Title: Birds and Nature, Vol. 08, No. 5, December 1900

Author: Various

Release date: March 30, 2015 [EBook #48606]

Language: English

Credits: Produced by Chris Curnow, Joseph Cooper, Christian Boissonnas, The Internet Archive for some images and the Online Distributed Proofreading Team at http://www.pgdp.net

BIRDS AND NATURE

ILLUSTRATED BY COLOR PHOTOGRAPHY.

VOL. VIII. DECEMBER, 1900. NO. 5.

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DECEMBER.

The lakes of ice gleam bluer than the lakes
Of water 'neath the summer sunshine gleamed;
Far fairer than when placidly it streamed,
The brook its frozen architecture makes,
And under bridges white its swift way takes.
Snow comes and goes as messenger who dreamed
Might linger on the road; or one who deemed
His message hostile, gently, for their sakes
Who listened, might reveal it by degrees.
We gird against the cold of winter wind
Our loins now with mighty bands of sleep,
In longest, darkest nights take rest and ease,
And every shortening day, as shadows creep
O'er the brief noontide, fresh surprises find.
—Helen Hunt Jackson

Best of all, old King December,
Laughs beside the burning ember,
With his children round his knees,
And a look of jovial ease.
He is crowned Lord of Misrule—
Here's his Queen, and there's his fool.
He is wreathed with frosty green,
And ever the gay song between
"Wassail!" shouts he, "health to all!"
And re-echoes the old hall.—
Kind December!
—Walter Thornbury, "The Twelve Brothers."

THE WESTERN HORNED OWL.

(*Bubo virginianus subarcticus.*)

> "Bird of the silent wing and expansive eye, grimalkin in feathers, feline, mousing, haunting ruins and towers, and mocking the midnight stillness with thy uncanny cry. "—*John Burroughs, Birds and Poets.*

Among the birds of prey (Raptores) none are better known, more written about or more cosmopolitan than that nocturnal division (Family Strigidae), which includes the two hundred or more species of Owls. From the Arctic regions of the north to the Antarctic regions of the south they are known. Most of the genera are represented in both hemispheres, though eight are peculiar to the Old World and three to the New. The majority of the species finds a home in the forests, though a few live in marshes and on the plains. Some invade the buildings of civilization and may be found in the unfrequented towers of churches and in outbuildings.

Disliked by all birds its appearance during the day is the signal for a storm of protests and, knowing that there is little need of fear of his power at this time, they flock about him, pecking and teasing him till he is obliged to retreat to his obscure roosting place.

The Owls in most countries of both the New World as well as the Old are regarded as birds of ill omen and messengers of woe, and are protected from harm by some uncivilized and superstitious peoples, some believing that spirits of the wicked reside in their bodies. By others they have been called "Devil's Birds." The belief of some unlearned people in the close relationship of the Owl with death and the grave dates back at least to the time of Shakespeare, who speaks of the Owl's hoot as "A song of death." Among the ancient races only the Athenians seem not to have possessed this popular fear and superstition. They venerated the Owl and regarded it as the favorite bird of Minerva. On the other hand the Romans looked upon the Owl with fear and detestation, dreading its appearance as the embodiment of all evil and the omen of unfortunate events to come. By them the Owl was consecrated to Proserpine, the wife of Hades and queen of the underworld. Pliny tells us that the city of Rome underwent a solemn cleansing because of the visit of one of these birds. When the unearthly character of their cries and their quiet, spirit-like motion, as they fly through the night hours, are taken into consideration, it is not surprising that they have been and are held in awe and dread by many people. The characteristics of the two sexes are practically the same, except that the female is somewhat the larger. The young resemble the adults, but are usually darker in color. Excepting those species that are whitish in color, the Owls are usually a mixture of black, brown, rufous gray, yellow and white, and barring is common on the wings and tail. Their bills are blackish, dusky or yellowish. Their eyes are so fixed that they have little power of turning the eye-balls and thus are obliged to turn the head when they wish to change their range of vision. This they do with great rapidity, in fact, the motion is so rapid that without close observation the bird seems to turn its head in one direction for several revolutions if the object looked at passes around the perch upon which the Owl rests. A remarkable characteristic is the reversible fourth toe or digit, enabling the Owl to perch with either one or two toes behind.

FROM COL. F. M. WOODRUFF.

WESTERN HORNED OWL.
(Bubo virginianus subarcticus.)
About ⅓ Life-size.

Mr. Evans tells us that "the note varies from a loud hoot to a low, muffled sound or a clear, musical cry; the utterance of both young and adults being in some cases a cat-like mew, while the screech-owl snores when stationary. The hoot is said to be produced by closing the bill, puffing out the throat, and then liberating the air, a proceeding comparable to that of the Bitterns. On the whole the voice is mournful and monotonous, but occasionally it resembles a shrill laugh." The utterances of the Owls are, however, quite various. Some species will give a piercing scream and hiss like an angry cat when disturbed. [Pg 197]

The Western Horned Owl of our illustration is a variety of the Great Horned Owl (Bubo virginianus) of eastern North America. It has a wide and extensive range reaching from Manitoba, on the north, into the table-lands of Mexico on the south and eastward from the Pacific coast across the Great Plains. Occasionally specimens are taken as far east as the states of Illinois and Wisconsin. It is replaced in the Arctic regions by the Arctic Horned Owl (Bubo virginianus arcticus), which is lighter in color, its range only reaching as far south as Idaho and South Dakota. The Western Horned Owl breeds nearly throughout its range. It is of interest that this Owl is not an inhabitant of high altitudes but rather of the foothills and more open country of its range. The Dusky Horned Owl (Bubo virginianus saturatus), the darkest colored of all the owls, taking its place in the higher regions.

In its habits it is closely related to its eastern relative. It has a similar call note and is as destructive. It feeds on grouse and ducks as well as other species of valuable food water-birds. It also kills many forest birds that are useful to man as insect destroyers. It is said that they will feed on mammals, such as pole cats, prairie dogs, squirrels, rabbits and other rodents. But this is not the worst crime of this marauder, for when it visits the more thickly inhabited districts it appreciates the delicacies to be found in the poultry yards of the farmer and kills far more than it needs to satisfy its appetite.

With regard to the nesting habits of this Owl, Captain Charles Bendire says: "While perhaps the majority of these birds resort to hollow trees or old nests of the larger hawks and of the common crow, quite a number nest in the wind-worn holes in sandstone and other cliffs, small caves in clay and chalk bluffs, in some localities on the ground, and, I believe, even occasionally in badger holes under ground. On the grassy plains in the Umatilla Indian Reservation, in northeastern Oregon, I have several times seen Owls of this race sitting on the little mounds in front of badger or coyote burrows, near the mouths of which small bones and pellets of fur were scattered about. While unable to assert positively that they do actually breed occasionally in such holes, the indications point that way, and this would not seem to be due to the absence of suitable timber, as an abundance of trees grow along the banks of the Umatilla river not more than a mile away. When nesting in trees, large cottonwoods, sycamores, willows, pecans, pines, oaks and firs are generally preferred. In regions, however, where heavy timber is scarce, they content themselves with nests in small mesquite and hackberry trees, frequently placed not more than ten feet from the ground." Captain Bendire also states that they have been known to use the nests of the black-billed magpie, either laying their eggs on the inside of these curiously built and enormous structures or on the broken-down roofs. These nests are well adapted to the requirements of the Owl, for they vary from one to three feet in diameter and are constructed in a very substantial manner. The foundations consist of twigs held together with mud, and upon this, built of smaller twigs, is the nest, which is plastered with mud and lined with grass and small roots. The whole structure is surrounded by dead twigs, which form an arch over the top of the nest. This is a palace which the Owl would never take the trouble to construct, but is willing to use.

It is said that the Western Horned Owl will lay two or more sets of eggs at short intervals if the nest and eggs are disturbed, and an instance has been recorded where three sets of eggs have been taken from the nest of a single pair at intervals of about four weeks. The number of eggs laid is usually two or three, and infrequently four are found and sets of five and six have been reported. The eggs are white, showing, as a rule, but little gloss and are roughish. In form they are rounded oval, about two and one-half inches long, and nearly two inches in diameter. The period of incubation lasts about four weeks, and it is said that only the female sets on the eggs, the male furnishing her with food. [Pg 198]

Like the Great Horned Owl this variety is quite solitary in its habits, except during the breeding season, and is almost as destructive as that bird which is considered the most destructive of all the Owls.

The Owl has long been an inspiration to the poets, due to its odd appearance and uncanny actions during the daylight hours, the wise expression of its face, and its quiet flight during the weird hours of the night.

"The lark is but a bumpkin fowl;
He sleeps in his nest till morn;
But my blessing upon the jolly owl
That all night blows his horn."

THE OWL.

When cats run home and light is come,
  And dew is cold upon the ground,
And the far-off stream is dumb,
  And the whirring sail goes round,
  And the whirring sail goes round;
    Alone and warming his five wits,
    The white owl in the belfry sits.

When merry milkmaids click the latch,
  And rarely smells the new-mown hay,
And the cock hath sung beneath the thatch
  Twice or thrice his roundelay,
  Twice or thrice his roundelay;
    Alone and warming his five wits,
    The white owl in the belfry sits.

—Alfred Tennyson.

[Pg 200]

FROM COL. CHI. ACAD. SCIENCES.

LONG-CRESTED JAY.
(Cyanocitta stelleri macrolopha.)
Nearly Life-size.

[Pg 201]

THE LONG-CRESTED JAY.

(*Cyanocitta stelleri macrolopha.*)

The family (Corvidae) of birds to which the long-crested jay belongs includes not only the jays but also the crows, the ravens, the magpies and the rooks. It is a cosmopolitan family with the exception that no representatives are found in New Zealand. It includes over two hundred species of which about twenty-five are inhabitants of North America. Strictly speaking, none of the species are migratory, excepting those whose range carries them to regions of severe winters. Some of the species are well protected by soft and thick coats of down and feathers, and as they are generous in their selection of food, eating varieties that may be procured at any season, they do not need to move from place to place but may remain resident throughout the year.

The jays differ from the crows in their method of progression on the ground, hopping instead of walking. They are distinctly arboreal in their habits, and usually have a bright-colored plumage, blue being the most common. Their heads are often crested. Though found nearly throughout the world their highest development seems to have been reached by those species that are resident in the warmer portions of America.

The jays are noisy and quarrelsome, fretting apparently for the most insignificant reasons. They are great mimics and exhibit a high degree of intelligence. The jay possesses a variety of notes and calls, and is a notable borrower of those of some other species of birds. This versatility has given rise to the very appropriate name of the sub-family in which they are included, the Garrulinae, from the Latin word garrio, meaning to prattle.

Our illustration shows the color and markings of the long-crested jay. Its home is in the wooded regions of the southern Rocky Mountains, southern Arizona and the northwestern portion of Mexico. It breeds throughout this range.

Dr. Coues has said regarding this bird that it is "a stranger to modesty and forbearance, and the many qualities that charm us in some little birds and endear them to us; he is a regular fillibuster, ready for any sort of adventure that promises sport or spoil, even if spiced with danger." In spite of these characteristics they are very quiet during the nesting season and the female is very devoted to her nest and will almost allow herself to be touched before flying from her eggs. Their nests are bulky and usually placed in out-of-the-way places, in low, bushy, cone-bearing trees. They seemingly will eat anything of a nutritious nature. Flying insects, larvae, beetles, flies, spiders, eggs, and even small birds, seem to be palatable to their tastes. Yet they are principally vegetarians feeding upon seeds, hard fruits and berries when these are obtainable.

The Steller's jay (Cyanocitta stelleri), of which the long-crested form is a geographical variety, is a resident of the Northwestern portion of North America ranging from northern California to southern Alaska and eastward to the Cascade Mountains.

THE SUNRISE SERENADE.

"Ah walk out when de eas' am red
Among de timbehs tall;
Ah heah a mockeh oberhead,
De sweetest froat ob all.
'Why do yo' sing?' Ah stop en ask,
En den Ah heah her say;
'Dis am mah daily sunup task,
A sahanade to Day.'

"Songs ob sunrise joy when de darkness fades away,
De mockeh in de treetop sing a welcum song to Day.

"Ah brush among de meddeh lan's
Wheh yelleh-jackets hum;
Ah look up wheh det dogwood spans,
En heah det solemn drum.
Oh. Misteh Gol' Wing, why yo' drum
Up yandah in de tree?
'Ah drum jes' kase de day hab cum,'
Is how he answeh me.

"Drum! drum! drum! Yo' see his movin' haid,
De peckeh drum a welcum when de eas' am fiah red.

"Ah thrash among de bramble vines,
A-brushin' off de dew;
A jaybird callin' fum de pines,
A catbird chimes in, too,
'What's all dis racket fum yo' two?'
En den Ah heah dem say:
'We's callin' kase de sun am new,
En de night hab gone away.'

"De jaybird en de catbird, dey call en welcum day,
Dey's happy when de sun cum up en bathe with sumac spray.

"En all aroun' de timbeh lan'
Deh watch foh cummin' day;
En Night she shake Mis' Mawnin's han,'
En den she fade away.
Den ebehy songsteh break de hush,
De hummin' bird he hum;
Mis' Quail she wistle in de brush,
De gol' wing peckeh drum.

"En all bus' out in melody det echo fro' de haze,
When de sun he smile in crimson en de dewdrops tuhn a-blaze."
—Victor A. Hermann, in The Chicago Daily News.

A VICTIM OF CIRCUMSTANCES.

Once there had been six little brothers and sisters, six little fluffy, plush-covered creatures with tiny silken ears of which Madam Field Mouse had been so proud it had been only a delight to take long trips over the farm for dainty tidbits, if only for the pleasure of seeing their bright black eyes sparkle as they speedily devoured them.

Once there had been six but now there were only three. Yesterday morning there had been four, and the morning before, five. Each night found one less to snuggle down in the fluffy bed of corn stalks, which Madam, their mother, had carefully shredded lest there be found something which should hurt their tender little limbs.

She looked about searchingly. Perhaps they had not all yet arisen, and she poked the nest over carefully; but her search was unrewarded and she looked sadly at Fluffy and Flossy and Flutter as she prepared to depart on her daily journey, wondering which one she should never see again. Finally she turned to Mr. Field Mouse, who was daintily combing his long whiskers with his hind foot. Mr. Field Mouse was very particular as to his appearance, and never ventured abroad unless his toilet had been properly made.

"I think, my dear, we must find a new dwelling place," she said. "This corn shock, although snug and having the advantage of containing an abundance of homely food, is yet in danger of being disturbed. I saw yesterday there were boys at the other side of the field, tearing down the shocks and pulling off the ears of corn, and I greatly fear they will continue until our home will be destroyed and our darling children eaten by the cruel dog that sits by them, watching intently. I am sure he can be looking for nothing but baby mice," and she looked tenderly at Fluffy, who was listening interestedly.

But Mr. Field Mouse only continued to comb, as if her remarks were not worthy of consideration.

She looked indignantly at him for a moment, and continued in a louder, more emphatic tone of voice: "Have you noticed, Mr. Field Mouse, that only three of our precious darlings are here? Perhaps you can tell me where Fatty has gone; he was here yesterday morning. You will remember I left them in your charge while I went to fetch some buckwheat from the bin."

He looked inquiringly about. "I have not missed any of them, my dear. You know I am not very good at arithmetic. I only left them for a few moments, a very few, while I went to fetch a bit of that sugar-cane stacked up by the fence. The juice is excellent and I felt faint," he said, apologetically. "If you are not going out this morning I think I should relish a little more." He smacked his lips appreciatively.

"You are a gourmand, Mr. Field Mouse," she said, severely, turning away in disgust as he scampered off over the stubble.

"It is fortunate that I am able to take care of myself and our children, too," she mused, digging her way to the ground and beginning to throw out the dirt with her tiny paws.

Soon a neat underground channel was dug which led out into the open air, and then Mrs. Field Mouse rested from her labors and hungrily nibbled a bit of corn.

"We can escape if worst comes to worst, darlings," she said, reassuringly.

When Mr. Field Mouse returned he looked discontentedly over the supper table where his family were contentedly nibbling at an ear of nice yellow corn. "Nothing but corn for supper," he grumbled. [Pg 204]

Mrs. Field Mouse resolutely kept her temper and went on placidly eating. "Well, have you decided to move?" she asked, pleasantly. "I have discovered a barrel of broomcorn seed setting up in the granary that will make a snug home for the winter. No one will be likely to disturb us, and on the whole I think it will be a desirable change," she said.

"It is too far away from the pile of sugar cane to suit me, I fear," he said, curling up in the softest part of the nest, and covering his nose with his paws was soon snoring heavily.

"I think this is the shock, Sam. I am sure I heard a mouse squeal when I went by this morning. Now, Fido!"

There was a great rattling of stalks, a sharp bark, a rush and Fido licked his chops and nosed about the place where Mr. Field Mouse had been contentedly snoozing but a few moments before, but he did not find any more dainty tidbits, for Mrs. Field Mouse and her children were safely skurrying away over the stubble in the direction of the granary.

Mary Morrison.

THE FULVOUS TREE-DUCK.

(*Dendrocygna fulva.*)

The Tree Ducks are natives of tropical or semi-tropical countries. Two species are found in the United States, the bird of our illustration and the Black-bellied Tree-duck (Dendrocygna autumnalis). The range of the fulvous species extends from the southern border of the United States, and in Nevada and California, southward through Mexico, and reappears in the southern portion of Brazil and in the Argentine Republic. It has also been reported as a visitor to the states of North Carolina and Missouri.

Mr. Frank M. Woodruff, in speaking of his experience while on a collecting tour in Texas, says, "I found the Fulvous Tree-Duck in small numbers resident on Galveston Island, but found them abundant and nesting in the heavy timber along the Brazos river, sixty miles from Galveston. In the early morning, as we would leave our boat and make our way to our blinds, on some small inland pond where we had prepared for collecting, we would flush immense flocks of this duck, which would fly over our heads at rather a low altitude and continuously calling. On several occasions we obtained specimens by firing into a flock while it was still so dark that we could scarcely define the outlines of the individual birds. The Fulvous Tree-Duck generally feeds in the night and usually at a place several miles from the nesting site. They leave the feeding grounds on the first sign of approaching day. During my stay of three months in the Brazos river region only on one or two occasions did I have an opportunity to observe this bird by the light of day. In form it resembles a miniature swan. It stands very high on its legs and presents a wonderfully curious and graceful appearance as it walks along the shore feeding on shellfish and decaying matter."

[Pg 205]

FROM COL. CHI. ACAD. SCIENCES.

FULVOUS TREE-DUCK. (Dendrocygna fulva.) Nearly ½ Life-size.

[Pg 207]

HOW THE SWIFTS CAME TO BUILD IN AUNT DOROTHY'S CHIMNEY.

Once upon a time there was a family of Humming Birds who always spent the winter in Mexico. In this family, besides the father and mother, there was a grandfather and grandmother, and also a great-grandfather and great-grandmother, and ever so many children. It was the custom of the Humming Bird family to spend Christmas day together, and they assembled early in the morning in a beautiful live oak tree, the leaves of which were so much like holly leaves that no Christmas wreaths were needed. The tree was a handsome one and suitable in every way for a Christmas Humming Bird party. At last every one had come except young Master Topaza Humming Bird, who could not resist the temptation of flying from place to place along the way, thrusting his long bill, of which he was very proud, into the beautiful blossoms which he found, and taking a little sip of honey from each one. Great-grandfather Humming Bird missed Master Topaza and called to his little brother Iris to go and find him and bring him immediately to the oak tree. Iris promptly obeyed and soon returned with his brother. Then great-grandfather, who always was given first place on such occasions, fluttered his wings and said: "Dear children, were our cousins, the Swifts, invited to take part with us in our concert this afternoon?"

"Oh, yes," said Mamma Humming Bird, "I met papa Swift one day while I was getting honey from the beautiful red blossoms of a shrub which grows in the southern end of this valley. I invited him to come to-day and bring all his family, and he said he would, and also that he would come early, for he wished to have us tell him about the lovely place where we spent last summer."

Little Coquette Humming Bird sat watching her brother Helenae—what a queer name for a boy Humming Bird, you think—but probably his parents gave it to him because he was always prinking and preening his feathers. "Just like a girl," his brothers said. But however much Coquette might preen her feathers, she never looked as beautiful as her brother Helenae, and that was what she was thinking about as she watched him. He carefully arranged the three long, slender, greenish-black feathers which grew on either side of his head, and the metallic green feathers of his throat were so glistening and bright that little Coquette imagined she could see herself in them as she could in a little spring where she often went for a drink. After Helenae had finished his toilet he moved his wings very rapidly a few times, and raised himself up as high as he could on his feet without taking them off the limb on which he sat, then he settled down, closing his eyes for a moment. Just then Coquette cried out: "The Swifts are coming! Look, no one else could fly so fast! There they are near those old mahogany trees on the bank of the river." There was a grand rustle of preparation that everything might be in order and every one look his best when the cousins arrived. In a few moments mamma Swift and her daughter Cyprelus came, alighting on the same branch together. Then there was a whir of wings that sounded like the wind flapping the sails on a sail-boat, and there was an excited chirping of welcomes and "Merry Christmas" on both sides.

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Grandfather Humming Bird was a good story-teller, and his wife, who was the dearest old lady Humming Bird in the world, had often advised him to write a book of his travels on the leaves of the lovely rose-laurel bush, but Grandfather Humming Bird told her that writing books of travel was too humdrum for a Humming Bird; that such work was only for that queer creature called man. Several Humming Birds then said that they felt very friendly toward man, because he loved flowers and took such pains to plant them every spring. And the Swifts, with one accord, said they were much indebted to man for his chimneys, for they made the best building places possible. "Before the white man came to this country," said grandfather Swift, "our ancestors had to build their nests in old hollow trees." "The red man was an admirer of ours," said uncle Tarsi Swift, who was an old bachelor and a little cross sometimes. "I could get along very well without the white man and his chimneys. He has driven the red man away, and cut down the grand old forests. When I was a child nothing pleased me better than to see an Indian chief, with his high moccasins trimmed with feathers. I know he trimmed them that way to make his legs look like ours." "But he could not make his feet look like yours if he tried," spoke up a pert young Humming Bird, who, with a group of others, was looking and listening in a quiet corner, and he glanced down at uncle Tarsi Swift's first toe, which was turned forwards and he counted the phalanges in uncle Tarsi's toes and compared them with his own. Three of Uncle Tarsi's toes were alike, but all of the pert Humming Bird's were different.

"No," said several Swifts in chorus, "only the penguins and cormorants have toes like ours, and they are birds we seldom meet. We are glad there are so few feet exactly like ours. We can tell each other everywhere by our feet and our ten tail feathers.

"I knew a swallow once who had lost two tail feathers," said one of the Swift cousins, "and he tried to pass himself off as a Swift. But he could not change his feet and so he deceived nobody.

"Well, as for me," said the pert Humming Bird, "I would rather have feet that were not so peculiar as to attract everybody's attention." "Indeed," said cousin Swift, "and what do you think of having a bill three or four times as long as any of your neighbors?" "At least my bill does not open away under my eyes like yours does, cousin Swift!"

Grandmamma Humming Bird knew very well that the Humming Bird family was thought to be quarrelsome by almost every one, and was very much mortified by hearing this conversation. "Children," she said, "you know it is not right to hurt people's feelings by talking about their peculiarities, and I hope none of my dear little Humming Birds will offend their Christmas

guests." After this there was no more cross talk in the pert Humming Bird's corner, for all loved grandmother Humming Bird and tried to do as she wished to have them.

There was a sudden lull in the conversation and great-grandfather Humming Bird asked grandfather Humming Bird to describe the place where his family had spent the summer just passed. "It was a lovely place near a lake in Southern Wisconsin," said he. "Many honeysuckle and dogwood bushes grew there, and wild rose bushes, and wild grape vines, and clematis, and large purple vetches. Grandmother and I built our nest in a grapevine angle, and often in the warm summer evenings the wind would rock our babies to sleep. There was a place not far away, which I know you would find a pleasant home for next summer. It is up on a hill, not far from the lake. There is a house there with one chimney from which the smoke never comes all summer long. In the big yard there are beautiful trees and fragrant flowering shrubs and beds filled with flowers. A lady lives there who is loved by all the birds, for she never frightens them, and every day she feeds them and talks to them. So they build nests in her trees and sing for her.

"This summer, in a beautiful shady place, near a syringa thicket, she made a house out of a big box for a mother hen who had fifteen little downy chicks, and every day when she fed the chickens she left enough food so that the birds could have some, too. And all, even the little [Pg 209] yellow canaries, used to help themselves. This did not please the old mother hen very well, and if she could have gotten out of her box-house, I think she would have chased the birds away. One day a bold blackbird walked into her house to get some grains of corn, when he thought she was not looking. But before he could get out again she pulled three feathers out of his tail and laid them down, as a warning, where all the other birds could see them. I heard the lady afterwards telling the mother hen that she must not be so selfish, and the next time she fed the chickens she put several handfuls of corn where the blackbirds could get it, without having their tail-feathers pulled out. I have seen the lady put pieces of string and bits of soft cotton cloth and old rope where the birds could get them, to help make their nests. And I saw her feeding a little orphan owl with angle worms. The little owl was very fond of her and sat on her fingers and twisted his neck and winked his great eyes. Whenever he heard her talking he gave a queer little screech, for he knew her voice. He was a great eater and he expected her to give him something to eat every time she went where he was. One day that lady was sitting on her porch listening to the birds singing. At one end of the porch was a large lilac bush in full bloom, and I was enjoying myself among the blossoms. Once in a while I would fly to a flower bed not far from the opposite end of the porch, where there was a big bunch of belladonna with its lovely blue and mauve blossoms. The lady seemed to like lilacs best, for she had fastened a large bunch in her belt, and sat with her hands folded in her lap, dreaming a day dream, I suppose.

Once, on my way from the flower-bed to the lilac bush, I flew up to the bunch of blossoms which the lady had in her belt. You know I am seldom afraid of anything and I knew the dear lady would not harm me. But she seemed very much surprised when I stopped at her bunch of blossoms. 'O-o-h!' she said, but very softly, and unclasped her hands in her surprise. I flew away quickly to the lilac bush, and after a while I looked at the lady and she was smiling pleasantly and watching me."

When grandfather Humming Bird had said all this, he flew away to another branch of the oak tree and moved his wings so fast that one could not see how he did it. Papa Swift thanked him for the pleasure he had given by his stories of his last summer's home, and it was finally agreed that the Swifts and Humming Birds should start together for the north in the spring.

The young birds of both families were anxious for the concert to begin. Papa Swift, who was considered the best singer by everybody, flew to the very top of the oak tree and began his prettiest song. It was not long before several Swifts and Humming Birds had joined him. They all sang and flew from branch to branch. A bird concert is not like one given by children. The children all sing the same song and sing it together, but in a bird concert everyone sings to please himself. He begins just when he feels like it, and sings his own song. But for all that, a bird concert is very pretty music. Some proud birds, who were spending the afternoon near by, and who had better voices than the ones in the oak tree, pretended that they did not like such a "noise," as they called it, and flew away across the river. But this did not keep the Swifts and Humming Birds from enjoying themselves.

Before the time for good-byes came they promised to see each other often, and everyone promised to be ready to go away in the spring. Little Cyprelus dreamed that night of the pleasant times she would have the next summer in the pretty place grandfather Humming Bird had told about, and Coquette and Topaza said they wondered if the lady who lived by the beautiful lake would have as many flower-beds this summer as she had last.

Now this lady, whom grandfather Humming Bird had been telling about, was Aunt Dorothy. She was a great bird lover, and it made her happy to find that she could number the Swifts among her particular bird friends when they came the next summer to live in her yard.

One morning Aunt Dorothy waked up very early. She looked out of her eastern window and saw [Pg 210] that the sky beyond the lake was a beautiful rose color, but the sun was not yet risen. Aunt Dorothy was sleepy, so she closed her eyes again, but just as she did so she heard a strange twittering noise and wondered where it came from. Her curiosity was so great that she could not go to sleep again, so she rose and dressed herself and, after saying a little prayer to the great All-Father to keep her through the day, she went to find out what the noise was. But she had already thought that it must be birds in the chimney. She climbed up on a chair and listened near the chimney hole. Soon she heard a fluttering of wings and a chirping. Mamma Swift was coming

with some worms for her babies' breakfast. Her babies, like a great many girl and boy babies, waked up very early in the morning and were quite troublesome. In order to quiet them, Mamma Swift was forced to find some worms before sunrise. Aunt Dorothy was delighted. If she made a little noise near the chimney hole the baby birds thought it was their mother coming with food for them, and they stretched their heads up out of the nest, so Aunt Dorothy could see them. Often, when she was writing or reading in her room she could hear the birds in the chimney. She knew the papa and mamma bird had to work very hard, for they came many, many times a day with food for the baby Swifts. But there came a day when the nest in the chimney was empty, for the little birds had gone away with their parents and were learning to fly through the trees and to catch insects to eat. It made Aunt Dorothy lonesome to sit in her room after that, and instead she used to go out of doors where she could watch the birds.

One day she took a fire-shovel and with it managed to loosen the nest and take it out of the chimney without breaking it. The shape of it was like half of a deep saucer, and it was made principally of the petioles or stems of grapevine leaves laid across each other as the logs are in building log houses. The big ends of the leaf stems alternated with the small ones and stuck out, making a bristling outside wall for the nest. There were two or three very slender cedar twigs no bigger than a darning-needle used in making the nest, and these the birds had brought from a long distance. The nest looked as if it had been covered with glue, and this was because the birds had covered it with their saliva and that held the leaf stems together just as glue would. Aunt Dorothy knew a man who went to some islands in the Pacific ocean, where the Pigmy Swifts live. Pigmy means little, and these Swifts are smaller than the ones who built in Aunt Dorothy's chimney. The Pigmy Swifts build their nests in caves. Some of them build very far in the caves, where it is entirely dark. Aunt Dorothy's friend went one day with another man to a cave to get some bird's nests.

These men had a ladder made of rattan, on which they had to climb in order to reach the nests. The man who climbed highest had a long four-pronged spear, with a lighted candle fixed on it a few inches below the prongs. By the aid of the light he found some nests. With the spear he took them unbroken from the rock. When he had gotten a nest between the prongs of the spear, he held it so the man lower down on the ladder could reach the end of it, and let it down through his hands until he could take the bird's nest from between the prongs of the spear and put it in his pocket.

When Aunt Dorothy's friend came back to America he brought some of these bird's nests with him and gave one to her.

The Chinese people think these bird's nests are very good to eat, and make soup of them. Aunt Dorothy put the nest, which she had taken from the chimney, into her cabinet with the one from the island in the Pacific ocean. One day in the fall she took some of her little friends for a walk and they picked up a basketful of leaf stems under the elm and linden trees, and with them they made some bird's nests which they covered with glue and which looked very much like the one Aunt Dorothy found in her chimney.

Mary Grant O'Sheridan.

FROM COL. CHI. ACAD. SCIENCES.

RED-BREASTED SAPSUCKER.
(_Sphyrapicus ruber._)
Nearly Life-size.

THE RED-BREASTED SAPSUCKER.

(*Sphyrapicus ruber.*)

The Red-breasted Sapsucker is a resident of the Pacific Coast, ranging from northern Lower California northward to Southern Alaska. It extends its flight and breeds as far east as the Sierra Nevada and Cascade Mountains. It belongs to the family of Woodpeckers (Picidae). The generic name, Sphyrapicus, is taken from two Greek words that refer to the habits of these birds—sphura, a hammer and pikos, a woodpecker. The specific name, ruber, means red.

Like its eastern relative, the Yellow-bellied Sapsucker (Sphyrapicus varius), it punctures trees possibly in order to feed upon the exuding sap or the insects attracted by its flow, yet this bird does not develop this habit to so great an extent as the eastern species, for it will completely girdle a tree with punctures, which at times will cause its death. A direct evidence of this is found in the fact that in localities where the Red-breasted Sapsucker is abundant indications of their work are not usually common. The adult birds are beautifully marked with crimson on the head and breast, while in the young the color is brownish and the yellow of the belly is wanting.

These birds seem to prefer aspen trees for their homes, selecting one which is a foot or more in diameter near the ground. They excavate a cavity in the trunk several feet from the ground, the door of which, a small round hole, less than two inches in diameter, seems far too small for the parent birds to enter. "The gourd-shaped excavation varies in depth from six to ten inches, and it is from three inches near the top to four or five inches wide at the bottom. The finer chips are allowed to remain in the bottom, forming the nest proper, on which the eggs are deposited. The interior of the entire excavation is most carefully smoothed off, which must consume considerable time, considering the tough, stringy and elastic nature of the wood when filled with sap, making it even more difficult to work when partly decayed, which seems to be the case with nearly all aspens of any size." The larger chips are dropped from the nest and their presence on the ground at the base of the tree is quite a sure indication of the proximity of the nest of this or some related species. The period of incubation probably lasts twelve or more days, and its labors seem to be shared by both sexes. During this period, if the birds are disturbed by a close approach to their nest, they fly away for a short distance uttering sounds of a soft, plaintive character, that are variable and difficult of description. These Sapsuckers are watchful and devoted parents and cases have been reported where the mother bird has been easily captured because of her refusal to leave her young.

As a rule, but a single brood is raised each season. There are five or six eggs and occasionally seven in each set, which vary in form though they are always of the ovate type. At times they are quite elongated. When fresh, the yolk may be seen through the thin shell, giving a pinkish shade to the egg. When the contents are removed the shell is white, showing some lustre.

The food of this species, in addition to the sap and inner bark of the trees they puncture, if it is true that they use this as food, consists of ants, insect larvae, moths and butterflies, many of which are caught on the wing, and small fruits.

Like all the Sapsuckers and the other woodpeckers, the sense of hearing is well developed and it is usually very difficult to approach them without detection.

A sister species of the Sapsucker of our illustration is the beautiful Williamson's Sapsucker (Sphyrapicus thyroideus), an inhabitant of the Pacific coast. This bird differs from all of the woodpeckers in that the two sexes show a great difference in coloration. So marked is this difference that for a long time they were described as distinct species.

A WHITE TABLE IN THE WOODS.

This is not a tale of far away and long ago—in the Black Forest, for instance—but a true story of the summer just past, and it comes from under the shadow of our own White Mountains, where two boys made discoveries in the great out of doors. The boys let me into many of their secrets, and now the summer is gone I am allowed to tell this one, because, if you have never happened to find a big table spread not under the trees for picnic people, but high up in a tree for woods people, you will want to look for one next summer.

This was, of course, a wooden table, its cover both snowy and glossy; the plates, which were round, and all the same size, were of wood and placed in straight, regular rows, six hundred and fifty of them—that is true, for the boys counted and computed—a hospitable board, you think, and you will be sure of it when you know the whole story! The butler—who was also host—not only arranged but carved the plates, and wore a business suit of black and white, with a bright red cap and necktie of the same cheerful hue over a buff shirt.

The feast at this table was continuous, consisting of choice game, and the sweetest of sweets. The guests, who came and went during all the sunshine hours, were so various in dress and manners that they could not be compared with those at any public or private banquet ever known, so the puzzle must stop here and the plain facts be told.

The table was twenty feet from the ground, and set on one side of a tree, so, though of wood, and as round as the tree, you see it differed from your dining-table—and King Arthur's—in being tipped perpendicularly so as to arrange the plates in straight rows, close together, thus accommodating more guests. The table cover was of the best quality of birch bark. The butler host—or perhaps we might call him the architect of the feast—was the Yellow-breasted Sapsucker; if you didn't know him well you would call him just one of the woodpeckers; he had all their peculiarities, crawled around up and down the tree trunk, bracing himself with his tail, pecking, pounding and boring, he excavated the hundreds of round holes, each one a soup plate to catch and hold the ascending sap. This is what the Sapsucker seeks, and upon this alone he can live all summer, as proved by Mr. Frank Bolles, who tells us how he caught and kept young Sapsuckers alive till October, feeding them only on diluted maple syrup. But tiny insects are fond of sweets, too; they swarmed around and lost themselves in our woodpecker's full soup plates, thus furnishing him with the animal food needed by such a worker.

There was always a buzz of bees and big flies about the tree table, who seemed to feast and get away safely. These first attracted our attention, but if we stayed five minutes we were sure to hear the dear, familiar sound announcing the most charming of all guests—humming birds—you know they are brave, brave as they are beautiful, but we found them shy about coming too near a Sapsucker; they hovered over his table as over a flower bed, often lighting on twigs to watch their chance at the freshest and fullest dishes.

With the ruby throats, and on the best of terms with them, came gorgeous butterflies; the red admiral, the tiger swallow tail, and the antiopa were always there, and how bright they were seen against the snowy birch tree, in dazzling morning sunshine!

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The biggest and boldest of all the free feeders is on record as having come and gone fifteen times in fifteen minutes, a fat red squirrel, hair brushed and tail curled, not scolding or chattering here, he seemed to suspect himself out of place, for, taking a side seat on an outreaching branch, he would frisk off when bidden to go, but back again and again till he had his fill.

Of course the last bird to leave the tree at night was the Sapsucker, but when he and all his family were gone, and the sun out of sight, we found a swarm of big yellow bees bustling about the high seats, and fancied that when at last their work was done the night moths and bats would have their turn, and perhaps some brisk little owl would take the squirrel's perch for a night lunch, getting away just before the sunrise concert opened another day of eating, drinking, and being merry at the white tree table.

Elizabeth Reed Brownell.

(The Yellow-breasted Sapsucker mentioned in the story is the eastern relative of the Red-breasted Sapsucker of our illustration.—Editor.)

THE MOON-BABY.

There's a beautiful golden cradle
  That rocks in the rose-red sky;
I have seen it there in the evening air
  Where the bats and beetles fly,
With little white clouds for curtains
  And pillows of fleecy wool,
And a dear little bed for the moon-baby's head,
  So tiny and beautiful.

There are tender young stars around it,
  That wait for their bath of dew
In the purple tints that the sun's warm prints
  Have left on the mountain blue;
There are good little gentle planets,
  That want to be nursed and kissed,
And laid to sleep in the ocean deep,
  Under silvery folds of mist.

But the moon-baby first must slumber,
  For he is their proud young king;
So, hand in hand, round his bed they stand,
  And lullabies low they sing.
And the beautiful golden cradle
  Is rocked by the winds that stray,
With pinions soft, from the halls aloft,
  Where the moon-baby lives to-day.

—Pall Mall Gazette.

THE CECROPIA AND PROMETHEA MOTHS.

In the study of Natural History it is the habits and life-histories of the living animals which appeal most strongly to young people. A large part of the leading Botanists and Zoologists of this country began, as young people, their studies of Nature by collecting animals and plants and studying their life-history and habits. It is this dynamical side, the relation of the animal to its surroundings, which arouses our interest. Since this has been the most natural method by which the interest in nature has been developed, it is surprising how little this side of Zoology has been encouraged by many of our better colleges and universities.

From the standpoint of the teacher, insects as a rule, stand very high with regard to the interest which they arouse in scholars for nature-study. This is quite natural, since the great abundance and interesting habits of these animals make them comparatively easy to study.

The two insects which we figure this month are very common and widely distributed, and thus have become very generally known. When we once become familiar with them, these beautiful moths are of perennial interest, and each season one is pleased to renew his acquaintance with them.

The Cecropia is our largest and to many persons the best-known moth. Its gigantic size, varying from about 4 to 7 inches in expanse of wings, together with its bright colors, makes it an easily remembered insect. The scientific name of this moth (Samia cecropia) is the first scientific name of an insect that many of us can recall learning. The time of active flight is at night, and thus it is that they are so frequently found in numbers about electric lights to which they have been attracted by the intense light. Their rather awkward flight and large size often lead to their being mistaken for bats.

The differences between the sexes are not so manifest as in Promethea, yet it is not difficult to distinguish them. The females are larger and have stouter bodies, but the most conspicuous difference is that the "feelers" or antennae of the male are feather-like and very large and broad, while those of the female are only about one-half as broad.

The eggs are somewhat flattened, about one-tenth of an inch long, pale in color, and are deposited by the female in small patches upon a large variety of plants, since there are about fifty of these upon which the larvae will feed. The eggs usually hatch in about a week or ten days, the young larvae being very different in appearance from the mature ones. The changes in appearance are brought about by five moults or sheddings of the skin. The full-grown larva is pale green or light blue, 3 or 4 inches long, armed with eight more or less complete rows of large tubercles. Those above on the second or third thoracic segment, are bright red; all the others are yellow except those on the sides of the body and on the first thoracic and last body segment, which are blue. Unfortunately, these colors soon fade in the dead larva as is seen in the plate. This wonderful development of tubercles seems to be in some way related to the arboreal habits of the larvae.

Although a variety of parasites which prey upon these larvae is not large, they are very numerous in individuals, and it is to this cause that only a small per cent of the larvae ever produce moths. These parasites develop beneath the skin of the larva as footless grubs, which, at first, do not attack the vital organs, but later these organs are preyed upon, and the larva dies. A wasp-like insect which preys upon this larva well illustrates in its habits the crudeness of many instincts. The female will lay eight or ten eggs upon one caterpillar, but as the young parasitic grubs require a large amount of food, only one is able to mature and the others perish.

PROMETHEAN MOTH.
(Callosamia promethea)

Adult Male — Adult Female

Larva. — Pupa. — Cocoon

CECROPIAN MOTH.
(Samia cecropia.)

Pupa.

Adult Male. — Eggs on Maple Leaf. About ½ Life-size. — Adult Female.

Larva. — Cocoon

The insect parasites seem, in many cases, to mature and transform into the adult stage after the caterpillar has built its cocoon, and thus many parasites lose their lives, since they are not always able to escape from the cocoon. A cocoon will sometimes be found filled with these small insects, which have not been able to make their escape, and have thus died in prison.

The adult larva, unlike Prometha, usually spins its cocoon not attached to a leaf, but along a stem; sometimes, however, they may be placed in other situations.

In about two weeks after the cocoon has been spun, the larva transforms into a chrysalis, in which stage it hibernates during the winter, and from which it emerges in May or June.

During the winter, when the leaves are not on the trees and shrubs which are frequented by these larvae, a large number of cocoons may easily be collected. These should be kept out of doors during the winter, for if kept in a warm room they will emerge during the winter or so early in the spring that food cannot be secured for the larvae.

If one secure a number of old cocoons, from which the moths have failed to emerge, and cut them open longitudinally, he may learn many interesting facts. A dead and dry mummified looking larva or chrysalis may be found, or, what is even more interesting, no trace of the larva or chrysalis may be present, but only a mass of small white, paper-like cocoons. These have been left by a colony of little wasp-like parasites which may occur in such large numbers that there is scarcely room for all to spin their cocoons, so that on account of being so closely crowded together, they are moulded into a mass of cocoons having the form of the cavity formerly occupied by the larva.

The cocoons of Cecropia are composed of two parchment-like layers of silk which are generally very dense and strong. The space between these two layers contains loosely spun threads of silk like a layer of packing material. The larvae seem normally to make three varieties of cocoons; one kind is very loosely constructed, much larger than the ordinary form and not attached to a twig, but found in the grass or in shrubs near the ground. The two other forms of cocoons are much smaller and more closely woven, but differ in size; female moths as a rule emerging from the larger cocoons, and males from the smaller ones.

Dead larvae are sometimes found in cocoons which are practically of a single thickness; there being no space between the outer and inner layers. The hollow skins of the larvae found in such cocoons clearly show that this unusual cocoon is due to the influence of parasites upon the larva.

In the upper open end of the cocoon, kernels of wheat, corn, beechnuts and even acorns have

been found. How these get in this position seems to be quite a puzzle. In opening twenty or thirty cocoons, five or six kernels of corn have been found, thus showing that this occurrence is by no means rare. Chickadees and blue-jays have been given the blame for this work, since these birds are thought to have the habit of hiding food. The inverted outer layer of the cocoon clearly shows, in some cases, that the kernel of corn has been thrust into the cocoon with some force.

The head of the pupa lies at the small end of the cocoon, where the texture is less dense, and thus, when it is ready to transform into the moth, the head is in the best position for easy escape from the cocoon. But this provision alone is not sufficient to make sure the escape. At the time of emergence, the pupa secretes a fluid which escapes from the mouth and by moistening the cocoon softens the glue-like material which binds together the threads, thus making it possible for the freshly emerging moth to crowd its way between the fibres, and thus secure its freedom. When the moth first crawls out of the cocoon, its heavy body and small folded wings show but little resemblance to the fully-expanded moth. By degrees, however, the wings expand and become more rigid, the colors brighten, and finally the mature moth is developed.

The Promethea Moth is only about one-half the size of Cecropia, and the two sexes are very different in appearance; so much so that one would not at all think they were the same kind of [Pg 220] moths. As in Cecropia the male moths are somewhat smaller than the females, and the antennae show the same kind of differences, i.e., the antennae of the males are much larger and feather-like. In color, the sexes of Cecropia are much alike, but in this moth the differences in color are very great, the dominant color in the female being a reddish brown, while that in the male is a very dark-brown or almost black. Thus these moths furnish an excellent illustration of what is called sexual dimorphism, a term used for those animals in which the sexes are very different in appearance, a subject to which Charles Darwin gave considerable attention, in his "Descent of Man."

The female moth lays her cream-colored eggs, which are a little smaller than those of Cecropia, upon shrubs and trees in clusters of five or six. The small larva usually hatches in about ten days, and feeds upon the leaves of ash, sassafras, lilac, tulip tree, maple, cherry, and a number of other trees and shrubs, but it is much more select in the choice of its food than Cecropia. The larvae have voracious appetites, devour many leaves and grow at a correspondingly rapid rate. The differences between the very young and the adult larva, aside from that of size, are very great. On account of the very limited elasticity of the skin, this larva, like other insect larvae, only increases in size after shedding. This is periodically accomplished by throwing off the old skin, which prevented expansion, and by growing a new and larger one. Promethea has from three to five of these moults, the number being influenced apparently by climate, since southern larvae have more moults than northern ones. The time between these moults varies from two days to a week.

The leaves upon which the larvae feed may have long or short petioles. A singular account has been given of how these larvae have overcome the difficulties associated with feeding upon long-petioled leaves. There is considerable risk of falling and of the leaf breaking away when a large larva crawls out upon a slender petiole. The larva avoids these risks and yet reaches the blade of the leaf. This is accomplished as follows: The larva grasps firmly the branch with its posterior legs; reaches out a considerable distance along the petiole, and bites it through in several places. This causes the leaf to droop; the larva now reaches out, seizes the drooping leaf, and draws it within convenient reach, where it can be eaten at leisure. This is a wonderful display of instinct, yet it is not infallible, because at times the petioles are eaten too far through, and when they droop, break completely away and fall to the ground.

When ready to spin its cocoon, the adult larva is about two inches long; these cocoons are very different from those of Cecropia. As a rule, they are found suspended from a branch by a silken cord, the length of which depends upon the length of the petiole of the leaf in which the cocoon was spun. Thus if the leaf has only a short petiole, this cord is also short, but if the petiole is two or three inches long, the suspensory cord is correspondingly long. The larva in constructing its cocoon, first spins a strong band around a twig, and binds the petiole of the leaf to the stem; this band extends down the petiole to the cocoon, and thus anchors it. The cocoon proper, or the part occupied by the chrysalis, is spun in a folded leaf. When this leaf dies and rots away, the cocoon hangs freely suspended by the cord, but it is very evident that the cocoon has been moulded in a leaf by the prints of the veins which remain upon it. A valve-like opening occurs in the upper end, through which the moth emerges.

The wings of the chrysalis are very small as compared with those of the adult moth; are folded to the body on the under side, and covered by the pupal skin. During the winter they remain transparent since there are at this time none of the rich colors present which are later found in the moth. About ten days before the moth emerges the wings become white, a few days later definite colors begin to appear on the under side of the wings between the veins. While in the adult moths the colors in the two sexes are very distinct, at this time their wings are very similar. The wings do not long retain this similarity, but gradually become more and more unlike until [Pg 221] maturity.

Breeders of moths have often noticed that there is considerable uniformity with regard to the time of day at which certain kinds of moths emerge. For Promethea this time seems to be in the forenoon.

From an extensive series of experiments, it has been learned that the male finds his mate by means of scent and that this is doubtless the explanation for the very large antennae of the male,

since it is in these organs that the sense of smell is located.

Although it may be very interesting to read about the activities of insects, a much more fascinating side of the subject is to handle and study the insects themselves, and there are but few better insects with which to begin a personal acquaintance than these which we have been considering.

Charles Christopher Adams.

A PLEA FOR LEGISLATIVE PROTECTION.

In former numbers of Birds and Nature we have seen how much our welfare and happiness depends upon the birds. Some hints have been given as to how we may encourage the birds to become residents of our premises so that we may enlist them in the constant warfare against worm and weevil. If there were no great and universal interest at stake in this question, How much do we owe to the birds? we should, perhaps, have no right to go beyond simple encouragement to the birds to multiply and do their good work in certain chosen places. But the interests are universal and so deeply concern the whole world that we have an undoubted right to say to those who would kill everything in sight, either for gain or for so-called "sport," Thou shalt not! In other words, we have the right to make laws forbidding anybody to kill birds except for the best of reasons. This right has been acted upon in most states and in many foreign countries, where various degrees of protection to the birds as well as to other animals have been secured.

But in very many, if not in most cases, the laws enacted have not furnished protection enough. Those who have put a price upon a bird's plumage, who furnish the temptation for others to break the law against killing birds, have not had a check put upon them. And the class of "sportsmen" which regards anything living (except man and some of the domestic animals) as legitimate targets for their weapons, have not been dealt with severely enough. Even where the laws have seemed prohibitive enough they have often failed of their purpose because not properly enforced. There are, then, two things to be considered. First, the passage of laws that will be prohibitive, and, second, machinery adequate to their enforcement.

The first question will then be, How may we secure the passage of laws such as we need? Certainly not by waiting for the state legislatures to do it. In such matters, at least, they wait for an expression of the people. Then agitate the question until the time is ripe for presenting it before the lawmakers of your state and push it. Write to Mr. Witmer Stone, the chairman of the American Ornithologists' Union, chairman of the Committee on Bird Protection, for a copy of the ideal law, and then act in line with other states. If each state acts in accord with some plan for the whole country, we shall have practically a national protective law. But even this community of interest will not accomplish the purpose for which we set out, even as a law, saying nothing of enforcement. All this is directed against the killing of birds. The law must prohibit the sale of the bird or any part of its plumage for any purpose. Carefully guarded exceptions or privileges might be favorable to those who need material for strictly scientific study. But it is necessary to go even [Pg 222] further than this. We shall not accomplish our purpose until a law is enacted prohibiting the importation of feathers, whether on the skin or separated from it. If we are not yet ready to say that no feathers may be imported, then let us absolutely prohibit the importation of any part of any species of our native birds, whether killed in America or anywhere else. That much lies within our power. Evidently we are not yet ready to say that birds, or parts of birds—meaning our native birds—shall not be worn as an article of dress. We need a long campaign of education before that will be feasible.

What, now, of the enforcement of these laws? Clearly the enforcement of any law must have behind it a public sentiment demanding enforcement. A law fails to be prohibitive when it receives only indifferent attention from the public for whom it was passed. It is our privilege to so bring to the attention of the people at large their own great interests, which are dependent upon the birds, that their eyes shall be opened to see the great necessity of prompt and united action. The great growth of popular interest in the birds during the past three years is the clearest proof that the time is now ripe for such a campaign of education. Push it now. In every mind there lies dormant an interest in nature which needs but a touch now to be awakened to activity and usefulness.

But there is still the machinery of enforcement to be considered, for however much the general public may be educated there will always be some persons, not a small number, we fear, who must be held in check by legislative action. In the first place, game wardens are too few, in most counties, to properly enforce the laws. They should be numerous enough and so situated that they may be reached readily. But if this increase in number be not practicable, then there is a way out of the difficulty. We must be more active ourselves. In a large majority of cases we shall have no need to cause arrests, but need only to inform the transgressor of the existence of the law, giving him some useful information of the great good which the birds do, and of the pleasure which may be gained from a study of the living bird, and the purposes of the law will be accomplished. For many times the transgressor is of foreign birth, knowing nothing of the esteem in which we hold the birds. Or else the person is simply thoughtless, or ignorant of the law and its purposes. The other cases of flagrant breaking of the law need and deserve prompt and severe treatment. Here it is often not a matter of education but of discipline. It is not pleasant to be an informer, but such cases should be put upon a par with any other sort of law-breaking, for there is a great public interest involved beside which our own personal interest, however great that may be, sinks into insignificance. It is a duty which we have no right to shirk.

To summarize the means by which we may hope to secure adequate protection for our rapidly decreasing birds: Legislative action brought about by combined effort throughout the country; enforcement of the laws enacted by an increase in the public interest, by an increase of the number of game wardens, by our own activity in seeing that the laws are enforced. By these means we may accomplish what we undertake.

The little bird sits at his door in the sun,
  A tilt like a blossom among the leaves,
And lets his illumined being o'errun
  With the deluge of summer it receives;
His mate feels the eggs beneath her wings,
  And the heart in her dumb breast flutters and sings;
He sings to the wide world, and she to her nest,
  In the nice ear of Nature which song is the best?
  —James Russell Lowell, "The Vision of Sir Launfal."

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IRISH SETTER.

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THE DOG AND ITS ANCESTORS.

That the domestic dog has been held in high esteem by mankind from the earliest times, is shown by written records and mummified remains obtained from countries situated widely apart. The statement occurs in the Zendavesta, that "the world exists through the intellect of the dog." Cuvier wrote that "the dog is the completest, the most singular and the most useful conquest that man has ever made * * * each individual is devoted to man and remains attached to him even unto death; and all this springs not from necessity nor from fear, but from a true friendship. The dog is the only animal that has followed man all over the globe."

Egyptian monuments dating back 3,400 years B. C., show several varieties of dogs, most of them being allied to the greyhound. Carved records of a later period portray the mastiff, a turnspit and a form closely resembling the hound. Without question the dog was domesticated in Europe previous to any historical record. His remains are found in the kitchen-middens of Neolithic times and an increasing size in the animals is noticed through the Bronze and Iron ages in Denmark. Remains of the Neolithic in Switzerland disclose skulls closely resembling our hounds, setters or spaniels. The Americans had indigenous dogs before the conquering Spaniards introduced European species, and mummies of dogs are found in the oldest Peruvian tombs.

All this goes to show that the differentiation of the dog took place at a very early date. As in the case of man, the link is missing, but the ancestry is certain. Without question the varieties of the dog originated in domestication and inter-breeding of different species of wolves living in various parts of the world.

The dog family is divided into three groups. First, the wolves or wild dogs, having a round pupil in the eye and a short tail. Second, the foxes, which are characterized by a slit-like pupil and a long bushy tail; and, third, the long-eared dogs which inhabit eastern deserts and possess more numerous and a different set of teeth than the other groups. Considered as a family they are distinguished by a lean body, small head, the slim or long legs terminated by small paws furnished with strong but not retractile claws. The fore paws usually have five toes while the hind paws are always limited to four. As the dogs do not live exclusively on animal food they are not as savage as the cats, neither do they possess the "soulless expression of face so characteristic of the felidae."

While most of the dog family are gregarious, certain forms lead lives that are solitary or nearly so. Other species are nocturnal in their habits, while yet others burrow in the earth for shelter or protection. All bend the joints of the legs in walking, all possess great speed and endurance, and without exception are good swimmers.

Intellectually, dogs are more highly developed than any other brute animal. Many forms act with a rational deliberation and follow carefully thought-out plans. The senses are wonderfully developed. The sense of smell is marvelous in many forms, while strength of eyesight distinguishes others.

Of the three groups mentioned, the wolf without question was the ancestor of the domestic dog. In the German mythology, he was consecrated to the god Woden, but when Christianity reconstructed old beliefs, Woden was metamorphosed into "The Wild Hunter," and the wolves became his attending dogs, which finally were evolved into the ghost-like wolves of nursery and fable. The wolf has all the attributes of the dog except the nobility which necessarily comes from [Pg 226] education. The tail always droops, never curling upwards as in the domestic dogs, and even when tamed they rarely wag the tail. Among the wolves may be mentioned the jackals of Asia, which are said to have entered largely into the breeds of oriental dogs. These were known to the ancients as "gold wolves," and are said to be the foxes whose tails Samson set on fire in order to burn the fields and vineyards of the Philistines. The Indian wild dog, or "Kolsun" is claimed by many to be the progenitor of all domesticated dogs. He closely resembles a greyhound, and is found all over the Himalaya and East India country. He exhibits many traits characteristic of our hunting dogs.

Prominent among several distinctive and familiar breeds of dogs is the Greyhound, which while graceful and universally popular as a pet, and a sporting dog, is unfaithful and unsympathetic. The great lung capacity gives the animal unusual endurance, but while possessed of keen sight and hearing, the sense of smell is very deficient. The Mastiffs constitute another group embracing many of the familiar forms. Among these are the Danish dog, the German Mastiffs, the Bulldog and the Pug. With the exception of the Pug, which is justly called a caricature of a dog, the group is remarkable for fidelity, courage, determination and strength. Great Britain is the home of the Hounds which, because of their intelligence and docility, are considered to be in the first rank of domestic dogs. All the varieties of this group are born hunters, being strong, swift and possessed of unusually keen senses, especially that of smell. Among these are the Pointers, the German Bloodhounds, the Staghounds, the Beagles, and the Foxhound. This last is justly considered the greatest of hunting dogs, possessing the speed of the greyhound, the courage of the bulldog, the delicate scent of the bloodhound and the sagacity of the poodle, he is well equipped for his duties in field and forest.

Probably no two dogs have so endeared themselves to mankind as the St. Bernard and the Newfoundland. Both of these, together with the Spaniels, Setters and the sagacious Poodles make up the Spaniel group. While as a class they are not remarkable for docility or endurance, these defects are more than compensated by a superior intelligence, fidelity, courage, keen scent

and great speed. Much has been written about the qualities of the Newfoundlands and St. Bernards. The first are said to be the best of all water dogs, possessed of great beauty and an exceptional fund of good nature, gentleness and gratitude. The heroic deeds of the others are inseparably linked with their native home, the Hospice of St. Bernard. The intelligence and courage exhibited by these dogs among the avalanches and frozen wastes of their mountain homes have given them a place in history and earned for them the title of "The worthiest of them all."

The Setter, which is illustrated in this article, is an excellent type of a certain class of the Spaniels. The animal is an excellent hunting dog and gains its name from its habit of crouching close to the ground when pointing game.

Everywhere, everywhere, Christmas to-night!
Christmas in lands of the fir-tree and pine,
Christmas in lands of the palm-tree and vine.
Christmas where snow-peaks stand solemn and white,
Christmas where corn-fields lie sunny and bright,
Everywhere, everywhere, Christmas to-night!
—Phillips Brooks, "A Christmas Carol."

A FAVORITE HAUNT.

Children, as a rule, especially those born and raised in the rural districts, have some favorite haunt where they especially delight to spend their time and where certain pleasant associations are formed, the memory of which is treasured in after years.

The writer was no exception to this rule, and he will endeavor to describe a certain "Deserted Limestone Quarry," which, in his case, was the favorite haunt of childhood. A perusal of the following will give my readers an idea of the general appearance of the locality. In the center was a large body of deep water, bounded on three sides by steep banks, interspersed with huge rocks and sandstone boulders. On the fourth side was a cart road leading to the double stone lime kiln, then out of use. The south bank was bordered by a piece of woodland, through which ran a little rippling brook, and the other three sides by pasture fields. Within the deep gulch, and extending around about two-thirds of the body of water, was a combined cart road and pathway, at the extreme end of which, lying under two large, overhanging rocks, was a spring of most delicious water. It was quite deep, but you could see the golden sand and white pebbles at the bottom very plainly. Hanging from the banks above mentioned were numerous sumach bushes and blackberry briars. Such were the natural surroundings of my favorite haunt. A charming place, indeed; quiet, retired, and a veritable paradise for the admirer of nature's beauties.

Now a few words regarding the many little friends with which I associated, and whose habits and daily lives I studied. Within the lime kiln a pair of Pewees built their nest; among the briars on the bank, the Song Sparrows reigned; in the piece of woodland referred to were the nests of a Green Heron, of Blue Jays, Crows, Cat Birds, Wood Thrushes, Crested Flycatchers, etc. I also observed Belted Kingfishers on many occasions, but never found a nest. Owing to the large number of insects around the water the quarry was a favorite feeding ground for King Birds, Pewees and Swallows, and they could be seen skimming over the surface of the water from early dawn to the twilight of evening.

Aside from this large bird population, there were land and water turtles, snapping turtles, frogs in all stages of transformation, sun and catfish, many beautiful butterflies, and a family of little gray rabbits. I had the pleasure of seeing the latter when they were scarcely larger than small kittens. Along the borders of the woods were gray squirrels, ground squirrels and ground hogs. Thus, in this one particular, opportunity was afforded for the study of a large number of natural history subjects. Here, too, was the pleasant odor of fresh green spearmint and the sweet scent of wild roses. In the early spring time a profusion of wild violets (blue and yellow), dog-tooth violets, blood roots, spring beauties, anemones, "jack-in-the-pulpit," belwort and hare-bell were to be found in the strip of woodland, and later in the season the pasture fields were covered with buttercups and daisies.

Were all details entered into, a volume could be written concerning this old quarry and the many happy hours spent there, but I will not burden my readers with further reminiscences of my favorite haunt.

Berton Mercer.

CARNIVOROUS PLANTS.

This name has been given to certain plants which have developed the curious habit of capturing insects and using them for food. This behavior seems at first sight most unplantlike, but it is discovered that the actual food of all plants is practically the same as that of animals. The chief peculiarity of carnivorous plants, therefore, does not lie in the food which they use, but in the methods which they have worked out for securing it.

They are all green plants, and hence are able to make food for themselves, but they live in surroundings which are poor in some of the material which they need in the manufacture of food, so that they have learned to supplement their food by capturing insects or other small animals. When it was discovered that these plants not only captured insects, but secreted substances for digesting them, it was thought to be a very astonishing fact. It is found, however, that all plants have digestive substances to act upon their food materials, and that animals are not peculiar in this regard. It would seem, therefore, that the use of such food as the bodies of insects and the digesting of this food are not facts which are peculiar to carnivorous plants, but belong to all plants as well.

It is interesting, however, to observe the various devices which plants have adapted for capturing their prey, and it is these various devices which form the subject of this paper.

Prominent among the carnivorous plants are the pitcher plants, whose leaves form tubes, or urns, or pitchers of various forms, which contain water, and to which insects are attracted and drowned. There is a very common pitcher plant in our northern bogs, in whose urn-like leaves insects are found drowned, but which does not have such elaborate arrangements for their capture as other forms. Perhaps the most famous of the pitcher plants is one which is common throughout the southern states. The leaves are shaped like slender hollow cones, and rise in a tuft from the swampy ground. The mouth of this conical urn is overarched and shaded by a hood in which are translucent spots like small windows. Around the mouth of the urn are glands which secrete a sweet liquid, and drops of this nectar form a trail down the outside of the urn. Inside, just below the rim of the urn, is a glazed zone so smooth that insects cannot walk upon it. Below the glazed zone is another zone thickly set with stiff downward-pointing hairs, and below this is the liquid in the bottom of the urn. If a fly is attracted by the nectar drops on this curious leaf, it naturally follows the trail up to the rim of the urn where the nectar is abundant. If it attempts to descend into the urn it slips on the glazed zone and falls into the water; and if it attempts to escape by crawling up the side of the urn, the thick-set, downward-pointing hairs prevent. If it seeks to fly away from the rim it flies towards the translucent spots in the hood, which look like the way of escape, as the direction of entrance is in the shadow of the hood. Pounding against the hood the fly falls into the water. This southern pitcher plant is known as a great fly catcher, and is frequently used for this purpose in the south.

PITCHER PLANT. (Nepenthes.)

The very largest of the pitcher plants is one which grows in the swamps of California, whose leaves sometimes become as much as two or three feet high, the huge pitchers forming the most

capacious receptacle for insects of all kinds and sizes. Its general plan is like that of the southern pitcher plant described above, in that it has an overarching hood with translucent spots, and a trail of nectar which leads to the dangerous rim. It has become further elaborated, however, in that the hood extends into a gaudy fish-like appendage, whose colors and flapping serve to attract the flying as well as the creeping insects. The pitcher, also, instead of being straight, is spirally twisted, and has a wing-like expansion which serves as a guide in the spiral ascent to the rim, and leads the victim with definiteness and certainty to the region of danger. The fish-tail appendage is also smeared with the nectar secretion, so that any flying insect lighting upon it is enticed under the overshadowing arch and is almost sure of capture.

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The most common pitcher plants of the tropics are the Nepenthes, one of which is shown in our illustration. It will be noticed that each leaf when fully formed consists of three distinct regions, namely, the leaf-like blade, which is continued into a tendril which coils around a support, and the tendril in turn ends in a curiously-formed pitcher, which has a more or less complete lid. These pitchers are often mottled with bright colors, and as they swing at the ends of the tendrils they seem to attract the attention of roving insects. Around the rim of the pitcher a very definite row of glands may be observed, which secrete the nectar to which the insects are attracted. The arrangements within the pitcher are such as have been described for the ordinary pitcher plant. These pitchers of Nepenthes are usually found containing insects, and often very many of them, whose bodies are being slowly digested and the products absorbed by the plant.

Another group of carnivorous plants consists of the sun-dews which grow in swampy regions and are quite common in our sphagnum swamps. While the pitcher plants depend upon luring insects to their death by drowning, the sun-dews depend upon stickiness. The leaves form small rosettes on the ground and are of various shapes. In one of the most common forms the leaf blade is round, and the margin is beset by prominent bristle-like hairs, each with a globular gland at its tip. Shorter gland-bearing hairs are scattered over the inner surface of the blade. All of these glands secrete a clear sticky fluid which hangs to them in drops like dewdrops, and since these dewdrops are not dispelled by the sun the plants have been called the sun-dews. If a small insect, in flying or creeping across the plant, happens to touch one of the sticky drops it becomes entangled, and then there follows a curious scene. If the insect is small, the single bristle-like hair, in whose sticky drop it has become entangled, will begin to bend inwards and will finally press the captured insect down upon the body of the leaf where the short glandular hairs receive it. If the insect is strong enough, however, to escape from a single sticky drop, neighboring hairs will bend toward the one which has captured the insect, and by adding their mite of strength and glue, succeed in detaining it until they all bend inwards and press it down upon the leaf. In some cases the whole half of a leaf will roll inwards in this attempt to secure an insect. In this position the captured insect is gradually digested and its nutritive substances absorbed.

Perhaps the most famous and remarkable of the fly-catching plants is the Venus fly-trap, known only in swamps near Wilmington, North Carolina. This fly-trap does not depend upon drowning the insects, or upon sticking them fast, but upon its quickness of movement. Of course this seems most wonderful in plants, which are not ordinarily endowed with powers of quick motion. Dionaea, for this is the name of the Venus fly-trap, has a cluster of small leaves rising from the marshy ground, just as is the case with pitcher plants and sun-dews. The lower part of the leaf is like any ordinary blade, but above becomes pinched almost in two, and then suddenly flares out again into a round blade-like expansion which is constructed like a steel trap, the two halves snapping together and the marginal bristles interlocking like the teeth of a trap. A few sensitive hair-like feelers are developed on the leaf surface, and when one of these is touched by a small flying or hovering insect, the trap snaps shut and the insect is caught.

Many interesting experiments have been performed with Dionaea to show its quickness and its recognition of suitable food material. For example, although it will snap shut at the touch of a pencil point, or any other indigestible substance, it soon opens again; while in the case of a digestible substance the trap remains closed until digestion has taken place. It has been claimed further that when the trap has closed its bristles do not interlock closely at first, so that between the crevices very small insects may crawl out and escape. In such an event the trap opens again and waits for other prey. If this be true, it follows that the leaf does not undertake the rather long process of digestion until an insect of suitable size has been captured, one which cannot escape through the meshes of the bristles. Digestion is slow work with Dionaea as with an anaconda, being said to occupy not less than two weeks.

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Among the common marsh plants in certain regions are the bladderworts, so-called because their bodies are kept afloat in water by means of numerous little bladders. While these bladders are used in this fashion, they also serve as most effective traps for certain very small water animals related to the insects. Each bladder has a sort of opening which is guarded by a door like that of an ordinary rat trap. From the side of this entrance hairs are floating and waving in the water, and within the transparent bladder are other waving tufts of hairs. For some reason these things are attractive to the minute water animals, and they push aside the easily-moved trap door, and entering the bladder find escape impossible, for the door, which was easy to push aside on entering, cannot possibly be moved outwards.

It must not be supposed that carnivorous plants are peculiar in the kind of food they use, but merely in the source from which they obtain it. There are other green plants which supplement their food supply by preying upon other plants. For example, the mistletoe is able to manufacture a certain amount of food for itself, but it adds to this supply by absorbing prepared food from the trees upon which it grows. The dodder is another illustration of a high grade plant which begins

life independently, but presently breaks its connection with the soil and becomes entirely dependent upon the plants around which it twines and from which it absorbs.

A great many plants are known as root-parasites, that is, they absorb from the underground parts of other plants. This is notably the case with the orchids and heaths, which have the appearance above ground of being entirely independent, but which really are quite dependent upon the underground parts of other plants.

One of the lowest groups of plants, known as the fungi, have cultivated most completely the habit of dependence on other organisms. They attack both plants and animals, and are often exceedingly destructive. Among the better known of these parasites are the rusts, which attack and destroy many of our most useful crops. To the fungi there also belong the well-known bacteria, which are the cause of numerous contagious diseases both among plants and animals. It will be observed that these parasites are using exactly the same sort of food as do the carnivorous plants. This does not appear so striking in this case, simply because the attacking plants are so much smaller than the organisms attacked that they do not seem to capture them, although they are often none the less effective in destroying them.

John Merle Coulter.

MAPLE LEAVES.

October turned my maple's leaves to gold;
The most are gone now; here and there one lingers;
Soon these will slip from out the twig's weak hold,
Like coins between a dying miser's fingers.
Thomas Bailey Aldrich.

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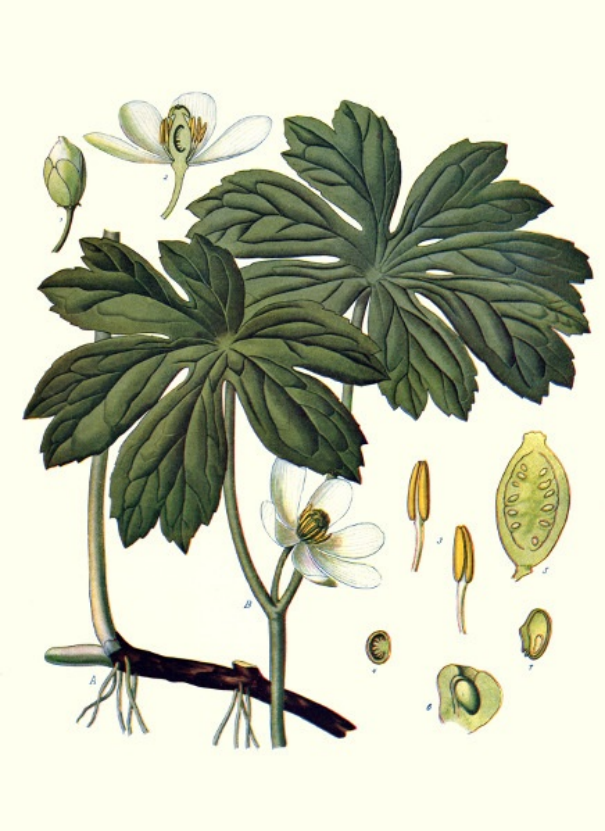

FROM KŒHLER'S MEDICINAL PFLANZEN.

MANDRAKE.

Description of Plate.—A, B, parts of the plant about natural size; 1, flower bud; 2, flower; 3, stamens; 4, ovary; 5, fruit; 6, seed coat; 7, seed.

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MAY-APPLE.

(*Podophyllum peltatum L.*)

"The blushing peach and glossy plum there lies,
And with the *mandrake* tempt your hands and eyes."
—Quoted in *Tuckerman's America, p. 33*.

The may-apple is a small perennial herb with long root-stocks or underground stems (rhizomes), a native of the United States and Canada, growing in rather moist woodlands. The rhizomes attain a length of about twelve feet; they are sparingly branched with comparatively few roots at the nodes. Upon closer inspection one may notice the leaf scars and stem scars. Early in the spring the bud situated at the anterior end of the root-stock or rhizome, develops and sends up a stem upon which the leaves and flower are situated. The entire plant attains a height of about twelve inches. The leaves are large, peltate (from pelta, a small shield), margin deeply from five to nine lobed, lobes pendant thus giving the leaf a semblance to an umbrella. It is remarkable that the flowerless plants have only one leaf, while the flowering specimens always have two, which are opposite upon the stem apex, carrying the flower in the bifurcation as shown in the illustration.

Each plant bears a single flower upon a drooping stalk. The calyx consists of six greenish sepals, which, however, drop off as soon as the flower begins to unfold. The corolla consists of six or nine petals, which are quite large, thick and pulpy, and of a creamy white color. Authorities seem to differ as to the odor of the flower. Some speak of it as very fragrant; others designate it as nauseous and others express no opinion. Millspaugh, in his "Medicinal Plants," says, "The odor of the flowers is nauseous; I am always forcibly reminded of a bad case of ozaena when inhaling their perfume (?)." It is an undoubted fact that the rhizomes, stems and leaves have a very decided heavy, nauseous odor, and it is not unreasonable to assume that this odor is traceable in flower and unripe fruit.

The flowers expand in May and the fruit ripens in August. The fruit is a berry about the size of a plum. At first green, it changes to a soft yellow at maturity. It is not unlike a tomato in general appearance. When fully ripe it has a fragrant odor and tastes somewhat like the paw-paw (Asimina triloba).

Podophyllum peltatum is variously known as may-apple, Indian apple, hog apple, wild lemon and raccoon berry in reference to the fruit; duck's foot (German, Entenfuss) in reference to the form of the leaf; wild jalap in reference to its medicinal properties, which are similar to that of jalap. The generic name Podophyllum, meaning foot-leaf, is given in reference to the leaf. The plant is also quite generally known as mandrake or American mandrake, but the mandrake proper, so frequently referred to in the books of Moses and in the works of Shakespeare, is not the may-apple but Mandragora officinalis L. of the night-shade family (Solanaceae), a native of southern Europe. Earlier collectors supposed the two plants to be similar if not identical. There is only one other species of Podophyllum which is a native of Europe.

Apart from its beauty the may-apple is highly valued for its fruit, which is considered a delicacy by the American Indians. Whites apparently do not care much for the fruit, though it is occasionally collected and eaten. The taste of the fully ripe fruit is quite pleasant. Some state it is like that of a tomato, and it certainly is not very nutritious. It must only be sparingly eaten because of its decidedly laxative properties. The entire plant is quite poisonous and it is stated that the cooked leaves have been eaten for "greens" with fatal results. The Indians have employed the plant medicinally for centuries. [Pg 236]

The principal use of the American mandrake is medicinal. It is a very efficient cathartic, due to the presence of a resinous principle known as podophyllin, which has been given the name "vegetable calomel." It is no doubt true that this drug is in no small measure responsible for the decrease in the use of the old-time mineral drug calomel. Both rhizomes and leaves may be employed, but the former contain more of the active principle. The drug is rarely given alone because of the griping it produces; it is combined with hyoscyamus and belladonna, also with aloes and colocynth. In large doses it usually acts as an emetic, which would tend to prevent poisoning from an overdose. Podophyllin has been used in dropsy, scrofula and rheumatic affections. Applied externally it acts as a powerful irritant, similar to capsicum and mustard plaster.

Albert Schneider.

I opened the eyes of my soul.
And behold,
A white river-lily: a lily awake, and aware—
For she set her face upward—aware how in scarlet and gold
A long wrinkled cloud, left behind of the wandering air,
Lay over with fold upon fold,
With fold upon fold.

And the blushing sweet shame of the cloud made her also ashamed,
The white river-lily, that suddenly knew she was fair;
And over the far-away mountains that no man hath named,
And that no foot hath trod,
Flung down out of heavenly places, then fell, as it were,
A rose-bloom, a token of love, that should make them endure,
Withdrawn in snow silence forever, who keep themselves pure,
And look up to God.

—Jean Ingelow, "A Lily and a Lute."

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- Minor typographical errors have been corrected without note.
- Punctuation and spelling were made consistent when a predominant form was found in this book; otherwise they were not changed.
- Ambiguous hyphens at the ends of lines were retained.
- Mid-paragraph illustrations have been moved between paragraphs and some illustrations have been moved closer to the text that references them. The pagination of corresponding index entries was corrected
- The Contents table was added by the transcriber.
- The index contains links to articles in other issues of *Birds and Nature* magazine:
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