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Title: Birds and Nature, Vol 10 No. 2 [September 1901]

Author: Various
Editor: William Kerr Higley

Release date: September 15, 2015 [EBook #49981]

Language: English

Credits: Produced by Chris Curnow, Stephen Hutcheson, Joseph Cooper
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BIRDS AND NATURE.

ILLUSTRATED BY COLOR PHOTOGRAPHY.

VOL. X. SEPTEMBER, 1901. No. 2

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CONTENTS.

TO A HUMMINGBIRD.

Voyager on golden air,
Type of all that's fleet and fair,
Incarnate gem,
Live diadem
Bird-beam of the summer day,—
Whither on your sunny way?

Loveliest of all lovely things,
Roses open to your wings;
Each gentle breast
Would give you rest;
Stay, forget lost Paradise,
Star-bird fallen from happy skies.

Vanished! Earth is not his home;
Onward, onward must he roam
Swift passion-thought,
In rapture wrought,
Issue of the soul's desire,
Plumed with beauty and with fire.

—John Vance Cheney.

THE ANNA'S HUMMINGBIRD.

(*Calypte anna.*)

Buffon, writing of the Hummingbird, and his words do not refer to any single species, but to them as a group, says that “the emerald, the ruby and the topaz glitter in its garb, which is never soiled with the dust of earth, for, leading an aerial life, it rarely touches the turf, even for an instant. Always in the air, flying from flower to flower, it shares their freshness and their splendor, lives on their nectar, and only inhabits those climates in which they are unceasingly renewed.”

Of all the birds that might receive the appellation, “The Bird of America,” to none could it be applied more truthfully than to the Hummingbird. For of all the families of birds that are distinctively peculiar to the Americas the Trochilidæ, or the Hummingbird family, contains the larger number of species. There are over five hundred species inhabiting North and South America and the adjacent islands, from Patagonia on the South to Alaska on the North. The species is more numerous in the tropics and but seventeen are known to frequent the United States. Of these only one, the ruby-throated hummingbird, exhibits its beauty east of the Mississippi River, and but seven species have their breeding range chiefly or entirely within the United States.

“They abound most in mountainous countries, where the configuration of the surface and productions of the soil are most diversified within small areas. Their center of abundance is among the Northern Andes, between the parallels of ten degrees north and south of the equator, from which region they gradually diminish in numbers both to the northward and southward, but much more rapidly toward the extensive lowlands of the eastern portion of the continent.”

A very interesting group, not so gem-like as many of their sister species, is the hermit hummers represented by a number of species that chiefly inhabit Brazil. These hummingbirds are notable for their plain colors, their plumage having but little of the lustrous metallic iridescence which is so marked a characteristic of the species with which we are more familiar and which frequent flowers in the bright sunshine. The laws of Nature seem to provide against excess even in coloration. The hermit hummers obtain their food only from the insect world, feeding upon those species found on the leaves of trees in deep forests. In such a home a gorgeous dress would be out of place and needless.

Regarding their actions, Mr. Robert Ridgway says: “Hummingbirds are so distinct from other birds in their external structures and manner of flight that they present in every respect, except when at rest, an appearance entirely peculiar to themselves. They spend perhaps the greater part of their time upon the wing, usually hovering or balancing themselves before a flower from which they are procuring their sustenance of honey or of minute insects. At such time the body is nearly vertical or inclined at a slight angle, the head bent nearly at right angles with the axis of the body, the wings spread nearly at right angles with the same axis.” The motion of the wings, which is always rapid, may carry the bird in a horizontal direction or poise it in its vertical attitude directly over a flower. In this latter position the motion of the wings is so rapid that a mere haze appears on each side of the bird’s body. Mr. Gould, speaking of their flight, says “The bird does not usually glide through the air with the quick, darting flight of a swallow or swift, but continues tremulously moving its wings while passing from flower to flower, or when taking a more distant flight over a high tree or across a river.”

ANNA’S HUMMINGBIRD.
(Calypte anna.)
Life-size.
FROM COL. CHI. ACAD. SCIENCES.

Such a dainty dress as that worn by most of the hummingbirds deserves constant attention. Appreciating this these little lovers of sunshine are very fond of preening their beautiful feathers. While thus engaged

they usually perch on a bare or dead twig in an exposed position. Truly fortunate is he who is afforded the opportunity of watching a hummingbird at this time. In this position various and graceful attitudes are assumed and the colors of the plumage are most beautifully exhibited. Mr. Audubon tells us that when perching the hummingbirds “move sidewise in prettily measured steps, frequently opening and closing their wings, pluming, stroking and arranging the whole of their apparel with neatness and activity.”

Hummingbirds are very aggressive and show no fear, especially when defending their nests. They will furiously attack any bird or other animal that excites their enmity. They have been known to follow and annoy hawks and other birds much larger than themselves.

Mr. Ridgway says: “In their disposition hummingbirds are not only very tame but highly curious or inquisitive, and exhibit a special propensity to closely inspect a human intruder to their domain.” This characteristic may be frequently noticed in the actions of our common ruby-throat. In spite of the fact that the hummingbirds are easily tamed and may even be induced to take food from the hand or from a flower so held as to attract their attention, they do not survive confinement for any length of time.

Although the nectar of flowers forms a large part of their food, it has been shown that insects also form no inconsiderable portion.

The high degree of intelligence possessed by the hummingbirds is shown in the construction of their nests. Some of the species make the nests “of such form or material as will serve to imitate natural excrescences of a branch, such as a knot or a pine cone.” Other species make a hammock-like nest that they suspend from cliffs by attaching spiders’ webs. Mr. Thomas M. Brewer writes: “Indeed, it is probable that there is no other family whose architectural achievements are more varied than those of the hummingbirds. These variations include not only the material of which the nests are made and the positions in which they are placed; but also the general style of their construction, exhibiting constant differences, in the several species, in the ingenuity and beauty displayed in each design.” Even individual species will change the usual plan of their nests in order to adapt them to the requirements of their environment. In favorable localities a new nest will be built each season on top of the old one of the year before. “The hermit hummingbirds fasten their elongated nests to one side of the extremity of long-pointed leaves for protection, it is supposed, against monkeys and other predaceous animals.”

The eggs of the hummingbirds, invariably two in number, are white and free from spots. Though very small they are large when compared with the size of the bird that laid them. It is claimed by most authorities that under favorable conditions two broods are raised each season.

The Anna’s Hummingbird of our illustration is one of the most striking of those best known. It is perhaps the most beautiful of the species that frequent the United States. It is a native of California and in its migrations passes southward through Arizona to the table-lands of Mexico. It is also found in Lower California.

The head and ruff of the male have a lustrous metallic purplish red color. The female is bronze green above, though the top of the head is sometimes brownish, showing but little if any metallic luster. Both sexes vary somewhat in color. This is especially true of the males, some individuals having more purplish red on the crown and throat than others.

This species inhabits a metal producing region and it is an interesting fact, as cited by Mr. Gould in his “Monograph of the Hummingbirds,” that “those districts or countries having a metalliferous character are tenanted by species of hummingbirds which are more than ordinarily brilliant and glittering.”

Major Charles Bendire in his “Life Histories of North American Birds,” records an interesting observation of Mr. A. W. Anthony regarding the hatching of an Anna’s Hummingbird. These words probably well describe the process followed by all the species.

Writing in regard to a set of eggs which he had collected, he says: “I was somewhat disgusted to find one of the eggs pipped and, realizing the difficulty of making a presentable specimen of it, was on the point of throwing it away when a movement on the part of the tiny creature within the shell suggested to my mind that I hatch the egg and find out for myself how baby hummingbirds come into the world. So far there was but a pin point broken, the rest of the shell being intact; and it was several minutes before the warmth of my hand, aided by my breath, produced another movement upon the part of the prospective hummer; first a feeble struggle, followed by an interval of rest; another squirm and the point of the bill came in view and was withdrawn; after a moment’s rest a new system was adopted, which consisted of turning around in the shell from right to left and cutting a clean, smooth opening with the sharp, horny tip on the upper mandible; this operation was evidently hard work and required all the strength of the little mite, and frequent rests were necessary to recruit. Sometimes an interval of twisting seemed to accomplish nothing, and it would look as if all its struggles would be in vain. I wondered whether the parent would not render a little much-needed assistance at this stage; but after an interval of rest the work would be continued with renewed vigor and another millimetre cut toward the outer world. The cutting was all done in the same direction. When the shell had been cut four-fifths around, the chick succeeded in getting one claw hooked over the edge of the break, and by one or two vigorous pushes broke the remaining shell, leaving in my hand two nearly equal parts of what had been a hummingbird’s egg and a squirming something that bore no semblance whatever to one of the peerless members of the genus Calypte.” The entire operation, which added another individual to America’s beautiful family of birds, required but fifteen minutes of time. The energy and perseverance of the little mass of flesh was a hint of that pugnacious disposition that would be so striking a characteristic when it became fully grown and clothed with its resplendent metallic plumage.

LONGING.

O, for the woods and fields and streams,
For flowers wild and squirrels shy—
For birds whose sunlit plumage gleams,
For sight of clear, unhidden sky!

For grasses green, for springs and marsh,
For mountain paths and tramps o'er hills
Where nothing sinful—nothing harsh—
The sweetening song of Nature stills!

Lloyd Thompson.

EXPERIENCES WITH "HUMMERS."

Did you ever hold a live hummingbird in your hand? Well, I have held several of the wee, wee creatures. Did you ever look into a hummingbird's nest? Well, I have peeped into several of the tiny, downy affairs.

Two of the nests contained eggs; one contained young birds. The eggs were as small as an ordinary garden pea—perfectly egg-shaped. Can I describe the young of the hummingbird? No, impossible. I can only say that they are the smallest animal I ever saw in all my life. Of course, that does not include the insect world.

How did I contrive to get hold of a live hummingbird? Easy enough when you know how.

One hot afternoon in June I was sitting in a garden reading. A few yards away stood a large bunch of brilliant carnations. Now, if there is anything which a hummer fairly dotes on it is pinks. Suddenly I heard a loud hum near by. I looked toward the carnations, and, sure enough, there were too hummingbirds hovering around the flowers.

I watched their movements for several moments with great interest. Presently I observed that one of the birds appeared to be entangled. Its tongue, or long, needle-like beak, was caught in some manner in the petals of a large pink. The little fellow kept fluttering around in a helpless way, but could not liberate itself.

Instantly I dropped the book and ran over to the bed. The other hummingbird darted away like a shot. I very softly took the tiny prisoner in my hand and then gently liberated it. For half a minute or more I held the trembling, fluttering creature in my hand. I wish I could describe the beauty and brilliancy of its plumage. Silk, velvet and the delicate tints of the rainbow are the only adequate words. Finally I released the prisoner. In a flash he was out of sight.

One good fright was enough. Neither bird ever came back to the carnations again. At least, the pinks were not visited by any more hummingbirds that season.

Last summer I was out with a fishing party. We went far back into the mountains, where it was rugged, wild and lonely. One day I was out fishing along a rushing torrent. There was a deep, swirling eddy where I was angling, and just on the bank stood a small cedar tree. A long, slender limb hung only a few feet above my head.

While I was fishing a hummingbird came buzzing around my head. It kept circling around me for some time. Finally I stopped fishing. Instantly the bird alighted on a twig and eyed me closely with its bright bead-like eye. A moment later the little mate arrived.

"Surely there must be a nest near by," I said to myself. Then I began fishing.

Both birds immediately came whirring about my ears like two hornets. They kept it up until I desisted. Then both alighted and watched me sharply. Again and again I tried to fish, but the little creatures would give me no peace.

Down I laid my rod and began to look carefully for a nest. Sure enough, there was one concealed amidst the cedar boughs. It was right above my head where I stood fishing. Very gently I pulled the pendent branch down until I could peep into the thimble of a nest, which contained beautiful eggs. Meantime the birds kept buzzing around my head in a most distracted manner.

Having satisfied my curiosity I quietly withdrew, to the evident delight of the little parents.

On another occasion I was out in an orchard. I noticed two hummingbirds flying around a certain apple tree limb. As I approached the birds became more excited. When within a few yards of the tree I noticed a young bird sitting on a nest. He was almost grown. Not wishing to frighten the little chap, I stopped abruptly. But he darted away. However, his wings were too weak, and down he sank fluttering, falling into a big tuft of tall grass.

He was perfectly helpless, so I very tenderly picked him up and placed him back on the nest. To my surprise and amusement he did not attempt to escape, but stood up boldly and looked at me in a saucy, defiant way. The parent birds were buzzing around me like angry bees, but when they saw that I did not harm their offspring they both alighted near the nest.

A large clump of wild currants stood in one corner of the yard. I noticed two hummingbirds almost constantly hovering around the bush among the large yellow flowers.

I went out one afternoon and secreted myself in the clump, in order to observe more closely the actions and peculiarities of the birds. One was the largest hummingbird I had ever seen, and its plumage was simply

gorgeous.

Soon the birds came around, but they did not seem in the least alarmed by my presence. The larger one came very near, and actually flew against my face. I held up my hand, when the bird flew straight into it. I instantly closed my fingers and held him a prisoner. His plumage was brilliant beyond description. As the beautiful captive did not seem to resent my familiarity, I examined his coat carefully before giving the bird its freedom.

I had still another experience with a hummer. On a bright summer day one flew through an open door into a room where I was sitting. Quick as a flash the bird discovered its mistake. It dashed against a window pane with all its might and dropped on the floor. I hastily picked it up. It seemed quite dead. But as I held it in my open hand, silently sympathizing over its fate, the bird suddenly revived and flitted out through the open door before I could wink.

J. Mayne Baltimore.

MY HUMMINGBIRD.

No other fairy did I see
  So graceful, pulsing, in the air,
As if the heart of nature beat
  Its throbbings in the birdlet there.

The gray, the green, the dash of red,
  The beating wings that gauzy seem—
So rapid the vibrating hum—
  I almost dream were but a dream.

Then suddenly I cry aloud,
  When in a rapid-shooting ray,
My fairy disappears, a-flash,
  Into the sun-haunts far away.

Willis Edwin Hurd.

RUFOUS HUMMINGBIRD.
(Selasphorus rufus.)
Life-size.
FROM COL. CHI. ACAD. SCIENCES.

THE RUFOUS HUMMINGBIRD.

(*Selasphorus rufus.*)

This hardy little “Hummer,” which is even smaller than our well-known ruby-throated hummingbird, is weighted with a number of popular names. Among these are the “Rufous-backed Hummingbird,” the “Ruff-necked Honeysucker, or Hummingbird,” the “Rufous Flame-bearer” and the “Cinnamon Hummer.”

The Rufous is probably the most widely distributed of all the hummingbirds. Its range extends throughout Western North America. It breeds from the higher mountains of Southern California northward, near the coast to Nootka Sound, Alaska. In its migrations it flies eastward to Montana, Colorado and thence southward through New Mexico to Western Texas. In fact, during this period it frequents the eastern slopes of the Rocky Mountains, adding beauty to this wild region. Its winter home is chiefly in Mexico and Lower California.

This Hummingbird is exceedingly pugnacious and, as Mr. Henshaw says, “The fiery red throat of the Rufous-backed Hummer is an index of impetuous, aggressive disposition, and when brought into conflict with the other species it invariably asserts its supremacy and drives its rival in utter rout from the field. Nor do the males of this species confine their warfare to their own sex. Gallantry has no place apparently in their breasts, and when conquest has put them in possession of a perch near a clump of flowers they wage war on all comers, females as well as males.”

The Rufous Hummer is one of the earliest of the migratory birds to leave its winter home, and arrives within the borders of the United States early in March and is known to begin housekeeping as far North as the State of Oregon early in April. Altitude as well as climate seems to have much influence in the selection of a nesting sight. The altitude of the breeding range seems to lie between four and seven thousand feet above the sea level, and nests have been reported as high as ten thousand feet.

Mr. A. W. Anthony, writing of this species as he observed it in Oregon, says that “they nested to some extent in oaks, blackberry vines and on dry roots projecting from upturned trees. One nest hung from the end of a tall fern, while others, drooping over it from above, hid the beautiful structure from all but accidental discovery. Their favorite sites, however, seemed to be the long, trailing vines overhanging embankments and upturned trees. A number were found in railroad cuts. One nest was found that had been placed on top of a last year’s habitation, a mere rim being built to raise the sides, and a flooring being added to cover up a large pebble that could be plainly felt under the cotton lining.” This habit of adding stories to nests of the previous season is not infrequent with other species of the hummingbirds.

The nest of the Rufous Hummingbird resembles those of many other species of hummers, and it is very much like that of the Anna’s hummingbird. The framework is composed of delicate tree mosses and fine bark fiber, the outer face of which is sometimes adorned with lichens, though not so profusely as is that of the Anna’s, and fastened together with spider’s webs and the silky threads from cocoons. It is lined with the fine cotton down of plants, especially that of the willow, and the pappus of the Compositae. These nests seem large when compared with the size of the bird. The average nest measures about one and one-half inches in the outer diameter and one and one-fourth inches in depth. “Their nesting sites may be looked for in low bushes as well as on the horizontal limbs of trees at various distances from the ground.” When compared with other species of the family this species is quite noisy, especially when it sees a broad-tailed hummer in the neighborhood. For this species it exhibits an intense animosity and will pursue it, uttering shrill and expressively angry notes.

WHAT A LITTLE MOUSE SAID.

I am only a little mouse; my name is Wee Wee.

I live in a big house away out in California. My mother has made a very cozy home for us between the walls where it is nice and dark. We do not mind the dark, you know, for we can see even better then, with our little bright eyes.

Our bed is soft and warm and is made of tiny bits of paper which we children helped our mother to tear up and it is lined with some nice soft cotton which she picked out of a comforter one night when every-one had gone to church.

We have never been out very much but now, our mother says, we are big enough to help get the living. When she told us this, we all said: “Squeak, squeak, squeak,” which, in mouse language, meant that we were glad and thought it would be fine fun to leave our nest and go out into the big world.

But mother said: “Children, before you go I want to tell you something; listen well to what I shall say.”

And so we six little mice sat very solemnly in a row, on our hind legs and pricked up our ears and listened quietly while she went on. “You go through a narrow passage till you come to a little round hole and when you have squeezed through this you will find yourself in a big room called a kitchen. You must then run quickly across the floor and into the door of a bathroom. There is also a hole behind the bathroom door which you may need to jump into if anything happens. Next comes a nice, large pantry and in there you will find everything that we mice like to eat. Bring what you can carry, after you have eaten all you can, but do not eat too much or you will never be able to squeeze through the hole again. Now you must never go in the daytime, but wait until night.”

After telling us this, my mother left the nest saying that she was going to call on one of our neighbors who lived in an old felt hat, very near us. She said she might be gone some time, so, while my brothers and sisters were taking a nap, I thought to myself: “I don’t see why mother told me not to go in daylight. I am sure everything seems perfectly quiet now and I don’t think anything could hurt me; and I do feel so hungry. I guess I will go on a little trip, and ‘we shall see what we shall see.’” With that I crept out of the nest without making the least bit of noise and followed the directions my mother had given me.

Soon I found myself in the pantry and O! how good everything did smell. I found some cheese and I ate a very big hole in a white cake with icing on it and was just thinking what I could carry home as a surprise for the children when I heard a rushing noise like the patter of feet and I jumped behind some glass jars that were on the floor in the corner.

To my horror I saw very near me, for I could see right through the glass jar, a funny thing with long white wool and sharp teeth, a long, pointed nose and a terrible big red tongue hanging out of its mouth and little sharp black eyes that seemed to be looking clear through me. Oh! how I trembled and oh! how I wished then that I had obeyed my mother.

I saw now, when it was too late, that she knew best. Just then a big giant with dresses on came into the pantry and I heard her say: “That dog thinks there is a mouse in here.” So it was a dog and I remembered now that my mother had said one day that there was a spitz dog in that house.

The lady went out but the dog smelled me and was determined not to give me up so he ran to the big giant with dresses on and whined and whined until she came in again and said: “Well, Zip, I guess there must be a mouse here since you insist on it.” So she went out and got a long stick with a lot of straws on the end of it (she called it a broom), and with that she poked around all over the pantry, and the funny thing with long, white wool and sharp teeth kept smelling around and clawing at the glass jars till I thought I should die of fright. “It must be behind those jars, the way Zip acts,” she said; and she took the broom and knocked over all the jars with a crash. Well! I thought my time had surely come. My eyes filled with tears and my heart almost broke as I thought of my dear mother and all my sisters and brothers so happy at home.

But just in that terrible moment I happened to remember what my mother had said about running into that other hole in case anything should happen, so with one bound I was on the floor and the funny thing with long, white wool and sharp teeth made a grab for me. I could feel his hot breath close upon me and I could almost feel his sharp teeth when I heard the big giant with dresses on say: “Catch him, Zip.”

But surely a kind fate must have been with me for I was too quick for them. I never ran so fast in my life. I fairly flew till I found the hole behind the door and jumped in and ran along till I found myself once more at home, where all the family were frightened almost to death at my absence.

After that terrible experience I shall always do what my mother tells me to, for after all, she knows best.

Jessie Juliet Knox.

ABOUT A SPARROW.

There have been tales told about this curious little rowdy among birds. He was a nuisance; he drove our song and grub-eating birds away; he also littered the cornices of buildings and made of himself a pest in general. There have been other tales told about the cute chap who perches upon a wire near the window and rocks his clever head toward you when you tap against the pane; and still another story is told concerning the lynching of one by a flock of the brisk chaps. Some say they took a bit of twine, fastened it to a wire, secured the victim, and induced him to put his head through a loop; then drew the twine and scattered, leaving a lot of wise men to gaze upon the wonderful spectacle, which the newspapers took up and printed. I have watched birds for years and I never saw an incident of the sort—the lynching of a sparrow by his fellow sparrows! A sparrow has been caught in the loop of a bit of twine fastened to a wire or a cornice; but no sparrow ever deliberately put the twine up and lynched one of his rowdy brood. He wouldn’t do it simply because he hasn’t got bird instinct enough to follow out such a tragedy. I will tell you a little incident concerning a sparrow which I know to be true. It didn’t find a place in any newspaper, either, simply because I never gave it much thought until now, hence never mentioned it before.

I had noticed upon arising for several mornings in the early spring a half dozen or so of sparrows congregated in a sunny spot of the roof below. At first I paid no attention to it, for the sparrow is apt to go where he pleases, man’s wishes to the contrary notwithstanding. But the little chaps were there every morning, and in the same sunny spot. I was curious to know why they came there, and I went down stairs one morning to watch them from a more close point of observation. I got there before they came. I stood back of a closed blind, peeped through the slats and waited. When the sun-rays fell upon the spot close to the window the little fellows began to come—each with a morsel of food. They twittered and hopped about as if they were enjoying the morning fancy. Then they scattered and took wings to chimneys, cornices and wires. I opened the blinds and looked out. I saw one lone, little sparrow feeding. I bent over the sill. He did not fly away. I reached out and took him in. He fluttered and struggled. His eyes were covered with a film. He was blind.

H. S. Keller.

THE WHITE-THROATED SPARROW.

(*Zonotrichia albicollis.*)

“The sparrows are all meek and lowly birds.” They are not clothed in a plumage of gorgeous hues, but are endowed with melodious voices in harmony with their surroundings. “Theirs are the quaint lullaby songs of childhood.” Their plain coats are a means of protection, for they frequent the fields, the hedges and the low shrubs of the woodland borders. Some of their relatives, the grosbeaks, the goldfinch and the finches, are more brilliantly colored and are more arboreal in their habits.

The White-throated Sparrow (Zonotrichia albicollis) is one of the handsomest of the sparrows. It is one of the exquisite parts of nature. Migratory in habits, its range covers all of Eastern North America, nesting from Michigan and Massachusetts northward and wintering from the latter state southward to Florida.

Its scientific name is descriptive of the marked color characteristics of its crown and throat. Zonotrichia means hair or crown bands, and albicollis is from the Latin meaning white-throated. It is sometimes called Peabody Bird, especially by the New Englanders, with whom Peabody is an important traditional name, and they hear the birds say in its song “I—I Pea-body, Pea-body, Pea-body.” This rendering of its plaintive song is a caricature, yet the name clings to the bird even in other parts of the country. The reserved manner of its movements would hardly lead one to expect that a beautiful song could flow from its white throat. This song is so well defined that the notation may be written on the musical staff. Mr. Chapman says: “In September, when the hedgerows and woodland undergrowths begin to rustle with sparrows, juncos and towhees, I watch eagerly for the arrival of these welcome fall songsters.” We cannot forbear quoting the words of that great student of bird life, Audubon, who says of the White-Throat’s habit in autumn, “How it comes and how it departs are quite unknown to me. I can only say that, all of a sudden, the edges of the fields bordering on creeks or swampy places and overgrown with different species of vines, sumac bushes, briers and the taller kinds of grasses, appear covered with birds. They form groups, sometimes containing from thirty to fifty individuals, and live together in harmony. They are constantly moving up and down among these recesses, with frequent jerkings of the tail, and uttering a note common to the tribe. From the hedges and thickets they issue one by one, in quick succession, and ramble to the distance of eight or ten yards, hopping and scratching, in quest of small seeds, and preserving the utmost silence. When the least noise is heard or alarm given, and frequently, as I thought, without any alarm at all, they all fly back to their covert, pushing directly into the thickest part of it. A moment elapses, when they become reassured, and ascending to the highest branches and twigs open a little concert, which, although of short duration, is extremely sweet. There is much plaintive softness in their note, which I wish, kind reader, I could describe to you; but this is impossible, although it is yet ringing in my ears, as if I were in those very fields where I have so often listened to it with delight. No sooner is their music over than they return to the field, and thus continue alternately sallying forth and retreating during the greater part of the day. At the approach of night they utter a sharper note, consisting of a single twit, repeated in a smart succession by the whole group, and continuing until the first hooting of some owl frightens them into silence. Yet, often during fine nights I have heard the little creatures emit, here and there, a twit, as if to assure each other that all’s well.”

WHITE-THROATED SPARROW.
(Zonotrichia albicollis.)
About Life-size.

The nest, too, is a neat creation of small roots, coarse grass, bark and moss and lined with a bedding of fine grass and moss. It is usually placed on the ground in fields or open woods, where it is protected by the taller grasses. Sometimes, however, low bushes or the lower branches of trees are selected. So careful is the White-Throat in the constructing of its nest not to disturb the surrounding vegetation, and so neutral is the color of the material used, that one may hunt for a long time without finding it unless he luckily stumbles upon it.

A PLANT THAT MELTS ICE.

To say that a plant can melt ice is to assert a miracle seemingly too great for even Nature's powers to compass, but a traveler lately returned from the Alps has witnessed this wonderful phenomenon, while Grant Allen and other authorities confirm the fact that the Alpine Soldanella melts for its blossom a passage through the ice by power of its own internal heat.

The majority of tourists visit the Alps in August; therefore they miss a rare sight, that of a daring little shrub opening its fringed blue buds in the very middle of the snow sheet, and often showing its slender head above a layer of ice, in the most incredible fashion.

We may regard the Alps as unpeopled solitudes, but to Alpine plants they are a veritable world of competing life types.

Those only fitted for the struggle survive.

The botanists tell us that the Soldanella is heavily handicapped in the race. In the first place, it is obliged to eke out a livelihood in the mountain belt just below the snow line; further, it is a very low growing variety, and is quickly obscured and overtopped by the dense and rapid growth of its taller rivals; hence its anxiety to seize its one chance in life at the earliest possible moment.

To attain the end of its being, the perpetuation of its species, it must steal a march upon its companions, as it were, and show itself while they are still locked in sleep, and when its insect fertilizers, fresh from their cocoons, can see and visit it.

To accomplish its purpose it has made ample preparations.

All through the previous summer its round leaves, admirably fitted to their purpose, have been spread to the mountain sun and gathered in the fuel to be burned later on.

When winter arrives the leaves had grown thick in rich material and so leathery that no amount of snow could injure them.

The first warmth of spring melting the edges of the snow sheet sends the moisture trickling down to the Soldanella's roots. This, acting upon them as water upon malting barley, brings about germination.

The plant, absorbing the oxygen in the air under the ice and combining it with the fuel in its own substance, melts its way into the open air. A fragile flower forcing its way through a solid crust of ice. Literally, not metaphorically, a slow combustion store.

This novel feat is accomplished every season, yet comparatively few observers note it.

LOUISE JAMISON.

THE HUMMINGBIRDS.

Maxime miranda in minimus!

Minutest of the feathered kind,
Possessing every charm combined,
Nature, in forming thee, designed
That thou shouldst be,
A proof within how little space
She can comprise such perfect grace,
Rendering the lovely, fairy race
Beauty's epitome.

—*Charlotte Smith.*

The discovery of

"The rare little bird of the bower,
Bird of the musical wing,"

being coincident with that of the New World, the ancients were denied the exhilarating shock of delight that has been vouchsafed to their descendants when that

"——Quick feathered spangled shot,
Rapid as thought from spot to spot,
Showing the fairy humming-bird,"

and their writings lack the glamour of his "glossy, varying dyes;" for, according to Lesson, the first mention which is made of hummingbirds in the narratives of adventurers who proceeded to America, not with the design of studying its natural productions, but for the discovery of gold, dates from 1558.

Of the name hummingbird or hum-bird, Professor Newton says its earliest use, as yet discovered, is said to be by Thomas Morton in The New England Canaan, printed in 1632, while in 1646 Sir Thomas Browne wrote: "So have all Ages conceaved, and most are still ready to sweare, the Wren is the least of Birds, yet the discoveries of America, and even of our own Plantations, shewed us one farre lesse, that is the Hum-bird, not much exceeding a Beetle." Mr. Ridgway cites the case of Mr. Benjamin Buttivant, writing from Boston in 1697, who told of a hum-bird that he fed with honey, that was "A Prospect to many Comers."

"The earliest notice of the common Ruby-throat that I have been able to find," Mr. Ridgway continues, "is an extract from a letter written from Boston in New England, October 26, 1670, by John Winthrop, Esq., governor of Connecticut, to Francis Willoughby, Esq., and published in the philosophical Transactions." This letter reads as follows:

"I send you withal, a little Box, with a Curiosity in it, which perhaps will be counted a trifle, yet 'tis rarely to be met with, even here. It is the curiously contrived nest of the Humming-Bird, so called from the humming noise it maketh as it flies. 'Tis an exceeding little Bird, and only seen in Summer, and mostly in gardens, flying from flower, sucking Honey out of the flowers as the Bee doth; as it flieth not lighting on the flower, but hovering over it, sucking with its long Bill a sweet substance. There are in the same Nest two of that Bird's eggs. Whether they used to have more at once I know not. I never saw but one of these Nests before, and that was sent over formerly with some other Rarities, but the vessel miscarrying, you received them not."

Of the long bill with which it sucketh the sweet substance, the tongue is the essential feature, so far as sustenance is concerned; consisting of a long double cylinder, "like a double-barreled gun," Goodrich thought—a most convenient instrument for imbibing nectar—flattened and sometimes barbed at the end, for the capture of the minute insects that constitute the less æsthetic portion of their nutriment—for it has been many times demonstrated that, airy and fairy as they are (the size of the stomach not exceeding the globe of the eye, and scarcely a sixth part as large as the heart, which, in turn, is remarkably large, nearly the size of the cranium), they cannot live by ambrosia alone, nor yet by love, but must vary both with an occasional relish of aphides and infinitesimal spiders.

Of "that Bird's two eggs," Mr. Chapman says: "As far as known, all hummingbirds lay two white eggs—frail, pearly ellipses—that after ten days' incubation develop into a tangle of dark limbs and bodies, which no one could think of calling birds, much less winged gems."

It has been a matter of doubt to many whether hummingbirds ever rested at all or spent their lives in the air exclusively, but Mr. Gould states authoritatively: "Although many short intermissions of rest are taken during the day, the bird may be said to live in the air—an element in which it performs every kind of evolution with the utmost ease, frequently rising perpendicularly, flying backwards, pirouetting or dancing off, as it were."

It was the belief of the Duke of Argyle that no bird could fly backward, a theory that he stated with emphasis in his Reign of Law, but it has been proved that he reckoned without "the winglet of the fairy hummingbird," which seems to be the exception to prove a reigning law of Nature.

Montgomery makes of the whole Trochilidæ family this inspired explanation:

"Art thou a bird, a bee, or butterfly?
'Each and all three;—a bird
A bee collecting sweets from bloom to bloom,
A butterfly in brilliancy of plume.'"

The blooms from which he collects his sweets are of the tubular flowers almost exclusively, as a mark, possibly, of his appreciation of their invention for him and at his request, as told by Albert Bigelow Paine:

"The clover, said the humming-bird,
Was fashioned for the bee,
But ne'er a flower, as I have heard,
Was ever made for me.

A passing zephyr paused, and stirred
Some moonlit drops of dew
To earth; and for the humming-bird
The honeysuckle grew."

Of his manner of hanging before his tubular flowers Goodrich says: "He poises or suspends himself on wing for the space of two or three seconds so steadily that his wings become invisible and you can plainly discern the pupil of his eye, looking round with great quickness and circumspection. The glossy green of his back and the fire of his throat, dazzling in the sun, form altogether a most interesting appearance."

This appearance Alexander Wilson pictures thus:

"While richest roses though in crimson drest,
Spring from the splendors of his gorgeous breast.
What heavenly tints in mingling radiance fly!
Each rapid movement gives a different dye;
Like scales of burnished gold they dazzling show,
Now sink to shade, now like a furnace glow!"

It is little wonder that Buffon exclaimed, "Nature has loaded it with all the gifts of which she has only given other birds a share!" Yet Mr. Ridgway considers the Count de Buffon's laudation as excessive because the "absence of melodious voice is, as a rule, a conspicuous deficiency of the tribe"; and in 1693 Mr. Hammersley of Coventry stated, "God, in many of his creatures, is bountiful, but not lavish, for I did observe the hummingbirds for several years, and never heard them sing."

Goldsmith says that all travelers agree that they have a little interrupted chirrup, but Labat asserts that they have a most pleasing melancholly melody in their voices, though small and proportioned to the organs that produce it.

It is known that a few of the more robust species of Jamaica and Mexico warble a pigmy melody, and Mr. Gosse says that the Vervain hummingbird of Jamaica is the only one known to him that has a real song, warbling in a very weak but very sweet tone a continuous melody for ten minutes at a time.

But the poet Rogers apprehended something more than is perceptible to the scientific consciousness, for he exclaims in The Voyage of Columbus:

"—There quivering rise
Wings that reflect the glow of evening skies!
Half bird, half fly, the fairy king of flowers
Reigns there, and revels through the fragrant hours;
Gem full of life and joy and *song divine*!"

Could the compressed, intense, vehement little sprite be expanded to the dimensions of the ordinary folk of air, would the magnified musical and physical representation be as entrancing as are the fleeting glimpses of the fairy and the elusive hints of melody that so nearly escape us now? 68

For this electric spark, like an erratic meteorite of topaz and ruby and gold,

"As if inlaid
With brilliants from the mine, or made
Of tearless rainbows, such as span
Th' unclouded skies of Peristan,"

hovering between heaven and earth in a mist created by its own prismatic wings, might almost be believed an exemplification of light itself as scientifically defined, "a form of radiant energy," and it is the nearest approach to a disembodied spirit that lies within the range of mortal vision. So while it is believed that its song is but a feeble twittering, it may yet be as much musician as it is bird, and emit strains of melody too exquisite and finely drawn for human apprehension, and of which the notes that reach us are but the deeper tones of a delicate and etherial ariose.

JULIETTE A. OWEN.

EACH IN ITS OWN WAY.

There's never a rose in all the world
  But makes some green spray sweeter;
There's never a wind in all the sky
  But makes some bird-wing fleeter;
There's never a star but brings to heaven
  Some silver radiance tender;
And never a rosy cloud but helps
  To crown the sunset splendor;
No robin but may thrill some heart
  His dawnlight gladness voicing;
God gives us all some small, sweet way
  To set the world rejoicing.

—Selected.

PARULA WARBLER.
(Compsothlypis americana.)
Life-size.
FROM COL. CHI. ACAD. SCIENCES.

THE PARULA WARBLER.

(*Compsothlypis americana.*)

Hither the busy birds shall flutter,
With the light timber for their nests,
And, pausing from their labor, utter
The morning sunshine in their breasts.

—James Russell Lowell.

The Parula or Blue Yellow-backed Warbler, as it is sometimes called, is one of the smallest and daintiest representatives of the family of wood warblers. Like the other species of warblers it is one of the last spring migrants to reach its Northern summer home. Retiring and unobtrusive in its habits, it is to be admired for its “plain and modest beauty.” Though delicately colored, its plumage is not nearly so striking as that of many of the other species of the family. It enjoys the higher branches of its woodland retreat, and here it seeks its food. Graceful in all its motions, it flits from branch to branch; hanging by its feet, it peers under the leaves and along the twigs.

In the summer the Parula is a resident of Eastern North America, but in the winter it seeks the warmer climate of Florida and southward. While migrating it is well distributed over its range, and may frequently be seen flying from shrub to shrub. Like the other warblers its flights are short and most of the time it is hidden by the foliage. The longer flights are by night. The days are spent in seeking insects, upon which it feeds almost exclusively. This, the habit of all the warblers, explains the Parula’s sudden disappearance from a locality where it may have been common for a single day.

Near the end of May it retires to the swampy woodlands where the gray Spanish moss hangs pendant from the branches and shrubs. Here the Parula makes its nest, a globular or pencil home, usually in bunches of the festooned moss. The four or five white eggs are marked near the larger end with specks of light brown and lilac.

Its song is neither interesting nor striking, but is peculiarly in harmony with the voices of spring and as Mr. Chapman says: “When the cypresses are enveloped in a haze of lace-like blossoms and the woods are fragrant with the delicious odor of yellow jasmine, the dreamy softness of the air is voiced by the Parula’s drowsy song.”

Neltje Blanchan has most charmingly written about this dainty bird. She says: “A number of such airy, tiny beauties flitting about among the blossoms of the shrubbery on a bright May morning and swaying on the slenderest branches with their inimitable grace, is a sight that the memory should retain into old age. They seem the very embodiment of life, joy, beauty, grace; of everything lovely that birds by any possibility could be. Apparently they are wafted about the garden; they fly with no more effort than a dainty lifting of the wings, as if to catch the breeze that seems to lift them as it might a bunch of thistledown. They go through a great variety of charming posturings as they hunt for their food upon the blossoms and tender, fresh twigs, now creeping like a nuthatch along the bark and peering into the crevices, now gracefully swaying and balancing like a goldfinch upon a slender, pendant stem. One little sprite pauses in its hunt for insects to raise its pretty head and trill a short and wiry song.”

A DAINTY LOVER.

All animal life is wonderful and much of it is beautiful, but it seems to me there can be nothing prettier or more subtle in all the immense accumulation of the folk lore of human courtship and marriage than the following practice of a certain Mexican bird.

He belongs to a rarely beautiful species of the Paradise family.

To shield the privacy of his wooing and wedding he builds a dainty little cone-shaped hut, about which he contrives a marvelous little landscape garden.

First he makes a sward of green moss and beds and parterres of crimson berries, tiny bright flowers and gold and silver sand and grains. Here and there he puts a pearly pebble or tiny pink shell. And so long as his love making lasts he drags away and replaces each flower as it fades, keeping the little Eden tidy, gay and sweet for his tiny love.

This sounds like fiction, but is scientific fact.

Louise Jamison.

A BIRD NOTE.

Robin Feeding Young: Scene, the base of a large pine tree in the corner of a lawn; actors, a mother robin and two of her young.

I was much interested in their proceedings and watched them for some time. One of the young ones did not seem to understand matters very clearly and often failed to do what mother robin wished it to. The other one, however, was a very apt pupil, and did many bright things. Finally it began to gather food on its own account and succeeded in capturing several worms, small butterflies, etc. But it did not stop here; it remembered its nest mate, and, following the example of the mother bird, collected food and placed it in the mouth of the less active learner. A very good example of how closely parents are imitated, in the bird world, as well as in the human subject.

The above incident as witnessed and recorded in the writer’s note book, seem too good to be lost sight of, and I trust they may prove of interest to all.

Berton Mercer.

GOLDENROD.

As nature lifts her gates from week to week,
New beauties rise God’s wondrous power to speak;
And now, clad in her glory as of old,
The Goldenrod uplifts her crowns of gold.

John Wesley Waite.

BALLADE.

I found myself one day all, all alone,
For pastime in a field with blossoms strewn.

I do not think the world a field could show
With herbs of perfume so surpassing rare;
But when I passed beyond the green hedge-row,
A thousand flowers around me flourished fair,
White, pied and crimson, in the summer air;
Among the which I heard a sweet bird's tone.

I found myself one day all, all alone,
For pastime in a field with blossoms strewn.

Her song it was so tender and so clear
That all the world listened with love; then I
With stealthy feet a-tiptoe drawing near,
Her golden head and golden wings could spy,
Her plumes that flashed like rubies 'neath the sky,
Her crystal beak and throat and bosom's zone.

I found myself one day all, all alone,
For pastime in a field with blossoms strewn.

Fain would I snare her, smit with mighty love;
But arrow-like she soared, and through the air
Fled to her nest upon the boughs above;
Wherefore to follow her is all my care,
For haply I might lure her by some snare
Forth from the woodland wild where she is flown.

I found myself one day all, all alone,
For pastime in a field with blossoms strewn.

Yea, I might spread some net or woven wile;
But since of singing she doth take such pleasure,
Without or other art or other guile
I seek to win her with a tuneful measure;
Therefore in singing spend all my leisure,
To make by singing this sweet bird my own.

I found myself one day all, all alone,
For pastime in a field with blossoms strewn.

—Angelo Poliziano, (1454-1494.)

TOURMALINE.

Early in the eighteenth century some children of Holland, playing on a warm summer's day in a court yard with a few bright colored stones, noticed that these possessed a strange power when warmed by the heat of the sun. They attracted and held (just as a magnet attracts iron) ashes, straws and bits of paper. On reporting this strange discovery to their parents the latter, it is said, could give no explanation of the curious property, but a relic of their knowledge of it is left in the name of "aschentreckers" or "ash-drawers" which they gave the stones and by which they were known for a long time.

Such was the method of introduction to the civilized world of the mineral now known as Tourmaline, a mineral which in variety of color, composition and properties is one of the most interesting in Nature.

The lapidaries who had given the Dutch children the stones for playthings did not recognize them as different from the other gems in which they were accustomed to deal. So to the present day, although Tourmaline is considerably used in jewelry, it is rarely ever called by that name. The green varieties are often known as Brazilian Emerald, Chrysolite or Peridot, some varieties of blue as Brazilian Sapphire, others as Indicolite, the colorless as Achroite, and the red as Rubellite, Siberite, and even as Ruby.

It is only somewhat recently that these different stones have been recognized as being varieties of a single mineral species which is known by the name Tourmaline. This name comes from a Cingalese word (turamali) which was applied to the first Tourmaline gems sent from Ceylon to Holland.

At one time the name Schorl was chiefly applied to the species. This was before the means of distinguishing mineral species were as well understood as they are now, and a large number of minerals and even rocks were included under the name Schorl. One by one, however, they were distinguished by separate names until Schorl included only Tourmaline, and shortly afterward the name Schorl was dropped altogether.

In its opaque form, colored either black or brown, Tourmaline is a comparatively common mineral. It accompanies many so-called metamorphic rocks, i. e., rocks which have been changed by heat and pressure from their original

condition, and is also common in granite and other eruptive rocks. As a rock forming mineral it often occurs as long, slender prisms, frequently about the size of a darning needle and radiating in all directions. The only mineral for which it is likely to be mistaken in this form is Hornblende. It can be distinguished from this in the following manner: On fusing the powdered mineral with a mixture of bisulphate of potash and fluor spar (best done on a little loop of platinum wire) Tourmaline will color the flame green, while Hornblende will produce no coloration.

The black opaque crystals often reach a large size, as some are known to be four feet in length. Both black and brown Tourmaline are usually opaque, and hence have no value as gems. The Tourmalines available for gems are transparent and have a great variety of color.

The gem Tourmalines are to be found in only a few localities. They occur in Maine, Connecticut and California in our own country, and also in Brazil, Russia and Ceylon. The crystals are usually in the form of long, slender prisms. They often have the peculiarity of being differently colored in different portions. Thus a crystal may be green at one end and red at the other, and in cross section may show a blue center, then a colorless zone, then one of red and then one of green. Some of the crystals from Paris, Me., change from white at one termination to emerald green, then light green, then pink, and finally are colorless at the other termination. In some crystals again the red passes to blue, the blue to green and the green to black.

TOURMALINE.

Left Column:
- Green Tourmaline (Brazil.)
- Green Tourmaline (Haddam, Conn.)
- Cross Section of Green Tourmaline (Cal.)

Center Column:
- Red Tourmaline or Rubellite (Island of Elba.)
- Brown Tourmaline (Gouverneur, N. Y.)
- Red Tourmaline or Rubellite in Lepidolite (Cal.)

Right column:
- Black Tourmaline (Finland).

Exactly what produces these differences of color is not known. It is known that black Tourmaline has an excess of iron, the red and green an excess of sodium and lithium, and the yellow and brown an excess of magnesium in their composition. These same differences of composition characterize similar colors in portions of the same crystal as well as separate crystals. Hence the evidence is quite conclusive that the color in some way depends on the composition. Many transparent Tourmalines, while appearing of a uniform color when viewed in any one direction, exhibit different colors when viewed in different directions. Thus, one of the long, slender crystals may appear green when held lengthwise in front of the eye, but when looked at from the end appears brown. Again, some crystals appear perfectly transparent when viewed perpendicularly to the sides of the prism, but when viewed from the end are perfectly opaque. This may be true even when the thickness is less in the latter

direction. Both these properties are due to the arrangement of the molecules of Tourmaline, which is such as to make the power of absorbing light different in different directions.

The form of crystals of Tourmaline is usually that of a three-sided prism. The sides of the prism are usually marked by narrow parallel lines called striæ, and the prism may be more or less rounded by the addition of other planes.

If a doubly terminated crystal be examined carefully, it will be seen that the planes on the two ends are not alike, either in number or inclination. On one end there may be three planes, on the other six, or even twelve. If the planes on one end make a blunt termination, those on the other may make a sharply pointed one. Such a peculiarity of crystal form is possessed by but few minerals. Those possessing it are said to be hemimorphic, i. e., half formed. In such minerals it is evident that the forces of attraction by which the molecules were arranged differed in character at one end from those at the other. In other words, a separation of the molecular forces seems to have taken place, one kind going to one end and the other force to the opposite end. Now, it is a curious fact that most crystals which exhibit this peculiarity of form are also pyroelectric, i. e., become electric on heating. It was this development of electricity which caused the stones with which the Dutch children played, to pick up ashes, paper, etc., when the stones were warmed by the heat of the sun. Anyone can repeat their observation by gently heating crystals or even fragments of Tourmaline and applying them to bits of paper. The electrical attraction will often be found to be very strong, though it varies with different crystals. The fragments should not be overheated, the electricity being most strongly developed between 100 and 200 degrees Fahrenheit. A study of the kinds of electricity developed by the heat shows that positive electricity is produced at one end and negative at the other. Now, this exactly corresponds with what we have seen of the form of the crystal, and shows that the polar arrangement of the molecules producing different shapes at the two ends, also produces corresponding electrical properties. Crystal form, heat, electricity, and even light, are therefore seen to have intimate connection, and it may be that this interesting mineral will furnish us a means of learning more about these forces.

In composition Tourmaline is a complex silicate chiefly of aluminum and boron. Iron, magnesium, the alkalies, and water also enter in varying amounts into it. In fact, so complicated is its chemical nature that perhaps no other mineral has been so often analyzed or had its analyses so much discussed.

Ruskin, in his “Ethics of the Dust,” thus describes its composition: “A little of everything; there’s always flint and clay and magnesia in it; and the black is iron according to its fancy; and there’s boracic acid, if you know what that is, and if you don’t, I cannot tell you to-day, and it doesn’t signify; and there’s potash and soda, and, on the whole, the chemistry of it is more like a mediæval doctor’s prescription than the making of a respectable mineral.”

As to its hardness and specific gravity, Tourmaline may be said to be both harder and heavier than quartz, its hardness being 7-7.5 in the scale of hardness of which the diamond is 10. Its specific gravity is 2.98-3.20. These qualities fit it admirably for use as a gem. It is, however, quite brittle and even at times friable. Cracks therefore frequently cut across good crystals and spoil what would otherwise make a good gem. It is very common to find tourmalines in the rocks broken into a number of pieces and the fragments “mended” together with quartz or calcite. This has been true of the black Tourmaline shown in the accompanying plate. Scarcely any other mineral exhibits this change so often as Tourmaline, a result due probably to its brittleness and the character of the rock in which it occurs.

I have shown how one of the most remarkable properties of Tourmaline was discovered by children. It is also interesting to know that the locality of the finest Tourmalines in the world was discovered by two boys named Elijah L. Hamlin and Ezekiel Holmes. They were interested in the study of minerals and spent much of their leisure time searching for them. One day in the fall, having been out many hours hunting for new minerals, they were about to return home when a gleam of something green at the roots of a tree caught their eye. Eagerly bringing it to light, they found it to be a beautiful green Tourmaline. A fall of snow that night prevented their obtaining more of the crystals, but the following spring they returned and secured many fine gems. For many years thereafter the locality furnished gems of purest ray serene which have gone to adorn the coronets of kings and enriched the mineral cabinets of the world.

It is estimated that fifty thousand dollars’ worth of Tourmalines have been taken from this one locality. Auburn and Rumford, Me., are two other neighboring localities where good gems have been found. At Haddam Neck, Conn., fine transparent Tourmalines occur, generally green in color, and many of them of gem quality. They occur in a granite rock.

The red Tourmaline (Rubellite) from California, illustrated in the accompanying plate, is found in San Diego County of that State. The matrix in which it occurs is a lithia-bearing mica (lepidolite) of a delicate violet color. In this matrix the Tourmaline usually occurs in radiating masses. The rose color of the Tourmaline contrasting with the violet of the lepidolite makes an object which is quite a favorite with mineral fanciers, although the former is not sufficiently transparent to be used as a gem. At two other localities in the same State large transparent Tourmalines of varying colors have been found.

The Brazilian Tourmalines are chiefly green in color. They occur in connection with blue and white topaz. They are the source of the gem known as Brazilian Emerald, which has not, however, the value of the true emerald.

The Tourmalines from the island of Elba are generally red in color, transparent and well crystallized. They are, however, too small to use as gems.

The Ceylon Tourmalines occur in the gem gravels of that locality accompanying rubies, sapphires, etc., while those of Russia, chiefly red in color, come from the Ural Mountains, being found in company with amethyst, topaz,

beryl and other gems.

OLIVER CUMMINGS FARRINGTON.

THE STAR FISH.

One of the most common objects found along our New England sea coast is the star fish, called by the seamen "Five-fingered Jack." The fact of its being common does not at all imply that its habits are commonly known. The great difficulty of watching it in its native haunts has been a drawback to getting better acquainted with it, but when taken to an aquarium it has been found to be an exceedingly interesting little star. At low tide you may find hundreds of them clinging to the rocks, sea moss or on the sandy bottom, but they prefer deep water. Their color varies from a dark rich brown to a reddish, and often a chocolate shade, sometimes lighter; but no matter the shade, they are always attractive.

The upper side is slightly convex, rough and tuberculous; the under side is soft and contains all the vital and locomotory organs. Immediately upon being taken from the water the soft under parts seem to shrink away and nothing substantial remains but the upper surface. This is perforated with pores, through which the water enters to all parts of the body by channels. Very near the center is a small opening through which the water is admitted to a strong, rather elastic, tube, which is encircled by a series of rings. Now turn the star fish over and you can see that this tube opens into a ring about the mouth, while similar tubes stretch out to the arms. From these cross tubes little fibers extend, terminating in discs. These are the true organs of locomotion, and are called ambulacra. They move very slowly and are not at all clumsy, but have even been called graceful by some naturalists.

A portion of these ambulacra are made fast by suction while the rest of the body is drawn forward; then the first are relaxed and the process repeated, thus they travel in the deep waters.

It is quite evident that the five bright red eyes at the tip of each ray are of some use in helping them on their journeys; but just how much they can see is not quite known. When a large object appears before them they prepare to surmount it, often going up very steep sides and down again as easily as though on a level stretch, often standing on the tip of one ray and sometimes on the five, thus resembling a five-legged stool.

The heart, situated near the opening on the back, is supplied with a set of blood vessels. They also have respiratory organs and a nervous system, but, judging from the manner they endure vivisection, their nervous system must be of a very low order, for if they are broken in pieces the missing parts will soon grow again—in fact, they do not seem to be disturbed in the least no more than if it were a cast-off garment, and evidently go about as happy with the remaining rays as with the complete body, and, what is still more strange, the broken ray will grow a complete set of arms and a new body. This is one way of reproduction, so if you wish to kill a star fish don't break it in pieces. The only sure way of making an end to their lives is to drop them in fresh water, when they immediately die.

It is very interesting to watch them care for their eggs. These are kept in pouches at the base of the rays, and when emitted through an opening there provided, are actually brooded as a hen her chicks, by arching the central part of the body and bending the rays down, and if the eggs are scattered they take great pains to collect them again, often traveling long distances for them.

The star fish consumes a large amount of food; you would hardly think one stomach could care for so much, but each ray has an additional stomach, and all need food. Their favorite food is the whelk, a small black-shelled, snail-like mollusk. Indeed, they eat many varieties of the mollusk.

They are also very fond of oysters. You would be interested to watch the star fish as he slowly works his way along until directly over the oyster, then folds his five arms around it, holding it firmly in place, then pushing out his stomach, through his mouth, he wraps it around the unfortunate oyster, and by the power of suction the oyster is drawn from the shell and digested and the shell cast away. You can easily see what a nuisance they must be in an oyster bed.

They are known as the opossum of the sea, as they often appear to be quite dead when they are very much alive. If you wish to be sure, put him on his back, and if alive you will soon see a number of semitransparent globular objects beginning to move, reaching this way and that. These are the ambulacra seeking to regain their normal position. If you see no motion, you may safely conclude that he is an extinguished star.

REST H. METCALF.

IN THE MEADOW.

A butterfly with spangles gay,
  Met a bumble bee, one day,
Where the sunshine warmly lay
  Turning clover into hay.

"Hark!" said lovely Shining Wings,

“Hear how loud that blackbird sings!
Don’t you think the summer brings
Just the brightest, sweetest things?

“See the color of the sky;
See the clouds that sail so high;
See the milkweed floating by”—
Said the dainty butterfly.

“Smell the clover blossoms there,
Scenting all the summer air;
Nothing half so sweet or fair,
As this meadow, anywhere!”

Bumble jerked his little head,
Then he rather crossly said:
“Well, I like the clover red,
Not for perfume, but for bread!

“All the world knows that a bee
Much too busy is to see
Beauty merely. All that he
Cares for is utility.”

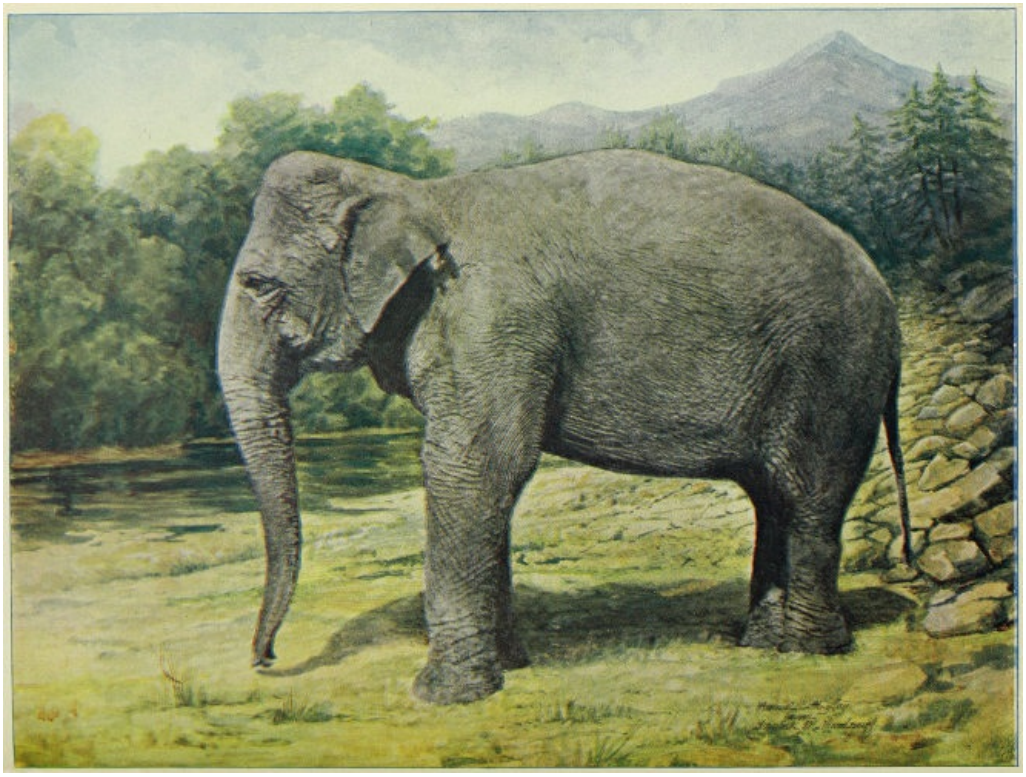
Shining Wings then made reply:
“Though I’m but a butterfly,
Beauty’s faithful lover I,
And without it fain to die.

“Life itself is naught, poor bee,
If it’s but utility;
Sure am I ’twas meant that we
Should the beauty, also, see;

“Else there were no summer sky,
Nor the clouds to sail on high;
Else no milkweed floating by,
Nor spangles for the butterfly!”

Angry Bumble flew away,
Leaving Shining Wings to stay
Where the sunshine warmly lay,
Turning clover into hay.

Sarah E. Sprague.



INDIAN OR ASIATIC ELEPHANT.
(Elephas asiaticus.)

THE INDIAN ELEPHANT.

(*Elephas indicus.*)

The Indian Elephant (*Elephas indicus*) inhabits the wooded parts of Southern Asia from the Himalayas to the Indian Ocean, and is found throughout Burmah, Siam and the Malay Peninsula. It differs from the African Elephant in having much smaller ears, a concave instead of convex forehead, smaller tusks, and in the possession of a finger on the end of the proboscis which, working against a tubercle on the lower part of the trunk, serves many of the purposes of the human hand.

The proboscis, which is an extension and enlargement of the nose and upper lip, is composed of as many as forty thousand interlacing muscles, and is capable of the most delicate and varied manipulation. At times it is used to strip twigs and leaves from overhanging trees, or again to uproot bamboo shoots or to pluck grass and plants from the ground, carrying all to the ever-grinding jaws behind. By sucking it full of water the Elephant may give himself a shower bath or squirt water into his mouth or even over people who offend him.

The presence of the trunk and tusks has greatly modified the cranium of the Elephant. Although a very intelligent animal, his brain is relatively small in proportion to his immense size. The great, rounded humps which crown an Elephant's head are composed of bony air cells, and their function is to provide surface for the supporting muscles of the trunk. So thick are these bony processes that they will stop a rifle ball; and on the other hand Elephants have been shot through the skull without the least injury to the brain.

The tusks, which are often lacking in Asiatic Elephants, especially in the females, are the incisors of the upper jaw, grown straight out, and serve primarily as weapons, although in domesticated animals they are used to dig and lift and to carry heavy burdens. Besides these teeth the Elephant has four large molars, two in each jaw, and he is able to chew from four to eight hundred pounds of green fodder a day with them. In a wild state the Elephants wander about in bands through the forests, following their leader from feeding grounds to water, and concern themselves largely with eating and drinking and escaping from their enemies. The young weigh about two hundred pounds at birth, and attain to over eight thousand pounds at thirty years, when they have reached maturity. At sixty an Elephant is counted in his prime, and many live to be a hundred or even a hundred and fifty years old. Eleven feet is the extreme height of the Asiatic Elephant. His specific gravity is so great that in swimming rivers his whole body disappears below the surface; but this gives him no trouble, as he breathes by thrusting the tip of his trunk above the water and can surge up enough to get one eye out when he wishes to see where he is going.

The eyes are small and, probably on account of living in the forest so much, they are not very sharp-sighted. This defect is counterbalanced by very acute hearing and sense of smell. In browsing the Elephant is probably guided altogether by touch and his sense of smell; and in a dark forest even very sharp eyes are of little value either in selecting food or detecting enemies, especially in an animal with so short and heavy a neck.

The feet of an Elephant are great elastic cushions with which he passes noiselessly through the jungles. When he chooses to stand still it is almost impossible to distinguish his brown skin from the foliage with which he is surrounded. But an animal as large and strong as the Elephant does not need to conceal himself, except from man, his great enemy, and when a troop of Elephants wish to pass from one place to another they often charge through the jungles and forest, smashing down trees and vines and leaving a broad trail behind them. When

disturbed or wounded by hunters they rush furiously through the thickets after their tormentors, and if they fail to catch and crush them in the first charge it has often happened that Elephants have returned and smelled them out as a dog scents a rabbit.

On account of the slow growth of young Elephants it has been found more satisfactory in India to catch wild Elephants than to breed them in captivity and wait fifteen years for the young to reach maturity and usefulness. The plan usually pursued is to build a huge corral in a tract of forest where wild Elephants roam, usually across an Elephant path. Where the path enters the corral a heavy gate is made and suspended over the way, so that it can be instantly dropped and fastened. Then, when a herd of wild Elephants wanders near enough to the trap on the gate side an army of native beaters is hastily gathered and the troop is surrounded on three sides. Each beater is provided with a tom-tom or torch, and in the confusion of shouting and torch-waving the whole herd is driven into the enclosure. At first they charge the stockade wildly, and the natives rush from side to side, resisting their attacks with fire and uproar. When at last they stand huddled together in the middle of the enclosure tame Elephants are driven in and allowed to mix freely with the wild ones. Cautiously they single out an Elephant, surround him and hold him in place, while men called noosers slip quietly down from the backs of the tame Elephants and fasten strong, soft ropes about his feet, after which he is marched out of the corral between two Elephants and tamed to work as they work, carrying heavy loads, dragging and piling timber, or perhaps marching in the splendid processions of Eastern kings.

DANE COOLIDGE.

THE WILD CLEMATIS.

Brave Clematis, through sunny days and long,
I watched thee toil to reach a leafy height,
Proud of thy kirtle green, and bloom-hood white;

And now when winds are riotous and strong,
Thou flauntest silken plumes sere leaves among,
To lead my glances from the Frost-King's blight
And as of old my longing eyes delight,
Thou, fairest climber of the rustic throng;
And I take courage by thy bravery,
My much-plumed friend of tangled copse and vale,
That fain would hide the mars of autumn's hour,
Henceforth I strive that others only see
My higher self as outward graces fail,
And see that self through love's ennobling power.

Jenny Terrill Ruprecht.

TOPSY.

Ethel Tyler has a tame crow for a pet. It is so black and such a mischievous creature that Ethel named her Topsy.

Topsy was quite small when given to Ethel, and she has learned to say a number of words.

There is a large orchard back of the house, and Topsy seems to think this her special playground. Here she can play about and "caw" to her heart's content.

She loves to hide among the branches of a tree, then call, "Ethel, Ethel," expecting Ethel to come and hunt for her.

Topsy is very amusing, for there is no end to her tricks and pranks, but she can also be very troublesome if she is so disposed.

Her greatest fault is that of stealing. Small articles, as keys, thimbles, spools of thread and such things have to be kept where she cannot get at them or they will be missing.

Her eyes are quick and she is so sly that she generally gets away with the things without being caught.

When articles are missed, we know whom to blame, but it is quite another thing to find them, for she seldom uses a hiding place after it has once been discovered and her plunder removed.

There is one member of the Tyler family that has not a high opinion of Topsy, and that is Tony, Ethel's cat.

Topsy does her part towards making the poor cat's life miserable, and I guess Tony thinks she is quite successful.

She tips over his saucer of milk, pecks at his tail, swoops down upon him when he is eating, seizes his meat and flies to a place of safety before Tony realizes that he has been robbed. Topsy then proceeds to eat her booty, chattering to herself as though she had done a brave deed.

Tony stands in fear of Topsy, and she knows it, and is not slow in taking advantage of the knowledge whenever an opportunity presents itself.

When Topsy calls, "Tony, Tony," the cat lengthens the distance between himself and the artful crow, for he knows by experience that she only wants the tuft of fur at the tip of his tail or a piece of the rim of his ear.

There is no trouble about feeding Topsy. As long as she has plenty to eat it does not matter what the food might be and she never stops to inquire whether it is fresh or not.

She is very fond of fish, and it is amusing to watch her when a fish cart comes along.

Mrs. Tyler patronizes a certain man that sells fish, and he stops in front of the house and blows his horn so that she will know he is there. Topsy has learned to associate the blast from the horn with "fish," and the minute she hears a horn blown she starts for the street.

She always receives a piece of fish if it is Mrs. Tyler's fish monger that is passing, but it often happens that it is a stranger going by and then Topsy follows the cart down the street to see if he will not throw her a piece of fish. If he does not, she comes back chattering angrily at being cheated out of so enjoyable a meal.

Ethel will call, "Topsy, Topsy," and the crow will come hopping to her. "Shake hands," and Topsy will raise one of her black feet and put it in Ethel's hand for her to shake.

When Topsy wishes to go into the house she stands on the door step and calls, "Mamma, Papa or Ethel" until some one comes and lets her in.

She has many opportunities to leave the place and shift for herself, but she never goes far from the house and seems to prefer making her home with the Tyler family.

Martha R. Fitch.

THE WALRUS.

(*Trichechus rosmarus.*)

The Walrus (*Trichechus rosmarus*) is a very fat, clumsy brute, much uglier than his picture, with a coarse, oily skin all wrinkled and scarred; long, protruding tusks; bristly whiskers and scuffling flippers that barely serve to move his bulky body over the land. In the water he is more at home, and though it does not require a high degree of strength and skill to dig clams, that being his daily occupation, yet he is able to keep very fat on the fruits of his industry and has much leisure to swim about or doze on ice floes and sea beaches.

It is only in the arctic regions that Walrus are found. Before the attacks of whalers and ivory hunters they were found as far south as Nova Scotia and the Gulf of St. Lawrence, but now they have retreated as far as possible into the frozen north, living in limited numbers about Hudson's Bay, Davis Straits and Greenland and in Spitzbergen and Northern Europe. In the northern Pacific before the slaughter began the Walrus swarmed by thousands in the broad, shallow bays from the Alaskan Peninsula to Point Barrow, where the ice never melts.

The food of the Walrus consists of mollusks and crustaceans, which he digs from the muddy bottom with his long tusks, and the roots and stalks of sea-weed. He crushes the clams, shells and all, and swallows the mass, leaving digestion to proceed as it may. The stomach of a Walrus killed in Bering Sea by Mr. Henry W. Elliott contained more than a bushel of crushed clams in their shells, with enough other food to make half a barrel.

It is principally for its ivory tusks and the accumulated fat which comes from heavy eating that the Walrus is now being exterminated by whalers and hunters. To the Eskimo the Walrus means life itself. He eats the flesh, burns the fat for fuel and light, makes his boats, houses, harness and harpoon lines from the hide and trades what ivory he has not made into implements for the guns and whisky so acceptable to primitive man. The extermination of the Walrus will probably mean the extermination of the Eskimos, or at least an entire change in their habits of life.

Although a very fierce looking animal, the Walrus is reputed to be peaceful and inoffensive except when attacked in the water. At such times he has been known to hook his tusks over the edge of the boat and swamp it or even to call in his friends by bull-like roars and smash the boat to pieces. Besides man, his one enemy is the polar bear, which creeps upon him as he sleeps and worries him to death. As the Walrus' skin is anywhere from half an inch to two inches thick and padded out by an average of six inches of fat, it is almost impossible to reach a vital place even with long teeth and bear claws, and the Walrus is often able to flounder into the deep water and escape by remaining under water until the bear has to come up for breath.

One of the favorite amusements of the Walrus is to float in the water with his hind flippers hung down and his nose comfortably above the wash and either fall asleep or indulge in deep roarings which are said to sound like something between the mooing of a cow and the baying of a mastiff and which often serve, like whistling buoys, to warn sailors from rocks and shoals.

The young are born in the spring, and generally on the ice floes, but being born fat the ice floes are probably as warm to them as is a nest to a little mouse. The mothers show great affection for their young, and will not abandon them in danger, even allowing themselves to be speared while protecting their offspring. As the Walrus are social by nature, wandering about in great herds, and as they also show a marked sympathy for each other's misfortunes, it is very dangerous to wound one in the water lest the whole herd join in a common defense.

WALRUS.
(Trichechus rosmarus.)

An adult male Walrus measures about twelve feet from the end of his nose to that of his very short tail, or fourteen feet to the end of his hind flippers, and weighs something over a ton. His girth is as great as his length, in fact, it has been often observed that his great circumference and too-loose skin seem rather a source of annoyance than otherwise to him, especially when he tries to land on a sandy beach. Even with the wash of the breakers he is rarely able to get beyond the water line, except as the tide goes down and leaves him, dry perhaps, but yet at the mercy of men and polar bears. 89

DANE COOLIDGE.

TOUCHING INCIDENTS ABOUT PIGEONS.

The homing pigeon has proved that locality is a faculty fully developed in the bird's little brain, but I heard, the other day, an instance of memory in the species that was most touching. A lady living in the top story of a Boston skyscraper had been in the habit of feeding the pigeons and sparrows who flew to the little balcony before her window, and had succeeded in taming some of her pensioners, one or two pigeons even eating out of her hand. One day, while passing along Park street, this lady was surprised to see a pigeon flutter away from some companions strutting in the middle of the road, and come upon the sidewalk, where it almost tripped her up in its efforts to attract her attention. It fluttered around her, evincing every sign of pleasure and recognition, and when she called it by name the little creature fairly flew at her! Now, in the midst of all that passing throng the pigeon knew its benefactor, who, with tears in her eyes, says its recognition gave her more joy than if the queen had saluted her. Under the circumstances, it was to her great regret that she had no crumbs to give him then and there. But who ever dreamed of being accosted in the street by a pigeon?

Our attention has been called by a traveling friend to an incident which occurred recently in the family of G. F. Marsh, a member of the Pacific Coast Pigeon Society. It certainly proved to him, and to all his friends in that region, in a most impressive manner the valuable services which may sometimes be rendered by the carrier pigeon, and probably explains some of his enthusiasm in that direction. His little baby boy was taken suddenly sick with most alarming symptoms of diphtheria.

The mother, watching by the bedside of the little one, dispatched a message tied on a carrier pigeon to her husband at his store on Market street, San Francisco. In the message she wrote the nature of the child's alarming illness, and made an urgent appeal for medicine to save its life. The bird was started from the home of the family near the Cliff House, five miles from Mr. Marsh's store.

The bird flew swiftly to the store, where Mr. Marsh received it. He read the message, called a doctor, explained the child's symptoms as his wife had detailed them in her message, and received the proper medicine. Then tying the little vial containing the precious restorative to the tail of the pigeon, he let it go.

The pigeon sped away swiftly through the air straight for the Cliff. It made the distance, five miles, in ten minutes, a distance which would have required the doctor three-quarters of an hour to cover.

In twenty minutes from the time the mother's message was sent to her husband the baby was taking the medicine.

Naturally enough Mr. Marsh is partial to pigeons, for he considers that he owes his baby's life to one.

George Bancroft Griffith.

ON THE SAN JOAQUIN.

It was in the latter part of the month of March that we started out from Fresno for a day's outing on the San Joaquin river, hunting for hawk and owl eggs. The day was bright and warm, and we keenly enjoyed the ride of nine miles across the plains. Out past the old, deserted Holland Colony, where stumps of vines showed that the settlers had once made an honest attempt to win their daily bread out of the hard pan. The last half of the way lay across the hog-wallow country, that peculiar effect which has puzzled many scientists, but which all attribute to the action of water in long past ages. The rolling motion of rising over and descending these mounds was like the riding of a small boat over the waves of the sea. Here and there a burrow in the top of one of the mounds, the domicile of the frisky ground-squirrel or the billy owl, gave the landscape the appearance of a dish of mush cooking, with the air bubbles swelling up, and some bursting, leaving the little holes. On across canals, past a wheat country, and then the virginal hog-wallow lands that no plowshare has ever touched, covered with a short green growth which gives nourishment to bands of sheep, dirty, and with numerous lambkins, guarded by a few sagacious shepherd dogs and lonely, and equally dirty, bearded Mexican herders.

The mounds grow higher and the hollows deeper until we wonder if they stretch on forever and if we are lost among them, when all at once we come out right on the top of a high bluff overlooking the San Joaquin. The unexpectedness is quite startling. One could not possibly have suspected a moment before that we were within miles of a great river bed more than a mile wide, with steep bluffs more than 300 feet high on either side and a swift river sweeping down its channel in the center, but here we were right on the edge of it. We can look down almost perpendicularly and see, three or four hundred feet below us, great green meadows stretching to the north and south and to the trees and thickets that edge the river. The river from this distance and height seems but a thread in its once vast bed. What a sight—what a power it must have been when once it filled all this vast bed, which often is more than a mile across from bluff to bluff. On the further side a few trees grow right on the edge of the water, and then the bluff rises abruptly even higher than on our side. Buzzards and hawks are sweeping around us in the air, and dark spots in the tops of far-off trees betoken the presence of the objects of our search, the nests of the hawks. We begin the descent, which at first seems extremely hazardous, and even on further trial sufficiently steep to make walking down more of a pleasure than riding, as we find. The road or path winds around and around, as necessarily it must unless one would go head-first to the bottom. It is narrow and steep and the ruts deeply worn in places by the action of water. About half way down we come upon what was once a canal, and we can see the level ridge of its embankment stretching away above and below us along the side of the bluff, as it curves in and out. What a vast undertaking it must have been to build this great waterway along the face of the bluff. As we near the bottom clumps of elderberry and scraggly greasewood appear, and we come upon two little white eggs of the dove, laid in a hollow in the ground—an early bird surely.

At last we are safely down in the valley and across the meadow, which is one vast bed of poppies, a field of the cloth of gold. Then we come down among the huge cottonwoods and river oaks that line the river bank and unharness our horse and tie him where the grazing is good and then start on our search. We first make our way down to the river's edge and, lying flat on the sand and rocks, drink to our content of the cool water fresh from the snow of the Sierras. The river is about five hundred feet wide and varies from two hundred to a thousand at this point. It is not high now, for the spring floods come later, with the melting of the snow, and in its deepest part is not probably over eight or ten feet, but it is swift—terribly swift. It is a good swimmer that can hold his own with the current for five minutes, and in the swiftest part it is impossible for a man to make any headway. The bottom is of shifting sand and the channel is ever changing. It is a deceitful and treacherous river, though laughing and sparkling in the sun to-day. It has taken value for value for all the gold it has given up. Here and there in the deep places under the shadow of the bank we can see catfish and big carp moving lazily about. The catfish and a fish known as the river trout can be caught with a hook and line, but the carp never touches bait, but there is considerable sport in spearing them.

We pass up the stream with our eyes directed at the tree tops, but now and then at the ever-changing aspect of the river, taking in all the beauties of nature and the curious formation of the steep sides of the bluff. The face of the bluff represents excellently the different geological layers of soil and stone, here chalky, there slaty, and here gaudily daubed with all the brilliant hues of a clay formation. The cottonwood and the willows are just beginning to show green. Now and then we come upon a nest in the cottonwood trees, far out over the water. Sometimes it is an old one, but often we are convinced otherwise by the sudden departure of a screaming hawk as we throw a dead limb in that direction. Then comes the hard climb, the toilsome shin to reach the first limb, with knees and elbows hugging tightly the smooth, slippery bark, taking advantage of every little knot and twig, and then, the limb gained, up from limb to branch, up into the air, into the cooling breeze, feeling for the instant the life of the

birds, up into the swaying lesser branches, up to the tip-top, where the big, rough nest of sticks is firmly placed, the nether end of a jackrabbit carcass half hanging over the edge, and numerous ears, paws and small bones along the rim, and inside four handsome, large, speckled brown eggs of the squirrel hawk. Into our little sack they go, regardless of the remonstrances of the angry hawk, which is circling around overhead, and with the sack firmly held in our teeth we descend to the ground, pack the eggs into our case and go on. Sometimes in the distance huge clumps of mistletoe on the river oaks look like nests, but nearer approach shows the difference. Mistletoe is very plentiful here. What a place for a party of girls and boys to spend Christmas. Now we come upon a bend in the river where the ground is all strewed with driftwood left by some winter freshet. There is enough to keep many families in fuel for a long time, but it lies there untouched, inaccessible, to be carried on at the next flood—on to where? Who knows the ending of the travels of a piece of driftwood that starts from the mills far up in the Sierras? The wood is washed smooth and round and into every conceivable shape. At places we pass through thickets of rose bushes, blackberry vines, and elderberry, which grow profusely all along the river. In a many-limbed willow tree, an easy climb and not a high one, we find the nest of a horned owl, with five round white eggs within. The old bird stayed on the nest until we were nearly to it and then, with a peculiar cry, scrambled over the side and fell to the ground as if shot, then arose to a neighboring branch and sat there, uttering a cry like a cat and swelling out her feathers angrily, but all in vain. Further up the river ran in close to the bluff on our side, and as the traveling was rather difficult along land that lay at an angle of only five or ten degrees from the vertical, we scrambled to the top, at times slipping, and often pulling ourselves up by the weeds, so steep it was. A misstep would have sent us rolling into the river below. In the face of the bluff squirrels had their homes, and we found the dwellings therein of two handsome big snowy owls, but they had wisely chosen them in places where the five degrees of slope was in under us and a crumbling of the sand meant a straight drop of fifty or sixty feet, so we left them with “requiescat in pace.” For a quarter of a mile we followed along the top of the bluff, watching the river and the tree tops below us. Flocks of ducks were flying up and down the river, quacking vigorously. Now and then a big, ugly “shack” rose from a stump and flapped across the river. Isles big and little and middlesized were dotted in the stream, all heavily covered with underbrush, an excellent refuge for the ducks in their nesting season a little later on. A big white pelican sat on a log watching its victims in the water. The river curves and bends and doubles on itself, and never goes straight for forty yards at a time. At a bend we came upon a scene that delighted our ornithological eyes. One hundred feet below us, in the tops of a clump of cottonwoods, was a heronry. Dozens of big, basket-like nests blackened the tree tops, and perched on the very topmost branches were dozens of long-legged, crooked-necked, great blue herons. As we came upon them they started up, flapping their wings, stretching out their necks and pulling in their legs behind them. Uttering cries like those of the seagulls, they flapped off and lit away upon the plains, but within sight of us, and seemed to be holding a consultation. We could see into the most of the nests, and they were all empty. It was a little too early for the birds to begin nesting, and they were evidently mating and perhaps deciding who should have first choice. Some nests looked like old family residences of many generations, for they had several stories and additions, porticos and dormer windows, so to speak, in abundance.

We passed on, and when the valley widened out again we descended and sat down under the oaks to eat our luncheon. It soon disappeared, the last morsel, and we were on our way again. At long intervals farm houses appeared on the edge of the bluff, and in the river below one of them, on the opposite side of the stream from us, was a curious old water-wheel on a flatboat securely moored to the trees on the bank, and which laboriously and noisily jerked water up through a pipe to the bluff above. The meadows along the river are the pasturage of big herds of horses and cattle, and one is lucky if one’s perambulations are not interrupted by some inhospitable bull. As we ascend the river it grows swifter and more rocky and the top of the bluff rolls higher and higher and the hills appear in the distance. When we came to the first of these low hills we climbed the bluff and ascended it. It was a peculiar formation of stone resembling sand in softness or sand resembling stone in hardness, we could hardly determine which. It was seamed and ribbed, projecting cliff-like into the air, with boulders lying about and with caverns and precipitous sides. As we scaled to the top of it we scared away a number of turkey buzzards that had been watching our ascent, and it was evidently their nesting place, as we discovered traces of old nests and a good many bones of the hapless denizens of the plains. We started several of the big boulders at the edge rolling and plunging down, and, though most of them broke up in their downward career, they stopped only when, after a great plunge, they settled in the bed of the river. Sometimes as they thundered down they would startle a rabbit from his repose, and off he would scamper in great affright. But it was getting near sundown and we were miles from our wagon, and even when we reached that we would be ten miles from home, so we set out on our return with spirits not lacking, but appetites sorely pressing. The miles of climbing up hill and down hill in the pure air had done us more good than months in a gymnasium, and when, long after dark, we reached our home in Fresno town, what a supper we did eat.

Charles Elmer Jenney.

BENGAL TIGER.
(Felis tigris.)

THE BENGAL TIGER.

(*Felis tigris.*)

The Bengal Tiger (*Felis tigris*) inhabits the hotter regions of Southern Asia, but the species is found with certain color variations throughout the lower levels of all Asia from Siberia to the River Euphrates and as far south as Sumatra and Java. Next to the lion it is the strongest and most ferocious of carnivorous animals, and, on account of the heavily wooded country in which it lives being densely populated, the Tiger is even more destructive of human life. In Bengal alone three hundred and forty-seven persons were reported killed by Tigers in a single year, and this in spite of the best efforts of the government and people to mitigate the evil by poisoning, hunting and trapping.

Mr. William T. Hornaday, who hunted Tigers on his collecting trip in India, says in his book, “Two Years in the Jungle,” that only a limited number of Tigers, and those of the old and decrepit sort, ever kill men at all, but once they have tasted human flesh they continue to kill until some hunter reciprocates and brings peace again to the ravaged district. According to their habits in procuring food the people of India divide Tigers into three classes—the “game killer,” the “cattle lifter” and the “man killer.” The “game killer” lives in the dense forest, catches his own deer and wild hogs and is very self-respecting and honest, for a Tiger. The “cattle lifter” is a fat and lazy cat, who hangs around villages and kills a steer from the herds whenever he is hungry. Dragging away the carcass he returns to it until it is all eaten, when he kills again, while the timid and defenseless natives flee in terror or hover about, unable to protect their herds. It is after these fat “cattle lifters” get old and mangy that they turn “man eater,” finding it easier to catch the herdsman than to drag off a bullock. Then after the first taste they haunt the paths and villages, pouncing upon men, women and children until there is no safety, except within doors, until some hunter has slain the foe.

Among the English of India Tiger hunting is a favorite sport. A most picturesque and safe way is to mount on an Elephant and be driven about through the country beating up the Tigers from cover and shooting them with the huge four-bore rifles which the English sportsmen affect. The principal danger lies in the stampeding of the elephant or the attack of a wounded Tiger on the elephant himself. The more common way is to build a shooting platform by some water hole or carcass and lie in wait for the Tiger, or, better yet, have a small army of beaters drive him from his lair and past the spot where the platform has been erected.

Sometimes men who like to take chances follow the Tigers on foot and shoot them where they find them, which is often coming straight through the air. A glance at the illustration will show what powerful forearms and shoulders the tiger has. One blow from that paw will break a bullock’s back, and a wounded Tiger is more dangerous than one unhurt. Unless the brain is reached or the spinal column broken a Tiger will not stop in his charge, and the most active man can hardly avoid his clutches.

An adult Bengal Tiger measures ten feet from tip to tip, stands over three and a half feet in height and weighs five hundred pounds. If we consider the strength, activity and ferocity of the ordinary house cat and then think of it multiplied a hundred times we can form some conception of the Bengal Tiger as he lies down by his water hole and wonders what he will kill next.

In color the Tiger matches the foliage of his native jungles. When lying in grass or even upon the ground the dark markings and rufous fawn colors of his body blend almost perfectly with his surroundings, and it has often happened that his presence was only guessed by the thrashing of his nervous tail in the grass as he gathered for a leap. Grassy plains and swamps are his favorite abiding places, and he does not hesitate to swim from island to island in search of prey. Curiously, again, for a cat, the Tiger does not climb trees except when forced to do so by floods.

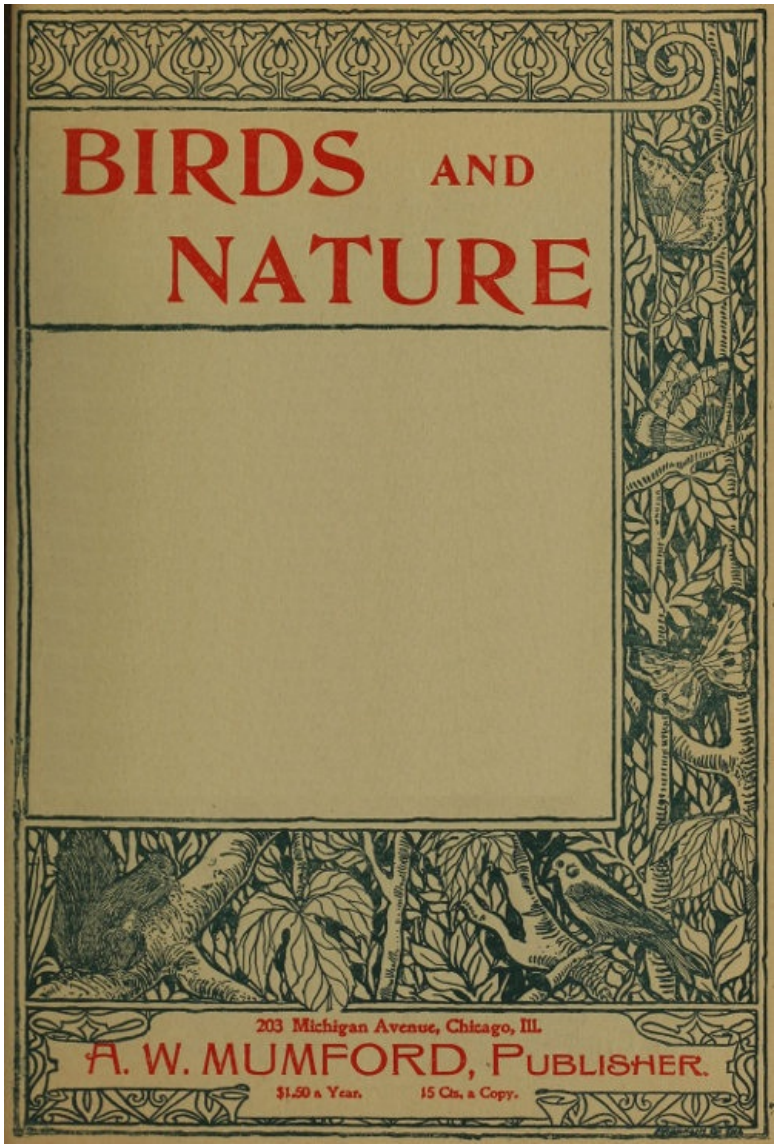
The Tigress gives birth to from two to six cubs and is most affectionate toward them and aggressive toward intruders while she has them in charge. As soon as they can eat she begins to kill for them, and teaches them by a thousand cruel tricks to imitate her example. Not until they are nearly grown and able to kill for themselves does she separate herself and leave them to shift for themselves. Young Tigers are far more destructive than old, killing three or four cattle and eating one, as if they wished to learn their duties in life well or were mad with the rage to kill.

Dane Coolidge.

AD VESPERAM.

With bars of beaten brass and amethyst,
Evening hath shut the crimson sun within
A pasturage, where fleecy cloud-flocks win
Uncertain nurture from pelagian mist,
The singing of a feathered rhapsodist
Sounds from the darkening wood: O Night begin!
Bright pageant of the stars, come, usher in
The hour when Peace, a potent exorcist,
Casts out the turbulence and fret of day.
Now as the last faint bird notes die away,
And sunset’s glory fades from out the west,
Cometh an angel and his name is Rest.
On white dream wings I soar away with him,
Farewell, O Earth; farewell, O twilight dim!

Mary Grant O’Sheridan.



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- Reconstructed the Table of Contents (originally on each issue's cover).
- Created an eBook cover from elements within the issue.
- Retained copyright notice on the original book (this eBook is public-domain in the country of publication.)
- Silently corrected a few palpable typos.

*** END OF THE PROJECT GUTENBERG EBOOK BIRDS AND NATURE, VOL 10 NO. 2 [SEPTEMBER 1901] ***

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