possess one or two.

Though curious in itself, its life history is still more curious. Man, in passing through his seven ages never loses the distinguishing characteristics which make him a man, but our Butterfly as it passes through its three ages changes so much that we seem, while studying it to be studying three distinct creatures—the Caterpillar, the Chrysalis, and the Butterfly.

In the Caterpillar our dainty little fairy presents itself as it appears in its first stage, having just spent a few days, or a month, or perhaps the whole winter in the egg. It changes its old skin many times during its Caterpillar life of twenty or thirty days, at each change gaining in weight and brilliancy, until with the last it appears as a Chrysalis "a legless, mummy-like creature," which maintains its suspended position by means of the hooks on its tail or by a silken girth around its body. A few days before the Butterfly comes forth, it can be seen through the thin cases. Finally the skin on the back bursts open and the little insect is free. For a few minutes it stands with drooping wings. Gradually the wings distend and in a short while reach four times their original size. Then our Butterfly hastens away to carry its joyful greeting to man and flower. So the cycle of Butterfly life can thus be indicated: Egg, Caterpillar, Chrysalis, Butterfly, Egg.

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BUTTERFLIES.—Life-size.

Terias nicippe. Papilio Photenus. Terias mexicana.

Colias philodice. Limenitis ursula. Junoina Cœnia.

Meganostoma eurydice (Male). Papilio philolaus. Meganostoma eurydice (Female).

Why they migrate is not known but evidence enough has been brought in by eye witnesses to prove that this does occur. One flight seen in Switzerland lasted for two hours, the continuous stream of insects being ten or fifteen feet wide and made up of the species called the Painted Lady. Similar companies have been seen at sea, as Mr. Darwin bears witness, also before and after tornadoes in certain places. In Ceylon a gentlemen drove through a cloud of white Butterflies for nine miles. But very interesting to us, is a great migration recorded to have been seen in our own country, in Massachusetts, about Oct. 1, 1876. These are strange stories, but really hardly more strange than other facts about these little animals, graceful and beautiful in form and motion, whose very presence adds greatly to the charm of mother Nature.

Such quantities of eggs are laid by the Butterflies that if certain animals did not contend against them, man would not be able to withstand the ravages of the Caterpillar. Man has one powerful ally in the birds which devour enormous quantities of these eggs, but a still more powerful ally is the Ichneumon Fly. This little insect is a parasite through its grub state and chooses as its host either the egg of the Butterfly or the Caterpillar. The full grown Fly lays its egg by means of an ovipositor, a sharp, hollow instrument with which it can pierce the skin or shell of its victim. The eggs of the fly hatch and the grubs feed upon the Caterpillar, but usually do not touch upon its vital parts until it is full grown, then they devour them and within the skin of their former host form their own cocoons. Sometimes they wait until the Caterpillar assumes its Chrysalis state before they finish their dread work, then much to the surprise of interested beholders, a little cluster of flies appears at the breaking of the cocoon, and no beautiful Butterfly.

Some of these brightly colored little messengers of gladness live through the winter. Usually they pass this trying period wrapped warmly in the cocoon or nestled under some leaf, still a Chrysalis; but a few species weather the cold and the snow and, shut up in some hollow tree or some empty shed, sleep away the happy days of Jack Frost and Santa Claus and are ready to awake with the spring, when they are not abashed in their bedraggled garments to appear among their brothers, who come forth brightly clad, fresh from the soft, warm resting place of the cocoon.

Perhaps the marvelous migration of Butterflies which occurred on Oct. 3, 1898, will be more interesting to us than those already mentioned because it happened so recently and in our own country, and perhaps, most of all, because the reason for flight is hazarded. The inhabitants of Wichita, Kansas, at 3:15 o'clock in the afternoon of that day were greeted with the sight of many Butterflies flying south. Gradually the number increased until business practically ceased, the inhabitants all turning out to view the brilliant spectacle. The stream of yellow and brown insects, with the accompanying purr and brilliant effects of fluttering wings flowed on until within a half an hour of sunset, and even after this, millions of stragglers hastened southward. But you are interested in the reason given? They say that our little friends were driven away from their customary haunts by the forest fires in Colorado. This is only one more supposition to add to the list already awaiting some enterprising student, who shall at last solve the mystery of these wonderful flights and fully acquaint us with all the other interesting facts which our little Butterflies are still keeping secret.

THE ARMADILLO.

ALL Armadillos bear the name Fatu in the South American Guarau Indian language. Although the name is of Spanish origin the Indian term Fatu has also been adopted in European languages, except in the single case of the six-banded species. They are all of more or less similar appearance and habits. They are natives of the southern American belt, extending as far north as Mexico, and the specimen presented here was taken in Texas, where it is occasionally found. The Armadillos are at home in sparsely grown and sandy plains, and in fields on the edges of woods, which, however, they never enter. During the breeding season they consort together, but at all other times lead solitary lives and show no regard for any living thing except as it may serve for food.

Singular as it may appear, Armadillos do not have a regular abiding place, and they frequently change their homes. They can dig a hole in the ground five or six feet deep with such expedition that they are able to have several places of retreat. The hole is circular, at the entrance from eight to twenty-four inches wide, and at the bottom is a snug chamber large enough for them to turn around in. They are great night rovers and seldom move about by daylight, the glaring sunlight dazing them. When seen during the day it is always in rainy weather when the sky is overcast. It has been shown that Armadillos excavate their burrows under the hills of Ants or Termites, where they are able to gather their principal food with the greatest convenience by day as well as by night. Besides the foregoing they eat Caterpillars, Lizards, and Earthworms and are thus advantageous to the husbandman. Plants also constitute a part of their diet.

Armadillos are not agile but are remarkably muscular. It is said, to avoid their enemies they can cut their way into the earth in places which a hoe wielded by a strong man can pierce with difficulty. The Fatu needs only three minutes to drive a tunnel exceeding the length of its own body. The strongest man is incapable of pulling it out by the tail. Once in its hole, it is always secure from Dogs. When it is seized by Dogs, it never defends itself in any way. This is probably not from cowardice, but because it believes itself secure from danger.

Best of all, the Armadillo is a useful animal. The Indians are fond of nearly all the species. While it has an unpleasant odor of musk, it can be prepared for the table; and some think it one of the most palatable of dishes. One of the species can roll itself into a ball, which, however, it does only in extremity.

In captivity Armadillos are usually put in cages with Monkeys, who, if they do not precisely reduce them to servitude, at least use them as playthings. The Monkeys ride their backs sportively, turn them over, without the danger they might experience from Turtles, who are less harmless, and cause them no end of worry. The Armadillo, with all his coat of mail, has a fur lining on his belly, and the experienced Dog quickly turns it over and makes short work of the apparently invulnerable quadruped. The Dog quickly crunches the thin armour and leaves the poor beast lifeless. Only the powerful digging claws which might, one would think, be used in his own defense, remain to tell the tale of the only means which nature has seemed to provide him with against his enemies.

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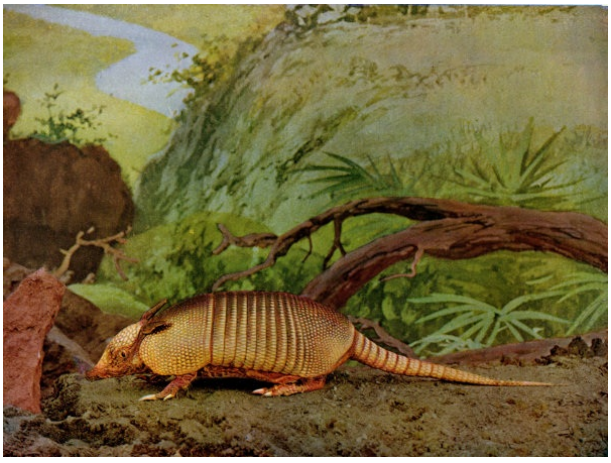

From col. F. M. Woodruff.

ARMADILLO.
⅓ Life-size.

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NATURE'S GROTESQUE.

(THE YELLOW-BREASTED CHAT.)

THIS bird comedian is an actor, a mimic, and a ventriloquist; he has been called "a rollicking polygot," "an eccentric acrobat," "a happy-go-lucky clown, turning aerial somersaults," "a Punchinello among birds," and from my own experience I can add that he is a practical joker and "an artful dodger." His voice is absolutely unique in its range. Besides his power as a ventriloquist, to throw it in any direction, and so entice away from his nest any intruder upon his domain, he possesses the most unequaled capacity for making queer noises. On a certain summer day I was driving to Monticello, the Virginia home of President Jefferson, along a beautiful road, bordered by tall trees and a thick, leafy undergrowth where a thousand nests might be safely hidden. All along a road the Chats called *chit*, *chit*, or barked, whined, clucked, whistled, sang, chuckled and called overhead, or out of the bushes beside us, always invisible, or just giving a flutter to the leaves to show their presence. One of the party declared one called *Kitty*, *Kitty!* distinctly, and he also mimmicked a puppy most successfully. Later on, in July, I was stopping near a favorite haunt of the Chats; a country place on the edge of the woods, where thickly growing shrubs and bushes filled the deep hollows between the hills and near the streams. Here they had their broods, and not only all day, but late in the evening by moonlight they could be heard, making the whole place ring with their medley of sounds, while not a feather of them could be seen.

Yet I finally succeeded in catching various glimpses of them, and in equally characteristic, though different moods. First, I saw them darting rapidly to and fro on foraging journeys, their bills filled with food, for they are most admirable husbands and fathers, and faithful to the nests that they hide with such care. They are beautiful birds, rich olive-green above and a bright yellow below, with two or three pure white lines or stripes about the eye and throat and a "beauty spot" of black near the beak. I watched one balancing on a slender twig near the water in the bright sunshine and his colors, green and gold, fairly glittered. His nest is usually near the ground in the crotch of a low branch and is a rather large one, woven of bark in strips, coarse grass and leaves, and lined with finer grass for the three or four white eggs, adorned with small reddish-brown spots. One pair had their home near a blackberry thicket, and they might be seen gobbling berries and peeping at you with bright black eyes all the while.

The Chat excels in extraordinary and absurd pose; wings fluttering, tail down, legs dangling like a Stork, he executes all kinds of tumbles in the air. It is said that a Chat courtship is a sight never to be forgotten by the lucky spectator. Such somersaults, such songs, such queer jerks and starts. Our bird is one of the Wood Warbler family, a quiet and little known group of birds. His elusiveness and skill in hiding, and his swift movements, are his only traits in common with them.

ELLA F. MOSBY.

In those vernal seasons of the year, when the air is calm and pleasant, it were an injury and sullenness against Nature not to go out and see her riches and partake in her rejoicing with heaven and earth.—MILTON.

THE RED-HEAD DUCK.

IN MANY points of structure and habits Sea Ducks, of which this is a specimen, may be distinguished from Fresh Water Ducks by the presence of a lobe or little flap of skin on the lower side of the hind toe. The legs of the former are also placed farther behind, and they are thus better fitted for swimming, though not so well adapted for walking or running on land. The feathers of Sea Ducks are more dense also, and they are all provided with a quantity of thick down next to the skin, which is of no small commercial value.

The difference in the habits of the two species is no less striking. The latter dive for their food, which the former never do; they are chiefly maritime in their distribution, although all, or nearly all, retire to fresh water lakes to raise their young.

The Red-head is said not to be common along the coast of New England, but in the winter months is found in considerable numbers along the south shore of Long Island. It is extremely abundant south of that point, and particularly so in Chesapeake Bay, where immense numbers are killed each season. Where it is enabled to feed on the well known wild celery its flesh is said to be fully equal in flavor to that of the Canvas Back. Both in spring and fall it is an extremely abundant migrant in the Western States. It generally reaches northern Illinois, says Hallock, in its spring passage about the last of March, remaining until the latter part of April. On its return journey late in October, it remains on the rivers, lakes, and sloughs until the cold weather, by freezing up its feeding grounds, forces it to go farther south. It is altogether probable that a few of these birds breed in the Rocky Mountain regions within the limits of the United States, but they usually continue northward to their regular breeding grounds, which extend from Wisconsin, Michigan, and others of the northern tier of states, to the fur countries.

The Red-head was found nesting on the St. Clair Flats, Michigan, by Mr. W. H. Collins, who, in describing some of its breeding habits, says: "I had the good fortune to find two nests of this bird containing respectively seven and eight eggs. The first was placed on some drifted rushes on a sunken log, and was composed of flags and rushes evidently taken from the pile of drift upon the log, as they were short pieces, so short, in fact, that the nest when lifted with the hands fell in pieces. The nest was four inches deep and lined with down from the female. This nest contained seven fresh eggs of a creamy color, varied in measurements and of a uniform oval shape, very little smaller at one end. The other nest was built similar to a Coot's nest; that is, of flags and grass interwoven at the base of a bunch of flags growing in water three or four feet deep. It was built in such a way that the nest would rise and fall with the water."

The food of the Red-head consists of mollusks, shell-fish, and the seeds and roots of aquatic plants.

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From col. Chi. Acad. Sciences.

RED HEADED DUCK.
⅓ Life-size.

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BIRDS IN GARDEN AND ORCHARD.

DURING the last year I have received quite a number of letters from all over the United States, inquiring why so few birds are found about the homes, among the ornamental shrubs and trees, and in the orchard. My correspondents also wish to know how our beautiful native songsters can be induced to take up their residence in the neighborhood of man. As the many inquiries came from the East, the West, the North, and the South, I shall treat the subject in the following manner:

The northern, eastern, and central states show but little difference as to their bird-life, and there is also little diversity in regard to the ornamental trees and shrubs of the gardens. The region included is bounded on the the north by the British possessions, on the east by the Atlantic ocean, on the west by the Rocky mountains, and on the south by the Indian Territory, Arkansas, Tennessee, and North Carolina. While living in the country I have always had birds at my home and in the neighborhood, and I shall, therefore, give my own experience.

Birds settle only where they find the surroundings perfectly congenial, and where they are protected and consequently feel safe; where dense shrubbery, evergreens, and deciduous trees abound, and where water and suitable nesting material are near at hand. In one garden they are exceedingly numerous, while in another one close by, only a few pairs, perhaps, are to be found. When protected, they soon learn to regard man as their friend. Their enemies, especially Cats, Squirrels, and Owls, must not be allowed to rove about in the garden and orchard, and such thieves and robbers as the Blue Jay, the Loggerhead Shrike or Butcher Bird, and that abominable tramp and anarchist among birds, the English Sparrow, should never be tolerated in a garden or park where other birds are expected to make their homes.

In the days of my boyhood the groves re-echoed with the songs of many birds; the woods, however, have been cleared away, and in the poor remnants of the once magnificent forests there are few birds to be found today. The sweet notes of the Veery, the thundering sounds of the Ruffed Grouse, the loud hammering of the Pileated Woodpecker, are no longer heard. I have devoted much time to erecting bird houses and planting ornamental trees and shrubs for the accommodation of the birds. Here they soon took up their residences. On the top of the barn and granary Martin boxes were placed, and in the gables of the barn holes were cut to admit the pretty Barn Swallow and the Phœbe. Among the first birds to settle were the Robins and Bluebirds, both heralds of spring, appearing in the last days of March or early in April from their winter homes in our Southern States. The Baltimore Oriole suspended its beautiful hanging nest from a high horizontal branch of a Walnut tree. The Cedar Bird, quiet and retired in its habits, and a most beautiful denizen of the garden, placed its nest constructed of sheep's wool on a low horizontal branch of an Oak. The sprightly Canary-like song of the American Goldfinch, often called the Wild Canary, was heard throughout the summer, and its cozy little nest, lined warmly with thistle-down, was placed in the upright exterior branches of a Sugar Maple. In the same tree, but lower down on a horizontal branch the exquisite pendulous nest of the Red-eyed Vireo was now and then found. This Vireo is an incessant songster as it gleans among the upper branches of the trees. [Pg 154]

The Rose-breasted Grosbeak invariably nested in a clump of dense wild Crab-apple trees, partly overgrown with grape vines. Another inhabitant of the grove not easily overlooked, is the bold Kingbird, the guardian of the barnyard, its nest saddled on a rather strong moss-covered limb of another Oak. I could mention a number of other birds that build their nests near the dwellings of man, but space will not permit me to do so. I will add, however, that if my readers would have about them these beautiful and useful birds, which are almost the best friends of mankind, don't allow English Sparrows to come near your home, and you will soon find yourself in the midst of the songsters. The incredible numbers of English Sparrows now found almost everywhere have driven our native birds away.

—JOS. F. HONECKER,
Oak Forest, Ind.

GOLDENROD.

SPRING is the morning of the year,
And Summer is the noontide bright;
The Autumn is the evening clear
That comes before the Winter's night.

And in the evening, everywhere
Along the roadside, up and down,
I see the golden torches flare
Like lighted street-lamps in the town.

I think the Butterfly and Bee,
From distant meadows coming back,
Are quite contented when they see
These lamps along the homeward track.

But those who stay too late get lost;
For when the darkness falls about,
Down every lighted street the frost
Will go and put the torches out!

—*Frank Dempster Sherman.*

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From col. Chi. Acad. Sciences.

GOLDEN ROD.
⅘ Life-size.

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OCTOBER.

AY, thou art welcome, heaven's delicious breath,
When woods begin to wear the crimson leaf,
And suns grow meek, and the meek suns grow brief,
And the year smiles as it draws near its death.
Wind of the sunny south! oh still delay,
In the gay woods and in the golden air,
Like to a good old age released from care,
Journeying, in long serenity, away.
In such a bright, late quiet, would that I
Might wear out life like thee, mid bowers and brooks,
And, dearest yet, the sunshine of kind looks,
And music of kind voices ever nigh;
And when my last sand twinkled in the glass,
Pass silently from men, as thou dost pass.

----BEZANT.

October days are stealing
All swiftly on their way;
The squirrels now are working,
The leaves are out at play;
The busy, busy children
Are gathering nuts so brown,
And birds are gaily planning
A winter out of town.

----CLARA L. STRONG.

FROM "CONSTANTINOPLE."

EDMONDO DE AMICIS.

CONSTANTINOPLE has one grace and gayety peculiar to itself, that comes from an infinite number of birds of every kind, for which the Turks nourish a warm sentiment and regard. Mosques, groves, old walls, gardens, palaces all resound with song, the whistling and twittering of birds; everywhere wings are fluttering and life and harmony abound. The sparrows enter the houses boldly, and eat out of women's and children's hands, Swallows nest over the café doors, and under the arches of the bazaars; Pigeons in innumerable swarms, maintained by legacies from sultans and private individuals, form garlands of black and white along the cornices of the cupolas and around the terraces of the minarets; Sea-gulls dart and play over the water; thousands of Turtle-doves coo amorously among the cypresses in the cemeteries; Crows croak about the Castle of the Seven Towers; Halcyons come and go in long files between the Black Sea and the Sea of Marmora; and Storks sit upon the cupolas of the mausoleums. For the Turk, each one of these birds has a gentle meaning, or a benignant virtue: Turtle-doves are favorable to lovers, Swallows keep away fire from the roofs where they build their nests, Storks make yearly pilgrimage to Mecca, Halcyons carry the souls of the faithful to Paradise. Thus he protects and feeds them, through a sentiment of gratitude and piety; and they enliven the house, the sea, and the sepulchre. Every quarter of Stamboul is full of the noise of them, bringing to the city a sense of the pleasures of country life, and continually relishing the soul with a reminder of nature.

There are several kinds of animals, points out Cosmos, that have never swallowed water. Among these are the Lamas of Patagonia and certain Gazelles of the far east, and a considerable number of reptiles—Serpents, Lizards, and certain Batrachians—that live and flourish where there is no moisture. A kind of Mouse of the arid plains of western America also exists where moisture is said to be unknown. In the London Zoological Gardens a Paroquet lived fifty-two years without drinking a drop, and some naturalists believe that Hares take no liquid except the dew that sometimes forms on the grass they eat. Even Cows and Goats in France, in the neighborhood of the Lozère, almost never drink, yet they produce the milk from which is made the famous Roquefort cheese.

ANIMALS AND MUSIC.

ONE of our poets is authority for the statement that "music hath power to sooth the savage breast," but experiments have recently been made in Lincoln Park, Chicago, *The American Naturalist* tells us, to determine with scientific accuracy the effects of violin playing on certain animals.

"Music which was slow and sweet, like 'Home, Sweet Home' or 'Annie Laurie,' pleased the Panthers, a Jaguar, and a Lioness with her cubs. The Panthers became nervous and twitched their tails when a lively jig, 'The Irish Washerwoman,' was played to them, and relapsed into their former quiet when the music again became soothing.

"The Jaguar was so nervous during the jig music that he jumped from a shelf to the floor of his cage and back again. When the player ceased playing and walked away, the Jaguar reached out his paw to him as far as he could. His claws were drawn back.

"The Lioness and her cubs were interested from the first, though when the violinist approached the cage the mother gave a hiss, and the cubs hid behind her. At the playing of a lively jig, the cubs stood up on their hind legs and peeped over at the player. When the musician retreated from the cage, the animals came to the front of it and did not move back when he gradually drew so near as almost to touch the great paws which were thrust through the bars. When playing 'Home, Sweet Home,' the entire family seemed very attentive, and were motionless except that the cubs turned their heads from side to side. Then another jig was played and the cubs pranced about."

"The Coyotes in a den, squatted in a semicircle, and sat silently while the music continued. When it ceased, they ran up and pawed at the player through the bars. He began afresh, and they again formed in a silent semicircle. This experiment was tried several times with the same results."

Of late years the Sea Gulls have found it so much to their interest to come up to the Thames in our midst that their graceful evolutions around the crowded bridges in ever growing flocks has almost ceased to excite notice. But this year, as never before, they have descended upon the water of St. James Park in such great numbers that their presence must considerably exercise the minds of those responsible for the welfare of the other wild fowl there. They may be seen sometimes resting upon the surface of the eastern half of the lake in sufficient number almost to hide the water. And at the luncheon hour, when released workers throng bank and bridge, bestowing upon the water the scanty fragments of their frugal meals, the gulls, on ready wing, with an agility born of long practice over stormy seas, give the clumsier Ducks and Geese hard work to obtain even a small share of what is going. Not so long ago a piece of plain bread might often float uneaten until it sank waterlogged for the benefit of the fish. It is so no longer. No crumb now goes a-begging or is scouted by any of the old habitues as beneath their notice.—*London Paper.*

SUMMARY.

Page 126.

KINGBIRD OF PARADISE.—*Cincinnurus regius.*

RANGE—New Guinea and the neighboring islands.

Page 130.

PECCARY.—*Dicotyles torquatus.*

RANGE—From Arkansas to Brazil. This specimen was taken in Texas.

Page 134.

BOTTLE-NOSED DOLPHIN.—*Tursiops tursio.*

RANGE—Arctic ocean and the north of the Atlantic.

Page 138.

TUFTED PUFFIN.—*Lunda cirrhata.* Other name: Sea Parrot.

RANGE—Coasts and islands of the north Pacific, from California to Alaska, and from Japan to Bering Strait. Accidental on the coast of Maine.

NEST—In crevices of rocks, often without lining.

EGG—One.

Page 147.

ARMADILLO.—*Tatusia novemcincta.* Other name Peba.

RANGE—From Texas to Paraguay.

Page 151.

RED-HEADED DUCK.—*Aythya americana.*

RANGE—North America in general, breeding from California, Wisconsin, and Maine, northward.

NEST—On low grassy grounds near the water.

EGGS—Seven to ten, grayish white to pale greenish buff; oval in form.

Page 155.

GOLDENROD.—*Solidago Virga-aurea.* The name is common to all the species of the genus *Solidago*.

Transcriber's Note:

- Minor typographical errors have been corrected without note.
- Punctuation and spelling were made consistent when a predominant form was found in this book; otherwise they were not changed.
- Ambiguous hyphens at the ends of lines were retained.
- Duplicated section headings have been omitted.
- The Butterflies illustration has been moved from page 143 to page 145.
- The Contents table was added by the transcriber.

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