The Project Gutenberg eBook of Birds and Nature, Vol. 12 No. 5 [December 1902]

Title: Birds and Nature, Vol. 12 No. 5 [December 1902]

Author: Various

Editor: William Kerr Higley

Release date: January 6, 2015 [eBook #47885]

Language: English

Credits: Produced by Chris Curnow, Joseph Cooper, Stephen Hutcheson,
and the Online Distributed Proofreading Team at
http://www.pgdp.net

BIRDS AND NATURE.

ILLUSTRATED BY COLOR PHOTOGRAPHY.

VOL. XII. DECEMBER, 1902. No. 5

BIRDS AND NATURE.

ILLUSTRATED BY COLOR PHOTOGRAPHY.

VOL. XII. DECEMBER, 1902. No. 5.

CONTENTS.

DECEMBER.

When the feud of hot and cold
  Leaves the autumn woodlands bare;
When the year is getting old,
  And flowers are dead, and keen the air;

When the crow has new concern,
  And early sounds his raucous note;
And—where the late witch-hazels burn—
  The squirrel from a chuckling throat

Tells that one larder's space is filled,
  And tilts upon a towering tree;
And, valiant, quick, and keenly thrilled,
  Upstarts the tiny chickadee;

When the sun's still shortening arc
  Too soon night's shadows dun and gray
Brings on, and fields are drear and dark,
  And summer birds have flown away,—

I feel the year's slow-beating heart,
  The sky's chill prophecy I know;
And welcome the consummate art
  Which weaves this spotless shroud of snow!

—Joel Benton, in "Songs of Nature."

THE HOODED ORIOLE.

(*Icterus cucullatus.*)

Only a very limited portion of the United States is beautified by the presence of the bright colored Hooded Oriole. The North has the richly plumaged Baltimore oriole for a short time each year, but only the far southeastern part of Texas is enlivened by this graceful, active bird of our illustration, which is "so full of song that the woods are filled with music all the day." Both of these birds seem hardly to belong to the North, where somber colors seem more in harmony with a severer climate. The Hooded Oriole does not attempt the journey and when we see the Baltimore,

"A winged flame that darts and burns,
Dazzling where'er his bright wing turns,"

in our northern woods we cannot but ask, with the poet,

"How falls it, Oriole, thou hast come to fly
In tropic splendor through our northern sky?
At some glad moment was it Nature's choice
To dower a scrap of sunset with a voice?"

The Hooded Oriole has a very narrow range, reaching from Texas southward through eastern Mexico to Honduras, and during our northern winters it has the Baltimore as an associate. It is a social bird and frequents the home of man. One writer relating his experience with this Oriole says: "They were continually appearing about the thatched roof of our houses and the arbors adjoining for insects; they were more familiar than any of the other Orioles about the ranch."

It not only delights man by its song and beautiful coloring, but its presence is also beneficial, for it destroys countless adult insects and their larvæ.

The Hooded Oriole seldom builds its nest higher than from six to twelve feet above the ground, though in a few instances it has been found as high as thirty feet. Dr. James C. Merrill, in his Notes on the Ornithology of Texas, says, “The nests of this bird found here are perfectly characteristic, and cannot be confounded with those of any allied species. They are usually found in one of the two following situations: The first and most frequent is in a bunch of hanging moss, usually at no great height from the ground; when so placed the nests are formed almost entirely by hollowing out and matting the moss, with a few filaments of a dark, hairlike moss as a lining. The second situation is in a bush growing to a height of about six feet, a nearly bare stem, throwing out two or three irregular masses of leaves at the top. These bunches of dark green leaves conceal the nest admirably. It is constructed of filaments of the hair-like mass just referred to, with a little Spanish moss, wool, or a few feathers for the lining. They are rather wide and shallow for orioles’ nests, and though strong they appear thin and delicate.” Not infrequently the Hooded Oriole builds its nest in plants called the Spanish bayonet or yucca. In such a situation the walls are constructed almost entirely of the fibers of the plant torn from dried leaves. These fibers are tough and the nest walls are much more durable than when made with moss. Wool or vegetable down may be used as a lining, but it is not uncommon to find no lining. The Hooded Oriole is not free from the intrusion of feathered rascals. Major Bendire says that it “is considerably imposed upon by both the red-eyed and the dwarf cow-birds, and in a few instances parasitic eggs of both species are found in the same nest.”

HOODED ORIOLE.
(Icterus cucullatus).
⅔ Life-size.
FROM COL. CHI. ACAD. SCIENCES.

THE ORIOLE’S MISSION.

Sweet little bird on yonder tree,
Fly to the town with song of glee
And comfort there some lonely soul,
Thou sweetest, dearest oriole!

Perch on an open window sill,
And then pour forth thy mellowest trill.
What griefs thy carol will console,
Thou sweetest, dearest oriole!

A tale of hope to each sad heart
Thy notes of love will soon impart;
And in their memory will roll
The sweet strain of the oriole.

—Christine B. Moray.

THE CLOTHES MOTH AND ITS METHODS.

Though it has incurred the bitter condemnation of all housewives, the clothes moth is quite an interesting little body from the naturalist’s point of view. The species known in the United States bears the long name Pellionella. Its larva constructs a case for its occupancy. The moths themselves are very small and

well fitted for making their way through minute holes and chinks. The mother insect deposits her eggs in or near such material as will be best adapted for food for the young. Further, she distributes them so that there may be a plentiful supply and enough room for each.

When one of the scattered family issues from the egg its first care is to provide itself with a home, or more correctly speaking, a dress. Having decided upon a proper site it cuts out a filament of cloth and places it on a line with its body. Another is cut and placed parallel with the first. The two are then bound together by a few threads of silk from the caterpillar's own body. The same process is repeated with other hairs until the little creature has made a fabric of some thickness. This it extends until it is large enough to cover its whole body. It chooses the longer threads for the outside and finishes the inner side by a closely woven tapestry of silk. The dress being complete, the larva begins to feed on the material of the cloth.

When it outgrows its clothes, which happens in the course of time, it proceeds to enlarge them. With the dexterity of a tailor it slits the coat, or case, on the two opposite sides, and inserts two pieces of the requisite size. All this is managed without the least exposure of its body. Neither side being slit all at once. Concealed in its movable silk lined roll it spends the summer plying its sharp reaping hooks amid the harvest of tapestry.

In the fall it ceases to eat, fixes its habitation, and lies torpid during the winter. With the early spring it changes to a chrysalis within its case, and in about twenty days thereafter it emerges as a winged moth, which flies about in the evening until it has found a mate and is ready to lay eggs.

Louise Jamison.

INCIDENTS ABOUT BIRDS.

There is much to be learned about the habits of birds, even in a casual observation of them as we meet them from time to time.

It is well known that the English sparrow is not friendly toward other birds, often driving them from their nests and even going so far as to destroy both these and their young.

Upon one occasion a sparrow took possession of the partially completed nest of a pair of martins, in process of construction, beneath the eaves of a farmhouse. When the martins returned with their load of mud for its walls, the sparrow, intrenched within, drove them away with scolding cries and fluttering wings, resisting all their attempts at dislodging him. Time after time the attack was renewed, all to no avail. There he was and there he proposed to remain.

But the plucky martins were not so easily vanquished. They retired for a season, only to renew the attack with increased vigor, waging a battle long and fierce. Finally, however, they seemed to understand that their enemy had the better of them, and bent their energies toward vengeance. Carrying mud in their beaks, they built a wall about the sparrow as he sat in possession of their home, surrounding him so completely that he was made a prisoner in the very place where he had taken forcible possession. And there they left him to his fate.

A pair of robins selected a nesting place in the fork of a maple, standing quite near a house, the chamber windows of which looked down directly into it. No sooner had they begun to carry sticks for the foundation, than a pair of crow black birds, with malicious intent, pounced upon it and scattered the sticks in every direction, taking advantage of the absence of the owners of the nest to carry out their mischief. Time after time did the robins repair the damage and begin afresh their work of construction. No sooner were they out of sight than the black birds tore the material out of the tree, seemingly working in great haste to complete their depredation before the robins' return.

Stormy encounters, amounting to pitched battles sometimes, ensued when the marauders were caught by the irate home makers in the very act of tearing to fragments the work they were toiling so painfully to complete. Not one day only, but several elapsed, and still the battle continued, the interested spectators though sympathetic were powerless to help the rightful owners of the home. The black birds seemingly did not want the nest for themselves. They merely objected to the robins building there. At last, to the great relief of the red-breasts, their enemies gave up the fight and allowed them to build the nest. This they did, laying their eggs and rearing their young without further annoyance.

Many a fat angle worm does the robin get in the spring of the year, pulling them out of the ground where the bright eyes spy them close to the surface, or partly protruding therefrom. A full-grown robin has been seen to thus capture and swallow a round dozen of earth worms inside of ten minutes.

One day a fledgling was hopping across the lawn, the mother bird alert and watchful, not far away. She had been feeding it, but evidently its hunger had not yet been appeased, for it hopped to her side and began to make the coaxing noise heard when in the nest as the parent approaches with food. The mother bird paused a moment, looked about her, then hopping to one side a short distance, she planted her feet squarely upon the ground, caught one end of a worm in her beak and commenced to pull. The worm, which was a large one, was not easily dislodged and tug as hard as she could, she could not complete her capture. Evidently the worm was too long. She fairly tipped over backward in her effort, yet without avail. All at once, and as quick as a flash, so as to give it no chance to get away, she let go her hold and seizing the worm farther down, drew it triumphantly forth and gave it to her expectant offspring.

E. E. Rockwood.

CHUCK-WILL'S-WIDOW.
(Antrostomus carolinensis).
⅗ Life-size.
FROM COL. CHI. ACAD. SCIENCES.

201

THE CHUCK-WILL'S-WIDOW.

(*Antrostomus carolinensis*.)

In the wooded ravines and timbered swamps of the southern states, the Chuck-will's-widow tells of its presence by frequently calling its own name. It, with the whip-poor-will and the night hawk, belongs to the family of goatsuckers and is closely related to the swifts. The family includes about eighty-five species of these peculiar birds, nearly all being natives of the tropics, though nearly every part of the world has representatives. The range of the Chuck-will's-widow is quite limited. It includes the states from Virginia and southern Illinois southward to the Gulf of Mexico, and through Mexico into Central America. It is also found in Cuba.

Chuck-will's-widow is a bird of the twilight and night hours. Silent during the daylight hours, its penetrating voice, which is remarkably strong, may be continuously heard in the regions that it inhabits during the evening hours and for a time preceding the returning light of day. It is said that on a still evening its call may be heard for more than one mile. In its large eyes and head, its loose and somber colored plumage, its quiet flight and nocturnal habits it resembles the owls. Its short bill and the shape of the wings, permitting rapid flight, give it a close relationship to the swifts. Its mouth is peculiarly fitted for the capture of insects. The gape is enormous, and when the mouth is fully open, will measure nearly two inches from side to side. It is also aided in ensnaring insects by the long, bristle-like whiskers at the base of the mouth. It will catch and swallow the largest of the night-flying moths, and though it seems almost incredible small birds not infrequently form a part of its diet. An observer found in the stomach of one "among an indistinguishable mass of brownish matter, a small bone, about half an inch long." In another stomach he found the remains of a hummingbird only partially digested and well enough preserved for him to identify the species. Dr. F. W. Langdon states that he examined the stomach of a female Chuck-will's-widow that "contained the partially digested body, entire, of a swamp sparrow, intermingled with the feathers of which were numerous remains of insects, chiefly small beetles."

While hunting for food the Chuck-will's-widow flies low, often but a few feet above the surface of the ground. In this habit it differs from the night-hawk, which, like the swifts, seeks its food high in the air. Now and then it rests, perching on old logs or fences, from which it will launch forth in pursuit of prey which its keen eyes have sighted. During the day it roosts in hollow trees or upon a large limb in some densely shaded spot.

It does not attempt to build a nest. The two dull white eggs are laid upon the ground or upon leaves in some secluded place in woods or thickets. It is said that this bird, when disturbed at its nest, will remove either its eggs or the young, as the case may be, to a place of safety by carrying them in its mouth.

Mr. Audubon relates the following incident which came under his observation: "When the Chuck-will's-widow, either male or female (for each sits alternately), has discovered that the eggs have been touched, it ruffles its feathers and appears extremely dejected for a minute or two, after which it emits a low, murmuring cry, scarcely audible to me as I lay concealed at a distance not more than eighteen or twenty yards. At this time I had seen the other parent reach the spot, flying so low over the ground that I thought its little feet must have touched it as it skimmed along, and after a few low notes and some gesticulations, all indicative of great distress, take an egg in its large mouth, the other bird doing the same, when they would fly off together, skimming closely over the ground, until they disappeared among the branches and trees." Because of its night-flying habit, its somber colors and its peculiar penetrating notes the Chuck-will's-widow, as well as the whip-poor-will, was considered by the Indians a bird of ill omen.

202

AN AMATEUR CIRCUS.

A True Story.

We were not like ordinary children—in fact as I look back on our younger days it comes to me ever more strongly how very unlike we were. There was Harvey, my older brother, who never did anything that other children did and was always perpetrating some most extraordinary thing which certainly no one else ever would have thought of. However, in spite of this trait, or possibly in consequence of it, he afterwards became famous. But that is neither here nor there—we were all what the neighbors termed "unexpected," if they were kindly disposed, otherwise it was some word to the same effect though less mild.

It was always a great blessing to us and one which we received with thankful hearts, that our father was a man of science, and his line of work made him the recipient of a varied assortment of animals which he would bring home alive and keep until he was ready to work upon them. It was only natural that we

children should become fond of these creatures and beg that they might be spared the eternal sleep and left to us to play with. This was often granted.

So it happened at one time that we were the proud possessors of twenty-five different kinds of birds, animals and reptiles and the envy of all the children for blocks around.

It is so long now since the time of which I write that I may not be able to recall them all, but I give them as I remember them and by their rank—for they had rank as well as names, the highest in intelligence always going first—as they did at our funerals; for when any one of the little colony died we would give it a burial in accordance with its station in life.

First beside the grave would stand Rex, my beautiful dog, whose knowledge was so great it seemed almost human; then would come "Daisy," Harvey's little Mexican pony; then "Lorita," the parrot, whose intelligence was really remarkable; after her came "Jackie," the monkey, and so on down. The cat, the crow, with his one white tail feather; then the smaller birds; two love-birds, a brown thrush, a blue jay and the canary. Three baby foxes followed the birds and then came the squirrels, gray, red, and flying squirrels; next to these stood the rabbits, a dozen or more of all kinds and colors: Belgian hares, pure yellows, angoras, whites and blacks, they came, a motley crew. The weasel and muskrat were next, and now the reptiles were beginning; the turtles, a hellbender and the snakes; black snakes, garter snakes, green snakes, a puffing adder and last of all came two boa constrictors.

I have reserved a special place for my own dear, stupid, little hedge hog, Billy. It used to grieve me to always see poor Billy straggling off at the end of the animals—ahead of the reptiles, to be sure—a pathetic little figure of stupidity, but Harvey insisted he deserved no better place. Possibly it was because he seemed so lonely and despised by the others, but at any rate, Billy was an especial pet of mine, and in order to disprove Harvey's statement that, "it was impossible to teach it anything," I spent much time and pains on Billy, and at last succeeded in teaching him to utter a little grunt when I would scratch his back and ask, "Want your supper, Billy?" But the thing that made me the proudest was when he at last could go up stairs. It was nearly three years before Billy could accomplish the entire flight, and even then it was a long and weary pilgrimage; but the patience I had expended upon him had not been in vain. It was comical to watch his efforts—the little short forelegs trying to reach up to the next stair, where he knew a lump of sugar would be his reward.

203

But I am digressing. One day father and mother having gone out of town to a funeral, we children were left to ourselves. It was an opportunity not to be neglected, and our brains were at work trying to plan some new game, when Harvey arrived in our midst triumphantly waving a huge sheet of paper—a "bill-poster" he called it—upon which, in large letters, were the headlines, "Grand Circus," and then followed an account of the animals that would take part and the tricks they would perform. Harvey assigned us our posts—he himself being ring-master, by right of his seniority and having thought of the game. Alice was the "fat lady," while I, Paul, being the youngest, was nothing but a "feeder of animals" and tent shifter.

Under the direction of the Circus Master we assembled the menagerie in cages, or loose as the case might be, up in Mother's bed-room. It took a good deal of time to get them all together. Polly was of a roving disposition and had to be coaxed down from the top of a tall tree, where she had perched, a square or so away; the crow was up on the roof; the rabbits and hares were scampering all over the garden—in fact, nothing but the caged animals seemed to be at hand. But the task was finally accomplished and all were ranged around the room waiting for Harvey, who had disappeared mysteriously some little time before.

Suddenly there was a most terrific clatter and noise, coming ever nearer and nearer. We looked at each other open-mouthed with surprise, when, with a flourish of lariat and a wild Indian war-whoop, that rose above the deafening noise, in dashed Harvey upon "Daisy," a triumphant figure—having accomplished the difficult feat of making the pony carry him up stairs. He dismounted with a jump. "Ladies and Gentlemen," he began, "the first act on the programme will be by this wonderful horse—Daisy, down on your haunches!" The lariat swept the air in true ring-master fashion, and Daisy obediently sat back on her haunches.

"Shake hands, Daisy."

The hoof came up—but here Rex interfered. He realized the pony had no business there and felt the responsibility which rested upon him. Good dog that he was, he started toward her, barking sharply, as though to say, "Go away—you know you have no business here."

Then, as if his bark had been a signal, all the other animals lifted up their voices, and for a while it was pandemonium let loose—screeches from Polly, calls of "Mamma" from the crow (which it could say as plainly as any parrot, though its tongue had never been slit), grunts and squeals mingled in utter confusion. In the midst of it all who should walk in but Uncle Charles.

Now, we all knew that Uncle was not disposed to pass over lightly even the least of our offenses, and what he would say, and what was more, do now, we dared not think. But Harvey was equal to the occasion. He knew Uncle's weak point, and went towards him nonchalantly swinging the snakes who stuck out their heads as they swayed back and forth.

Now, to us children the snakes were just as nice and pretty as any of the animals, but they were quite the opposite to Uncle Charles. The great, writhing things, swaying to and fro as they twisted in Harvey's hands and stuck out their heads, in which the eyes dully gleamed, filled him with loathing and disgust, not unmixed with terror.

All that Uncle Charles had meant to say vanished from his mind as he saw Harvey advancing upon him with the boa-constrictors, and he began to retreat more and more rapidly, but with ever decreasing dignity. Harvey still pursued.

"Why, Uncle," we heard him say, "what's the matter?" There was no response—Uncle Charles had gone home. But the circus was broken up.

I think it is better to draw a veil over the consequences of our circus. No circus is complete without a side-show—and ours was no exception. We never had another one—at least not in mother's room.

Paul Brenton Eliot.

204

THE GRAY-CROWNED LEUCOSTICTE.

(*Leucosticte tephrocotis*.)

The Gray-crowned Leucosticte or Gray-crowned Rosy Finch, as it is often called, is a resident of the interior of British America during the warmer months. In the winter it passes southward, frequenting the Rocky Mountain region of the United States, where it is quite common on the eastern slopes. So far as known, within the border of the United States, it only nests in the Sierra Nevada in California. While on the slopes of the mountains this Finch is usually seen in flocks. During the most severe weather it will frequent settled districts, becoming quite tame, and it has been known to seek the sheltering cover of the nests of cliff swallows under the eaves of buildings. When in the fields it is a restless bird and quite shy.

Dr. R. W. Shufeldt, while stationed at Fort Fetterman, Wyoming, had an excellent opportunity to study the habits of this handsome bird. He captured eight, including both males and females, which he placed in a cage especially prepared for them. "In a few days they not only became accustomed to their quarters, but apparently thoroughly satisfied and happy. Flocks of their companions passing over were certain to be called down, to alight on the fences, the ground, and in fact, everything in the neighborhood of the cage, to even the cage itself." The birds were given canary and flax seeds, cracked wheat and finally lettuce and other tender leaves, all of which they seemed to relish. Dr. Shufeldt also says:

"Every morning, as I approached the cage, a general and impatient chattering commenced for their breakfast and bath, and they immediately availed themselves of both in my presence. Often I deluged the entire cage, birds and all, with a large watering pot, and they enjoyed the sprinkling immensely. Later in the spring this part of the programme was followed by their pluming themselves in the sun, chattering among themselves and the males giving utterance to a low, subdued and plaintive sort of song, being different from the shrill whistle they gave to attract the attention of their passing fellows outside." By the middle of May all the birds of this species had left the vicinity for their breeding grounds further north. Dr. Shufeldt's captives did not even pair and early in July he released them. Their plumage seemed to be at its best in the early part of May.

Another authority, speaking of this bird's habits in the mountain regions, says, "During summer and autumn the Gray-crowned Finch is common above timber line, where it breeds, ranging higher than the titlark and being usually found in the vicinity of snow fields and the frozen lakes near the summit of the range. It is rather shy in such localities, though exceedingly tame in winter. Its flight is in undulating lines, like the crossbills. The only note I have heard it utter is a kind of churr, like the call of the scarlet tanager. They stay above timber-line till the close of October or the middle of November. They are perpetually roving from place to place feeding upon the seeds of weeds and grasses and are never at rest for a moment at a time, constantly whirling about in close, dense masses, like so many longspurs."

GRAY-CROWNED LEUCOSTICTE.
(Leucosticte tephrocotis).
Life-size.
FROM COL. CHI. ACAD. SCIENCES.

CORUNDUM AND SPINEL.

CORUNDUM.

The mineral species Corundum affords a number of gems known by different names. These differences arise from the fact that the stones were used as gems before their mineralogical identity was discovered. Thus red Corundum is known as the ruby and blue Corundum as the sapphire. When Corundum suitable for gem purposes occurs of other colors, such as green, yellow or violet, the gems are sometimes known as green, yellow or violet sapphires, respectively, or by the name of another gem which they closely resemble in color, with the adjective Oriental prefixed. Such are the gems known as Oriental topaz, Oriental emerald, Oriental aquamarine, Oriental hyacinth, Oriental amethyst and Oriental chrysolite. Colorless Corundum is known as leucosapphire. While Corundum of all colors is used for gems, it is only that which is transparent which can be so employed. This is sometimes called noble Corundum to distinguish it from common Corundum. The two, however, often occur together. Common Corundum is used as an abrasive, emery being one of its varieties, but it has no gem value.

Corundum is a sesquioxide of aluminum, with the percentages aluminum 53.2, oxygen 46.8. Its hardness is 9 in the scale of which diamond is 10, and no other mineral except the latter equals it in hardness. This hardness gives it a wearing quality as a gem second only to the diamond. The varieties of Corundum differ slightly in hardness, sapphire being the hardest. Noble Corundum has a brilliant, vitreous luster, which, while not equal to that of the diamond, is superior to that exhibited by almost any other gem. Corundum is a heavy mineral, its specific gravity being four times that of water. This high specific gravity affords an easy means of distinguishing the gems of Corundum from those of other species. Corundum is infusible and is not attacked by acids. It crystallizes in the rhombohedral division of the hexagonal system, certain crystal forms being characteristic of the two varieties, ruby and sapphire. Thus ruby tends to crystallize in flat rhombohedral crystals, while sapphire generally forms in longer, hexagonal prisms. (See colored plate in November number.) Corundum is doubly refracting and dichroic. Of the different colors of Corundum above referred to, the blue or sapphire is most common, the red or ruby next. The other colors occur rather sparingly, green having been almost unknown until the discovery of the Montana sapphires. The nature of the coloring ingredient of the different varieties of Corundum is not known, but there is some reason for believing it to be chromium, for Fremy obtained artificial red and blue Corundum by mixing chromium with his other ingredients, after many attempts to obtain the desired color had failed.

Red Corundum varies in hue from rose to deep red. That of the latter tint is the true ruby, the color known as pigeon's blood being most highly prized. Faultless stones of this color have long been the most valuable of gems, exceeding the diamond in price, weight for weight, unless the latter is colored. Rubies above three carats in weight are about ten times more valuable than ordinary diamonds of the corresponding weights. But few rubies exceeding ten carats are known. The King of Pegu is reported to have one the size of a hen's egg, but as no one has ever seen it the story may well be doubted. In the crown of the Empress Catherine was, however, one the size of a pigeon's egg. There is also a large uncut ruby in the British crown, which Ruskin calls the loveliest precious stone of which he has any knowledge.

The chief home of the ruby is Burmah. From its mines and those of Siam and Ceylon have come practically all the world's supply of rubies. The most important Burmese mines are in Mogouk, ninety miles north of Mandalay. The rubies were evidently formed in limestone, which is now much decomposed, and seem to have been the result of metamorphism of the limestone by the entrance of eruptive rocks. The ruby-bearing earth is known as "byon," and the stones are obtained from it by washing. The rubies are usually in the form of more or less complete crystals. The mines have been worked since the British occupation of Burmah in 1886 by a British company, and there can be little doubt that a desire to acquire these mines was the chief reason for the occupation. The mines have not proved very profitable, however, and only within the last year or two has the company been able to pay any dividends. The hope of success has lain in the introduction of machinery for washing the byon more cheaply than it could be done by the primitive native methods, and it is now believed by the introduction of an electrical power plant that this has been accomplished. This company now produces at least one-half the annual yield of rubies of the world. 208

Previous to the English working of the mines the ruby mining was performed by local miners under control of the native government, all rubies above a certain size going to the king. Whenever a ruby of unusual size was found a procession of grandees, with soldiers and elephants, was sent out to meet it. One of the titles of the King of Burmah was Lord of the Rubies.

The Siamese rubies come from near Bangkok, on the Gulf of Siam. They occur in a clay which seems to be the product of alteration of a besalt. These rubies are not equal in quality to those of Burmah. Rubies are also found in the gem gravels of Ceylon and in Afghanistan, thirty-two miles east of Cabul. In our own country ruby Corundum is occasionally found in connection with opaque Corundum in Macon County, North Carolina. In the gravels of Caler Fork of Cowee Creek of this county good rubies are found in sufficient quantity to reward systematic mining for them.

These rubies are mostly small, but some gems of three or four carats' weight and of excellent color have been obtained.

Among the Montana sapphires an occasional red stone is found, but they do not have the choicest red color.

Another source of rubies is their artificial production, after the method discovered by the French chemist Fremy. These are made by heating a mixture of aluminum sesquioxide, carbonate of lime, barium fluoride and potassium chromate in a porous clay crucible to a temperature of 1500 degrees C. and keeping the mixture fluid for eight days. Well-formed, clear crystals up to one-third of a carat in weight are thus produced, which have the hardness and color of native ruby. They are not considered so valuable as gems as the latter, and can be distinguished by the air bubbles which may be seen with a lens. The expense of making them is nearly equal to the value of native rubies, so that their production is likely to be limited.

Rubies were known to the ancients, being mentioned in the Bible in Proverbs and Job. The Greeks and Romans ascribed to the ruby the power of giving light in the dark, and the Hindoos describe the abodes of their gods as thus lighted. The ruby was much worn as an amulet, being supposed to protect the wearer against plague, poison and evil spirits. It was also thought that it would turn dark if its owner were in danger and would not regain its color until the peril was over.

The ruby is usually cut in the form of the brilliant, like the diamond, but sometimes the step cut is advantageously employed. The stones from India are usually rounded by the native gem cutters and worn in this manner.

Blue precious Corundum or sapphire is more abundant than the red or ruby. Like the red the blue color seems to be due to a content of chromium, since in the artificial crystals already mentioned as produced by Fremy, both colors occur at times in the same crystal. The blue color, however, unlike the reds, disappears on heating.

Blue Corundum exhibits various shades from light to dark, the color most highly prized being that known as cornflower blue. A good sapphire should also have high luster and a velvety sheen. As already noted, sapphire is somewhat harder than ruby, and it is also somewhat heavier. The Montana sapphires are said to be especially hard.

Sapphires have at the present time not over half the value of a ruby of the same size. A price of forty dollars per carat is an average one for a stone of not over ten carats and, as much larger stones are comparatively common, the price does not increase so rapidly as does that of the ruby with an increase in size. 209

The world's supply of sapphires comes chiefly from Siam. The most important mines of that country are those of Battambong, a city southeast of Bangkok. The sapphires occur in a sandy clay out of which they are washed. The sapphire-bearing region is about a hundred miles in length. Together with the sapphires occur some rubies, especially in the southern part of the district. Sapphires also occur among the rubies of Burmah, but in small numbers. The so-called gem gravels of Ceylon furnish many sapphires, though their quality is not equal to those of Siam because of paleness of color. In these gem gravels occur also ruby, spinel, garnet, topaz, amethyst, tourmaline and hyacinth. Another locality for sapphires, discovered in the early eighties, is Banskar, in Cashmere, India. These stones were first disclosed by the fall of an avalanche, and later were discovered to exist in the region in considerable numbers. For a time they could be cheaply purchased, but are now jealously guarded by the government. The Montana sapphires have been known since 1865, but were not systematically worked until 1891. They occur in river sands east of Helena, and were first obtained in washing for gold. Now the mother rock has been discovered, and this is mined, the rock being taken out, piled in heaps and submitted to the action of frost through the winter. The sapphires thus become loosened and can be readily separated. These sapphires are well crystallized and are of good average size, though few gems exceed six carats in weight. Their luster and color are for the most part of first quality, and the stones are in demand for the best of jewelry.

Noble Corundum of other colors than those of blue and red is not of abundant occurrence nor is it ordinarily as highly prized as are the sapphire and ruby. Colorless sapphire or leucosapphire is sometimes used as a substitute for the diamond, from which it can readily be distinguished by its lower hardness and higher specific gravity.

Certain specimens of both sapphire and ruby, but especially the former, exhibit when lighted a six-rayed star. This appears as beams of light, radiating from a center, which changes in position as the stone is turned. Such stones are called star or asteriated sapphires or rubies, and are highly prized. They are usually cut with rounded surface, as this best brings out the figure. The cause of the star-shaped figure is generally supposed to be the presence of countless microscopic cavities in the stone, which are arranged parallel to the faces of a six-sided prism. The total reflection of the light from these causes the star. Others think that multitudes of twining lamellæ cause the appearance.

Sapphire is a word which is the same in nearly all languages. In Chaldean, Hebrew, Greek and Latin it has the same form as in modern tongues. This fact testifies to the ancient use of the stone. In early times sapphire was believed to be a destroyer of poison, so that if put into a glass with a spider or venomous reptile it would kill it. It was regarded also as a remedy against fevers.

SPINEL.

The group of Spinel includes in mineralogy a number of species of different though analogous composition. The Spinel employed as a gem is almost wholly confined to the magnesium aluminate, having the percentage composition alumina 71.8 and magnesia 28.2. This is usually of a red color, different shades

giving gems known by different names as follows: Deep red, spinel-ruby; rose-red, Balas ruby; yellow- or orange-red, rubicelle; violet red, almandine ruby. Spinel is thus known among gems chiefly as a relative of the ruby, and this sort of Spinel will first be considered.

The Spinel rubies differ from the true or corundum rubies in hardness, specific gravity and system of crystallization. The hardness of Spinel is 8, or about that of topaz, and the specific gravity 3.6. It is thus neither as hard nor as heavy as corundum ruby. Again, the system of crystallization differs. Spinel crystallizes in the isometric system and is usually found in the form, of octahedrons, while corundum ruby is hexagonal in crystallization. (See colored plate in November number.) Spinel is singly refracting in polarized light and corundum doubly refracting. Spinel ruby is infusible before the blowpipe, but on heating undergoes a curious series of changes in color which are quite characteristic. The red changes first to brown, and then becomes black and opaque, but on cooling the black changes to green, then becomes nearly colorless and finally the stone resumes its original red color. As a small percentage of chromium is usually found by analysis to exist in ruby Spinel, its color is generally considered to be due to this ingredient. While the Spinel ruby is considered of less value than the corundum ruby and is sometimes by fraud or error substituted for the latter, it yet has a definite value as a gem and is sold under the name of Spinel ruby or some of its varieties. This value is usually reckoned at about half that of the corundum ruby, although variations in quality of the stones, as well as changes in demand, cause differences of price. Thus Emanuel mentions a Spinel ruby of good quality weighing 40 carats, which in 1856 was sold for two thousand dollars, but which in 1862 brought at public auction only four hundred dollars. In 1866, however, it was again sold for twelve hundred dollars. The Spinel ruby of the French crown jewels, weighing 56 carats, was in 1791 valued at ten thousand dollars.

210

Not only is Spinel ruby related to corundum ruby in color and use, but the two are frequently associated together in nature. The gem gravels of Ceylon, Siam, Australia and Brazil contain both kinds of rubies, and the ruby mines of Upper Burmah, where the corundum ruby occurs in a crystalline limestone, produce also large quantities of Spinel rubies. Spinel rubies also come in large quantity from Badakschan, in Afghanistan, near the river Oxus, the name of Balas rubies, by which they are often known, being said to be derived from Beloochistan, or Balakschan. The Persians have a tradition regarding these mines that they were disclosed by an earthquake which rent the mountain in twain. The localities above mentioned furnish nearly all the Spinel rubies of commerce. A few have been found in North America at Hamburgh, New Jersey, and San Luis Obispo, California. But these localities have never afforded any appreciable supply. No Spinel rubies of great size are known. Bauer mentions as the largest known, two cut stones, one of 81 carats and the other 72½ carats, exhibited at the London Exposition of 1862. The King of Oude is said at one time to have possessed a Spinel ruby the size of a pigeon's egg.

Spinel occurs in many other colors besides red, such as orange, green, blue and indigo, as well as white and black. Occasionally colorless Spinels occur, and as they cannot be distinguished by their behavior in polarized light from the diamond, it is sometimes sought to substitute them for the latter. They can be detected at once, however, by their inferior hardness. While Spinels of any color, if transparent and free from flaws, make desirable gems, the only colors found in sufficient quantity outside of the red to make an appreciable supply are the blue and the black. The blue Spinels resemble the sapphire in color, though they are somewhat paler. They come chiefly from Ceylon and Burmah, where they occur together with the ruby Spinel. The black Spinel is known as Ceylonite, or pleonaste, and is also obtained chiefly from Ceylon, although occurring of quality suitable for cutting at Mount Vesuvius in Italy.

Like the ruby, Spinel can be made artificially, the process being to heat a mixture of alumina and magnesia with boracic acid, and if the red color is desired, a little chromium oxide.

The Spinel ruby seems to have been known to the ancients equally with the corundum ruby, and the two were probably often confounded. The natives of India call the Spinel the pomegranate ruby and believe to this day that it possesses valuable medicinal properties.

OLIVER CUMMINGS FARRINGTON.

WHITE-CROWNED SPARROW.
(Zonotrichia leucophrys).
Life-size.
FROM COL. CHI. ACAD. SCIENCES.

213

THE WHITE-CROWNED SPARROW.

(*Zonotrichia leucophrys*.)

With the snowflakes o'er the mountains
Hasten past the hawks from Northland,
Speed along the titmice, juncos,

White-crowned Sparrows, wrens, and creepers,
Tiny kinglets, sweet-voiced bluebirds,
All in eager search for havens
Where the touch of winter kills not.

—Frank Bolles, "Birds in October."

Mr. Ernest E. Thompson calls the White-crowned Sparrow an aristocrat of the sparrow family. One of the largest of the sparrows, its beautifully marked plumage and its dignified mien, as it stands on some exposed perch, immediately attracts the attention of an observer. Its range is extensive, covering the whole of the United States during its migrations, and in winter it passes further southward into the valley regions of Mexico. In the selection of a nesting site a pure and cool atmosphere seems a paramount consideration. The mountain regions of the western United States and the country lying north of the great lakes and eastward into Labrador seem to meet the requirements for the home building of these sweet dispositioned birds. Then its music is sweetest. During its migration, however, localities not favored with its home are often regaled "with selections of its melodies as it rests in thickets and hedgerows while slowly passing through our country on its northward pilgrimage." From some high bush or other favorable perch the male will pour forth an almost unbroken song while its mate is setting. Often this song does not cease with the going down of the sun, and it has been heard as late as midnight. It is a "lively, agreeable song, fine and clear, and is frequently heard from a score or more of birds at the same time with a most pleasing effect."

Its song, quite closely resembling that of its relative the white-throated sparrow, with which it quite frequently consorts during its migrations, yet the two songs are readily distinguishable. Mr. Thompson compares the songs. He says: "Its usual song is like the latter half of the white-throat's familiar refrain, repeated a number of times with a peculiar, sad cadence and a clear, soft whistle that is characteristic of the group." Dr. Coues, speaking of the two songs, says that the song of the White-crowned Sparrow is "a less enterprising vocal effort, of only five or six syllables, like pee, dee, de, de, de, the two first long drawn, rising, the rest hurried and lowering." Transcribed into words, there are almost as many renderings of the White-crowned's song as there are observers. Mr. Burroughs says that the song "begins with the words fe-u, fe-u, fe-u, and runs off into trills and quavers like the song sparrow's, only much more touching." To Mr. Langille "the song is quite peculiar, whee-who-who-zee-zee-zee, the first three notes in a clear whistle and the last three in a sort of jew's-harp tone, the whole being decidedly pleasing, and not at all like that of the white-throat."

The food of the White-crowned sparrow consists of both insects and seeds. To some extent they feed upon berries, and Audubon states that in Labrador they also eat minute shellfish, "for which they frequently search the margins of ponds or the seashore." This bird is a scratcher. It is also a hopper and hence scratches with both feet at once.

The nest of this Sparrow is usually constructed of grass or moss and is placed either on the ground or in low bushes. Audubon describes a beautiful nest of this species which he found in Labrador. This nest "was placed in the moss, near the foot of a low fir, and was formed externally of beautiful dry green moss, matted in bunches, like the coarse hair of some quadruped; internally of very fine, dry grass, arranged with great neatness, to the thickness of nearly half an inch, with a full lining of delicate fibrous roots of a rich transparent color." 214

Of this beautiful Sparrow Mr. Burroughs has said: "Among the birds that tarry briefly with us in the spring on their way to Canada and beyond, there is none that I behold with so much pleasure as the White-crowned Sparrow. I have an eye out for him all through April and the first week in May. He is the rarest and most beautiful of the sparrow kind. He is crowned as some hero or victor in the games. His sparrow color, of ashen gray and brown, is very clear and bright, and his form graceful. His whole expression, however, culminates in a regular manner in his crown. The various tints of the bird are brought to a focus here and intensified, the lighter ones becoming white and the deeper ones mainly black. There is the suggestion of a crest also, from a habit this bird has of slightly elevating this part of its plumage, as if to make more conspicuous its pretty markings."

AFTER THE SNOW STORM.

Chick-a-dee-dee, chick-a-dee-dee,
Tell me where were you
When last night the white snow drifted
And the north wind blew?
Chick-a-dee-dee, chick-a-dee-dee,
Bonny little bird!
Come anear my window, let me
Whisper you a word:

If you'll stay with me all winter,
Chick-a-dee-dee-dee,
Apple-cores and crumbs I'll give you;
Best of friends we'll be;
You shall sit among the branches
Of the lilac tree,
Sit and sing anear my window,
Chick-a-dee-dee-dee.

Glad indeed I'll be to see you;
Promise me you'll stay,
Food and shelter I shall find you
For the winter day;
And in spring I'll give you, dearest
Chick-a-dee-dee-dee,
For your nesting-place and bower,
All my lilac tree!

—Mary Grant O'Sheridan, in the Chicago Tribune.

215

THE FEATHERED FISHERMAN.

The cormorant is a strange and remarkable bird, and is found in many parts of the world. It is of large size and somewhat resembles the goose and the pelican. Its feet are webbed, and its middle toe has notches like the teeth of a saw, which help it to hold its prey. Its plumage is generally dark, while the feathers on its head and neck are jet black. Its bill is long and straight, except at the end, where the upper part bends into a sharp hook.

The cormorant is a great fisher, and it is needless to say that it is only found where fish are to be had, as it lives chiefly upon them. It is a very greedy bird, and will hover over the water for hours at a time, catching and devouring fish until it can swallow no more. Sometimes the cormorant will play with its prey, letting it go and diving after it several times, but its victim never escapes in the end. This bird has seldom been known to miss its aim when diving for a fish.

It drops from a great height when descending upon its prey, and sometimes it is seen to emerge from the water holding a fish by the tail, in which case it cannot very well manage to swallow it, so the fish is tossed up into the air and, turning a complete somersault, comes down head foremost into the bird's mouth. The home of the cormorant is among the steep ledges of rock by the sea, where they build their nests and rear their young. Their nests are made of dry sticks, weeds and moss. The old birds return each year to their old nests, repair them and begin rearing another brood. At night those having no broods roost apart, standing erect in files upon the top of some high ledge. The young birds are of a livid color and present a very unattractive appearance. Their legs and feet are enormous and all out of proportion to their little bodies.

When leaving for the season cormorants fly in long lines one after another. In their wild state it is almost impossible to get very near the cormorants when they are fishing, as they are very cautious and have many sentinels to warn them of the approach of danger.

In far-off China the cormorant is tamed and put to a very curious and practical use. When a Chinaman goes fishing he does not take a rod and line, as we do, but sets out in his boat and takes some trained cormorants along with him. As soon as he comes to a place where there are plenty of fish, the cormorants plunge into the water, catching fish after fish, and, at their master's call, dropping them in the bottom of the boat. These birds are so greedy that if left to themselves they would eat the fish as fast as they caught them, so the cunning Chinaman ties a small piece of twine around their necks so that they cannot swallow it. In this way he gets a boatload of fish with very little trouble. After the cormorants have finished their work, the strings are untied and they are allowed to fish for themselves.

WALTER CUMMINGS BUTTERWORTH.

A WINTER-PIECE AMONG THE PENTLANDS.

A flock of fieldfares from the leafless trees
  Flew chattering mournfully, while here and there
A single redwing flung upon the breeze
  A sigh that seem'd the utterance of despair.

But on the burn, scarce half a mile below,
  The bluff white-breasted ouzel from a rock
Pour'd his bold song—a huddling overflow
  Of mirth, those faint-heart winter-fowl to mock.

—HENRY JOHNSTONE.

THE CARNATION.

Most of the names by which we are accustomed to designate familiar forms of the vegetable kingdom have descended to us from remote times and from ancient associations. The old terms are for the most part founded either on the medicinal values of the plants or on some mythological fancy that accounted for their creation or form.

The Carnation derived its generic name from the latter source. The term Dianthus is derived from two Greek words, signifying flower of Jupiter, while the specific name, caryophyllus, is obtained from words meaning nut and leaf, originally applied to the clove tree, but later given to the Carnation, because of its spicy fragrance. Again, the word Carnation is from the Latin, meaning flesh, and was deemed appropriate because of the pink and white color of the petals.

The name Dianthus, or flower of Jupiter, originates in a Greek myth, that had to do with the establishment of Olympus. Jupiter had escaped the unpleasant fate that befell his brothers, namely, of being swallowed by their unnatural parent, Saturn. Jupiter married Metis (Prudence), who straightway demonstrated the fitness of her name by bestowing on Saturn a draught which caused him to disgorge his domestic bill of fare, and the sons, banding together, imprisoned their father and his brother Titans and divided their empire among themselves. Jupiter inherited the heavens and became king of gods and men. When the Thunderer came into possession of his kingdom Vulcan, the celestial artist, crowned him with a chaplet of beautiful flowers, whose white petals Iris had marked with the colors of the rainbow, their edges being bright with the plumage of the peacock, which was the favorite bird of Juno, as was Iris, her chosen attendant, after she espoused Jupiter and became queen of the gods. Hence the Dianthus became the flower of Jupiter.

The Carnation has been under cultivation for more than two thousand years. Theophrastus, who gave the plant its technical name, states that "the Greeks cultivated roses, gillie flowers, violets, narcissi and iris," gillie flower being the old English name for the Carnation, having been bestowed upon it for the reason that it bloomed in July. It was also called the Coronarium because it was the coronation flower of a queen of Italy during whose reign in the sixteenth century the plants were introduced into England.

From their first appearance in England Carnations took a firm hold on the popular fancy, varieties began to be formed, the original flesh color being broken up into red and white. The remarkable susceptibility of the plants to cultivation, their beauty and fragrance, so appealed to the florists of Italy, France, Germany and Holland that in 1597 Gerard wrote that "to describe each new variety of Carnation were to roll Sisyphus' stone or number the sands."

The Carnations of to-day originated about 1840, as a distinct race. Special attention was given in Europe to the elaboration of the plants by M. Dalmais and M. Schmitt, and the varieties created by them were imported to America in 1868. Bench cultivation was started in the United States in 1875 and became so popular that in 1892 the specialist or "Carnationalist" first became known. At that time there were about five hundred distinct varieties, all of American origin.

The Carnation is a native of Central and Southern Europe. Since its introduction into England it is said to have escaped cultivation and to have become fixed in several localities. In its cultivation three general classes have been established by English specialists. The selfs are plants whose flowers have a uniform color. The flakes possess a pure ground of white or yellow, flaked or striped with one color, the stripes running longitudinally through the petals. The bizarres are such as have a pure ground, marked as in the flakes, but with two or three colors; this form possesses the most fragrance, especially when there is a frequent recurrence of the stripes. Lastly there are the picotees, having a pure ground, each petal being bordered with a band of color. This last form includes many of the rarest varieties and the yellow picotee is famous in several royal establishments.

CARNATIONS.
(Dianthus caryophyllus).

It is a peculiar fact that rain will injure the colors of the more delicate varieties, and the florist must shield the opening flowers from direct sunlight if he would obtain the best results. 219

In the perfect flower the pod and calyx should be long, the flower circular, not less than three inches in diameter, rising gradually towards the center, so as to form a sort of crown. The outer petals should be large and few in number, rising slightly above the calyx and spreading horizontally, the other petals being regularly disposed above them, nearly flat, diminishing in size towards the center. The ground should be a pure color and the petals wax-like.

The Carnation is allied to the pink family, and consequently is related to the modest Indian pink, the Chinese pink and the Sweet William. These lowly forms doubtless nourish a secret pride in their relationship to the illustrious head of the house, concerning which Shakespeare said, “The fairest flowers of the season are our Carnations.”

Charles S. Raddin.

WINTER SONG.

Sing ho! for the hilltop bold and bare,
  Where the bracing breezes blow!
There’s a frosty edge on the wintry air,
Exhilaration keen and rare
  That sets the heart aglow.

Over the crest the snow lies deep,
  Over the brow of the hill.
Down below the woodlands sleep,
Blanketed well on the sloping steep
  ’Neath a snow sheet white and chill.

Sing ho, sing ho, for the galloping gale
  That sweeps the summit clear,
And drives the mass of icy shale
Into the pines, whose eery wail
  Fills timid souls with fear!

There’s that in the winter’s whistling wind
  That stirs dead hearts to life,
And energy and health you’ll find
In the breath of the breeze that’s rough yet kind,
  That’s keen as a surgeon’s knife.

—Frank Farrington.

220

BUDS OF PROMISE.

COLD WEATHER NOTES FROM NATURE.

It has become a conventional habit with us to look upon the winter season as unproductive of artistic interest so far as Nature's decorations are concerned. And we note it as a period of rest from the exhaustion of seed time and harvest. But to the initiated and observant, it is now that the change worketh fast, and barely has the network of fretted branches, looming up so purple against an autumnal sky, become a realization, before the winter progress of the budding forest has changed the dreamy violet to a rich ruddy brown, in promise of a future fulfillment of a rich verdure of living greens.

In winter, we are, as it were, behind the scenes in the green-room of some vast forest auditorium, and the closely locked buds are become the dressing rooms of thousands upon thousands of gaily decked flower-folk, who are preparing their multi-colored wardrobe of gorgeous petals, with which to entrance and delight our mortal eyes when the golden key of the sun shall have unlocked their doors, and are melted the barriers of ice and snow that now reign supreme in the great foyers of the forest. But if at present we are barred from the scene, the work of preparation is being rushed forward, and on every swelling twig there is evidence of a glorious drama of delight which shall be uncurtained at the clarion voice of Spring. How many shades and colors are outlined against the wintry sky! The bronze points of the oaks, in contrast with the gray of the pale ash buds, whose color indicates the advent of some demure debutant in Quaker costume, while the ruddy buds of the whitewood or tulip tree, which steal their rich color from the furrowed red of its bark, give promise of some gorgeous result that is later realized in the magnolia-like bloom of rich, creamy green, girdled with a crimson sash, and which within the last few years has become such a fad among nature's devotees. But all of our fads are but a continuing in the universal circle from which, according to Lord Beaconsfield, we never evolve beyond, and it is written that the tulip tree was so esteemed by the ancients that they poured libations of wine about its roots. We put our wine to other uses in these twentieth century days, but we worship at the same tree, pro tempore.

The highly polished buds of the June berry or shad bush shine forth in evidence of a future of bewildering bloom that shall envelop its now dull branches in a robe of fairy whiteness when "the shad come down." Break open the tightly sealed, varnished bud of the lilac tree, and out pours that incomparable fragrance of Spring, an odor that challenges all of the arts and sciences or alchemy to produce. One of the most notable trees in winter is the plane-tree or buttonwood, wrongly called sycamore, a term which can only be applied correctly to the Ficus sycamorus, or true sycamore, a tree closely allied to the fig, and a native of the far East. It is the ragged appearance of the buttonwood that makes it so conspicuous a tree in winter, the white trunk gleaming so distinctly through its shattered habiliments of bark. It is said that this disastrous state of its covering is due to the inelasticity of the bark, which does not expand to meet the requirements of the tree's growth, as does the bark of other trees, hence the impoverished condition of its outer garment. But when we see this sad state of conditions repeated on its human prototype, we feel that we have more cause for sympathy than ridicule, so why not accord the tree the same commiseration? But I am sure there is some legendary tale extant to the effect that in mythological days the tree was a derelict from duty in some line or another, and for this was condemned to pass the rest of its days in a tattered coat, for so was sentenced the white Birch, who arrived late at an important wedding of the gods, hence doomed to wear her wedding garment of snowy bark throughout all ages in penance for her dilatoriness. But if the buttonwood wears the coat of poverty, it is more than abundantly supplied with buttons, which are so tightly sewed on that it is no easy task to secure a bunch of these drooping balls for decorative purposes, and for which they are so effective when hung among clusters of the scarlet berries of the bitter-sweet. Their secure hold on the parent stem has thus aroused the interest of John Burroughs:

"Why has Nature taken such particular pains to keep these balls hanging to the parent tree intact till spring? What secret of hers has she buttoned in so securely? for these buttons will not come off. The wind can not twist them off, nor warm nor wet hasten or retard them. The stem, or penduncle, by which the ball is held in the fall and winter, breaks up into a dozen or more threads or strands, that are stronger than those of hemp. When twisted tightly they make a little cord that I find it impossible to break with my hands. Had they been longer the Indian would surely have used them to make his bow strings and all other strings he required. One could hang himself with a small cord of them. Nature has determined that these buttons should stay on. In order that the needs of this tree may germinate, it is probably necessary that they be kept dry during the winter, and reach the ground after the season of warmth and moisture is fully established. In May, just as the leaves and the new balls are emerging, at the touch of a warm, moist south wind, these spherical packages suddenly go to pieces—explode, in fact, like tiny bombshells that were fused to carry to this point—and scatter their seeds to the four winds. They yield at the same time a fine pollen-like dust that one would suspect played some part in fertilizing the new balls, did not botany teach him otherwise. At any rate, it is the only deciduous tree I know of that does not let go the old seed till the new is well on the way."

Next to the cedar tree, this tree is the strongest power in mythology and was, by the ancients, consecrated to Genius, and who knows what mighty stores of intelligence is buttoned under its tattered coat? and I myself can bear witness to its strong will and determination under adverse circumstances, for a huge tree that has fallen from a high bank into the river below, has floated down stream to a lodgment, and there put forth a vigorous growth of foliage, and is thriving well under these abnormal conditions. The maple bloom is now closely housed, with but little show of promise, but if one were favored with a specially alert ear, I am sure that he could hear the rush of the ascending sap blood, hurrying upward in answer to the call of the quickening Spirit of Spring. In many of the creepers, the lilies and the gourd, a kind of fever heat is perceptible at the time of inflorescence, and the heat has been observed to increase daily from sixty to one hundred and ten or even one hundred and twenty degrees, and without doubt the forest temperament rises accordingly.

As yet the birds have not taken all of the scarlet berries of the bitter-sweet vine, which clings lovingly, but with a somewhat parasitical clasp about the hospitable boles of the great trees. In color rivalry looms up the dark red panicles of the sumach, whose acrid fruit, which is a last resort for hungry birds, must prove a pungent pill to the feathered folk. But it is a line of beauty across the hillside:

> Like glowing lava streams the sumach crawls
> Upon the mountain's granite walls.

Peeping out from the sheltered crannies are numerous long, slender fronds of the Christmas fern, Polystichum acrostichoides, gleaming like emerald bars against the white of the snow bank. Outlining against the sky are the aristocratic hemlocks which belong to the regal pine family, and which have established a social precedence by wearing their holiday clothes all the year round, in opposition to their more humble, deciduous kin, who are now in working habiliments, and they flaunt their heads haughtily, but their thickly clothed branches form a warm shelter for snow bound birds, so that their distinction is not without its advantages. In a sheltered nook still flourish a few plants of "Life Everlastin'," so dear to the hearts of Mary Wilkin's quaint New England characters as an allayer of rheumatic ills, and it still exhales its aromatic fragrance in the air. Here and there a witch-hazel waves its scraggy branches, still laden with their velvety seed capsules, which have but now bursted open and shot forth their glistening seeds, and whose inconsequent yellow bloom has only just shed its slender petals to the winds. A few lingering wild rose haws are withering upon the parent stem, yet glowing like cherries against the wintry sky, but break off a tiny branch and a whiff of Richard Jefferies' "sweet briar wind" is wafted across one's nostrils, filling one's brain with visions of the gladdening spring time. A gaily plumaged jay dashes his brilliant blue through the branches of a thickly needled pine, and a scarlet crowned "downie" taps diligently up and around the worm-infested trunk of an old apple tree, in search of an unwary morsel, and one comes to the conclusion that after all, winter is not all gloom and grayness, but filled with bits of glowing color and vitality, if only one's eye is set for its beauty, instead of its bleakness.

ALBERTA FIELD.

HOW A CAT SAVED THE LIFE OF A CANARY.

In a small town in Minnesota, noted for its several state institutions of learning, lives a widow whose success in the training of a cat has made her quite noted in her locality.

Tiger, the cat, is not famous for his long hair nor for his long pedigree. He is simply a creature who has been loved and petted into a wonderful amount of sympathy for his mistress and he seems to know instinctively many of her likes and dislikes, and he would no more harm Dick, the canary, who lives in the same room, than he would attack the hand which places the saucer of milk before him each day.

One morning, Mrs. Rogers (as we will call his mistress, though that is not her true name), allowed Dick to take his bath in his tiny tub upon the dining-room floor, while she rearranged and dusted the furniture of the room, leaving the door wide open during the time. A neighbor sat by the doorway watching Dick bathe and, not having the faith in Tiger which his mistress held, exclaimed, "That cat of yours will kill your bird sometime. I know he will."

Mrs. Rogers smiled very quietly as she stopped to give Tiger an assuring pat on the head and a word of praise for his good behavior, for she believed he understood the neighbor's unkind remark.

"Tiger is a good cat and I'll trust him any time with Dick," said his mistress, turning away from him to attend to her duties.

A prolonged "Oh!" like a stifled scream came from the neighbor's lips the next minute for Tiger had sprung at Dick and held him tightly in his cruel jaws.

"See Tige! See Tige!" exclaimed the visitor.

But Dick never fluttered a bit and Mrs. Rogers patted Tiger again as she caught sight of a vanishing stranger cat disappearing through an open window.

"Brave old Tiger! Good little Dickie!" said their mistress, as she took the bird, unharmed, from Tiger's teeth, which had held the bird safely away from real danger.

Dick flew back to his open cage, Tiger went back to his nap in the sunshine, and the lady visitor learned the lesson that love works wonders in even the creatures that do not speak as we do.

MARY CATHERINE JUDD.

POCKET OR KANGAROO RAT.
(Dipodomys similis).
Life-size.
FROM COL. CHI. ACAD. SCIENCES.

225

THE POCKET RATS.

Rats and mice seem to enjoy living in localities that are frequented by but few other animals. They are also adepts at seeking food supplies and travel long distances when hunger demands and a supply of food is not at hand. The Pocket Rats are no exception to this rule and some of the species live in dry, arid regions where but little vegetation grows, aside from a few species of cactus. The rat of our illustration was found by Mr. Frank M. Woodruff in such a locality, where it had hidden under the sheltering branches of a cactus.

The marked characteristic that gives these little animals their name is the pockets or cheek pouches. These are external openings outside of the mouth and are lined with a furry skin. They are ample in size and the two will hold, in some instances, a heaping tablespoonful of grain. "The filling is done so rapidly that, where a hard grain like wheat is used, a continuous rattling sound is made. The ejecting of the grain from the pockets is aided by a forward, squeezing motion of the fore feet, each foot making two or three quick forward passes. Some of the species seem to thrive in captivity, and after a few days do not fill their pouches, apparently having learned that it is a useless labor. When obtainable, their natural food consists of various plant seeds, but when in the neighborhood of cultivated fields and the vicinity of houses, they feed also upon grain and the vegetable waste from camps and houses. Mr. F. Stephens says that some of the species, whose habits he has studied, will eat about a heaping tablespoonful each of wheat or barley in twenty-four hours and one or two square inches of beet or cabbage leaves." As they are often found in regions practically devoid of water, a large part of the year, it is highly probable that they obtain the necessary moisture from succulent leaves. In captivity they drink but little water. Mr. Stephens writes of one that he trapped that was evidently very hungry. Placing it in a cage he gave it grain. He says: "It was amusing to see the eagerness with which it immediately went to filling its pockets. It stuffed them so full that it must have been positively painful, and then it would not stop to eat, but hunted about for some exit; not finding one, it ejected the contents of its pockets in a corner out of the firelight and went back for more. This time it ate a little, but soon gathered the remainder and deposited it with the first. After eating a little more, it refilled its pockets and hunted about for a better place to make a cache, seeming to think its first choice insecure. These actions plainly show that they are in the habit of storing away their supplies." In some fields where they are common it is said that more than a pint of grain is ploughed up in a single cache.

The elongated hind legs, well pictured in our illustration, give these rats a wonderful power of locomotion. As they leap rather than run, they are often called Kangaroo Rats. Mr. Woodruff states that the specimen, which we have used, when trying to escape started with short leaps, but as it gained headway the spans were about four feet in length and at the highest point about eighteen inches from the ground. He found them quite common in the vicinity of San Diego, California. They are nocturnal in their habits, seeking their food through the twilight and night hours, and resting during the day in their burrows or in shaded places near the openings to them.

When resting the position of the feet and the arched back give them the appearance of a hairy ball. The tail is laid straight out from the body, if space will permit, or when the quarters are cramped it may be curled alongside the body. The tail is quite useful, as it is used as a sort of brace when the animal raises on its hind feet to view its surroundings.

There are a number of species of these interesting rats. The first one was discovered and named in 1839. The species we illustrate was first found near San Diego and named Dipodomys similis in 1893.

226

WINTER VISITORS.

For several years I have been interested in birds. I have watched them through the glad nesting time of spring, have sought their quiet retreats in summer and have heard their faraway calls as they moved southward in the dark, cold, misty evenings of autumn; but for the first time I have succeeded in bringing them near enough to study them in winter.

On the ledge of a second story window, out of the reach of cats, a wide shelf is fastened, and above it the branch of a dead cherry tree is securely wired to a shutter. On the shelf I scatter scraps from the table and shelled corn. To the branch, a long piece of suet is always bound with a cord. This is my free lunch table, spread for all my bird friends who wish to come. They have accepted the invitation beyond my expectation, and have fully repaid me for all the trouble it has been to prepare for them, in the pleasure their company gives me. I sit just inside the window and they appear not to notice me, so that I have an excellent opportunity to note their peculiarities.

The one that comes every day and all day, is the tufted titmouse. He comes down with a whir, looks sharply about with his bright, black eyes, then takes a taste of the suet or marrow, and sometimes carries a crumb away. It is hard to tell how many of them come, as they all look so much alike. Not more than two or three ever come at once.

A pair of downy woodpeckers are constant visitors at the meat table. They seldom come together, but sometimes it is the male with his bright red head spot, sometimes the female, in her plain black and white stripe. She is very plain, indeed, and somewhat more shy than her mate. If an English sparrow comes to the shelf while either of them is on the branch, it quickly drops down beside him as if to say, “See here, you are out of place,” and the sparrow leaves without a taste of the good things.

Occasionally a winter wren, with his comical tail and delicate manners, calls on his way somewhere, and makes a pleasing variety in the appearance of the visitors. He eats all he needs of the bread crumbs before leaving, unless some sudden movement within startles him.

The blue jays are the most persistent and least welcome of all. Their plumage is beautiful, viewed at such close range, but their actions are not pleasing. They flop down near the window and look in, turning the head from side to side, as if suspecting some enemy there. The slightest sound sends them back to the trees, but they soon return, and eat as if they were starved, driving their bills into the meat with quick hard strokes, or grabbing at the corn in a nervous, famishing way. After eating a few grains, they fill their mouths and carry it away to hide for future emergencies. I have seen them hide it in an old gatepost or drive it down in the crevices of trees. They carry away more than they eat and probably never find half of it again, for they have no special hiding place, but they tuck it in wherever they see a convenient place. It is somewhat provoking to have the table cleared in this way, unless it is always watched, for the corn is spread especially for the cardinals whose brilliant color is such a delight to the eye amid the sombre colors of winter. There is one blue jay with a drooping wing. We call him our “Bird with the broken pinion.” He appears to have no difficulty in getting to the table, and his appetite is not impaired, but possibly, as Butterworth says, “He will never soar so high again.”

A pair of cardinals come and partake of the corn with a grace and dignity befitting their royal apparel. They do not hurry nor worry, but eat slowly and stay until they have enough. They are very quiet now, but their spring song will repay me for all the corn they will eat.

But of all that come, none are more interesting than the chickadee. He surely merits all the bright sweet things that have been said or written about him. He is the only one that utters a note of thanksgiving for his daily bread before he begins to eat. Then he has such gentle, confiding ways. Today the ground is covered with a deep, sleet-encrusted snow; the trees are all icebound, and it must be one of the most disheartening days the bird world ever knows, yet just now, at four o’clock, two chickadees are singing their good night song outside my window. In a few minutes they will be snugly tucked away in some wayside inn, some sheltered nook prepared by Mother Nature, where they will sleep away one more cold night, to awaken one day nearer the joyous springtime.

227

Caroline H. Parker.

BEAUTIFUL VINES TO BE FOUND IN OUR WILD WOODS

III.

Another beautiful vine that grows wild in most of our states is the Trumpet Flower, a popular name for various species of Bignonia and Tecoma, which belong to the other Bignoniaaceæ or Bignonia family, all of which are either shrubs or woody vines. There are two or three species of this family native to the United States, chief among them being the Tecoma radicans, or what is generally known as the Trumpet Flower. In some parts of the country it is also called Trumpet Creeper.

The word Tecoma is of Mexican origin and means trumpet, the only known difference between the Tecoma radicans and the Bignonia is a structural difference in their pods.

We have several imported varieties of both, that come from South Africa and Japan, but none prettier than the Tecoma radicans or Trumpet Flower, which any of us can find along almost any roadside or in rich, moist woods, blooming in the greatest profusion in August and September.

It is a woody vine, climbing to great heights by abundant rootlets, produced along the stems. Its pinnate leaves have from five to eleven ovate, toothed pointed leaflets. Its deep orange-red flowers come in midsummer and later and grow in corymbs or clusters; its tubular corolla is funnel-shaped, two or three inches long, with five somewhat irregular lobes, within which the four stamens are enclosed; its fruit is a two-celled pod, containing numerous winged seed.

The Trumpet Flower is found in a wild state from Pennsylvania to Illinois, and southward, and is very common in cultivation, being vigorous and perfectly hardy, soon covering a large space and reaching to a height of sixty feet. Blooming as it does in late summer, and early fall when flowers are scarce, the

abundance of its great orange and scarlet flowers make a very showy spot in a dull landscape, and an especially attractive bit of color, if you happen to find a vine around which the ruby-throated hummingbirds are hovering, they being very partial to the nectar from its flowers.

It is a beautiful vine to drape a tree that is in itself not very pleasing, or to cover brick or stone outbuildings.

Its faults, and it is a shame to discover faults in anything so beautiful, are a tendency to become naked below, which can be remedied by cutting back, an over abundant production of suckers, and its immensely long roots.

Bignonia capreolata, named for the Abbe Bignon, who first found it, is a closely related species, of a more southern range than the Tecoma, being found in Tennessee, Virginia and Georgia. Its leaves consist of but two leaflets and a terminal tendril. Its flowers, similar to those of the preceding, are orange. In the southern states it is called cross-vine, as the wood if cut transversely shows a cross.

One species of the Trumpet Flower, the Tecoma stans, is a non-climbing shrub of southern Florida and northern Mexico. It grows about four feet high and bears large clusters of lemon-yellow flowers. It is hardy at Washington in the Botanical Gardens and there were fine plants exhibited at the Buffalo Exposition.

J. O. Cochran.

THE PERSIMMON.

(*Diospyros virginiana.*)

Have you ever,
On your travels
  Through the queer, uncertain South,
Had a 'simmon—
Green Persimmon—
  Make a sortie on your mouth?

—Frank H. Sweet.

The Persimmon, or Virginian Date Plum, is a North American tree, growing wild in nearly all of the Southern United States, and will thrive and ripen its fruits as far north as the state of Connecticut and the great lakes. It is one of about one hundred and eighty species belonging to the genus Diospyros. These are all hardy trees or shrubs. Representatives of the genus are found in nearly all regions that have a tropical or a temperate climate. The name Diospyros is of interest, for it is from a Greek name used by Theophrastus, and is derived from two words, one meaning Jove's and the other wheat or grain. This name of Theophrastus has reference to the edible fruit and literally translated means divine or celestial food.

Only a few of the species are cultivated. These are highly ornamental trees with a beautiful foliage, which is rarely attacked by insects. The common Persimmon of America is the only species that is at all hardy in the north. This and the Japanese species (Diospyros kaki) are the only trees that produce the edible fruit commonly found in the market. The wood of nearly all the species of Diospyros is hard and close-grained. The trees that yield the beautiful ebony of commerce belong to this genus, and the species that is said to yield the best quality of this wood (Diospyros ebenum) is a native of the East Indies and Ceylon. It is also cultivated to some extent in hothouses and in tropical climates.

The common Persimmon of the United States (Diospyros virginiana) is a tree, usually growing to a height of about fifty or sixty feet, and rarely reaching one hundred feet. This is a beautiful round-topped tree with more or less spreading branches. The name Persimmon is of Indian origin and of unknown meaning. The fruit of this species is but lightly appreciated except by those who visit the forest regions in which it is native, for it is only cultivated to a very limited extent. The fruit is globular in form and quite plum-like. It varies both in size, color and flavor. When green the fruit is astringent and has a very disagreeable taste. This, however, disappears when the fruit becomes fully matured.

It is generally thought that the fruit of the Persimmon is not palatable until there has been a frost. Regarding this supposition Dr. L. H. Bailey says: "The old notion of early botanists that this fruit must be subjected to the action of frost before it becomes edible is erroneous. Many of the very best varieties ripen long before the appearance of frost, while others never become edible, being so exceedingly astringent that neither sun nor frost has any appreciable effect on them." This fruit, so popular in the localities where it grows, was not unknown to the natives who traversed the wild woods before the time of the early explorations and conquests of America. A narrative of De Soto's travels relates that his men, who were camping at a native town "halfe a league from Rio Grande" (Mississippi River) found the river "almost halfe a league broad and of great depth," and that the natives brought to them "loaves made of the substance of prunes, like unto brickes." These loaves were made of dried Persimmons, possibly, mixed with some pulverized grain. At the present time, in some southern localities, the fruit is not infrequently kneaded with bran or ground cereals, molded and baked.

PERSIMMONS.
(Diospyros virginiana).
Life-size.

231

AS TO ALLIGATORS.

The alligator generally impresses the mind as a reptile so dangerous that he should be given a wide berth on any and all occasions, yet it is really peaceable and harmless unless aroused to the defensive.

Anywhere south of the Mason and Dixon line, among the rivers, lakes and marshes, are found the alligators, but Florida, because of its great area of such places which the alligator delights in, may almost be termed the home of the alligator.

In traveling through the dense hammocks, where for miles and miles the sun scarcely penetrates through the heavy timber and the rank vegetation beneath, one may often meet with the huge saurian as he travels from one cave or mud hole to another. Tease or wound him, and he will show fight, and woe to him who then comes within reach of his vengeance. And it matters little to him with which end he must fight. He can crush equally well with his tail as with his jaws—or, to end the matter more speedily, he may use both. But if you go on about your business his 'gator-ship will do the same, and not notice you so much as ever to wink. Come upon him as he is lying asleep or sunning himself on a mud bank, if he is aroused and finds you between himself and the river he will sweep you aside as you yourself would a fly from the sugar bowl, and then slide into his native element, and he does this so quickly as to allow you little time to explain that you just happened there and had no designs on him whatever.

At other times you might think you are stepping out onto a sunken log imbedded in the mud, but find that the log suddenly gets very much alive, for under that slimy mud and grass an alligator was taking a sitz bath. You might have walked all around him with impunity, but walking on him is an indignity he resents quickly—so quickly that it is a question whether you get back to safety or are served up for the alligator's dinner. Sometimes you may see an alligator lying motionless just under the surface of the water, with his long snout protruding. His jaws are open far enough to allow the flow of the current through them, and when a stray fish or other tid-bit comes along with that flow, the jaws snap down on it. He can be seen keeping his trap thus set for hours at a time. Should you row near in order to watch him, he will not seem to pay the least attention to you if you behave yourself; but if you drop an oar or shout at him he will drop down out of sight and lie low waiting to see what you are really up to. Now, if you will remain perfectly quiet as to motion, but will imitate the barking of a puppy, the squealing of a pig, or the caw of a crow, although there was not an alligator in sight, you will soon see several snouts appear, and gradually, if you keep up the call, the alligators will come near and nearer, in curiosity as to what the call means. A half dozen or more will be nosing about the boat, and you have a good chance to observe them closely—if your nerves can stand it. This sport is exceedingly dangerous, for if the boat should bump an alligator on the nose, straightway all would make common cause and reduce the offending boat into splinters; and that the occupant of the boat should escape would be next to impossible.

When the female alligator wishes to build her nest, she selects a dry place, open to the rays of the sun, yet near to water. She commences her nest by scraping together a lot of dry leaves, grass or other trash, until she has a round, compact bed as large as a cartwheel. On this she deposits her eggs. This done, she proceeds to cover them up by going round and round the nest and, with her body pushing more leaves and trash over the eggs. A well made nest is of the shape of a hay-cock, and very nearly so large. The nest completed, the alligator goes off to the nearby water, and leaves the sun to do the hatching. Many differ as to the time it takes for the eggs to hatch, as much depends on the construction of the nest, and also on the heat of the sun. So, also, many differ as to the number of eggs a female will lay in one season. Some aver that eighty is the average number, but the writer has never found more than forty in one nest.

232

Alligator eggs are white, oblong in shape, about three inches and a half in length, and have a ring around the middle. When first hatched the little fellows are red and black spotted and striped. They are exceedingly lively, and, as soon as hatched, make straight for the water—apparently in search of the protecting care of their mammy—but they often come back to sun themselves about the old nest.

The male alligator is a cannibal, and will eat his own young if he finds them. For this reason the female selects a place far from the usual haunts of her spouse when she prepares for maternal cares by building her nest. And she stays with her babies until she thinks they are capable of wiggling away from dangers themselves.

When in Florida many of the winter tourists secure these little alligators and take them North to keep them as pets. As they are exceedingly slow in growing, they make "little" and "cunning" pets for many years. When they get to be "big fellows," they had best be dispensed with.

Although the alligator has long been considered one of the despised species of animals, or reptiles, it is far from being a useless one—though its use is only practical after it has been killed. One may say that there is no good alligator but a dead one, but one may qualify the remark by adding that the dead one is very good, indeed, for commercial purposes.

There is a great demand for alligator hides, and good prices are being paid for them. Consequently the hunting of alligators for the sake of their hides, and the preparing of them for shipment is a profitable industry. Then the tanning of these hides and, finally, the making of the leather into trunks, valises, purses, etc., makes three distinct industries due to the alligators.

Those making a business of hunting alligators generally take the night time for it, and the darker the night, the better.

Two men, provided with a light, easy-going skiff, a good rifle, an ax, and a bull's eye lantern fastened to the forehead of one of the hunters, start out together. One man—the one with the lantern—sits in the bow of the boat; it is his business to "shine the eyes" of any alligator who might come within the radius of the light. The eyes of the game will shine like two balls of fire, and if the man is careful to make no unnecessary movements, and his partner is careful to scull the boat steadily and silently, they can get so near the game as to almost touch it.

The man in the bow holds, from the very start, the rifle ready for a quick shot. This shot comes so suddenly and so unexpectedly to the alligator, that, quick as he generally is, he falls a prey to his prolonged curiosity as to the nature of that approaching light.

The hunters must be so expert at their trade that as soon as the shot has been fired the man who did the shooting must lean over and grasp the alligator by the tail, pull him half way over the gunnel of the boat and hold him there for the quick cut with the ax in the back, which his partner must be, by this time, prepared to strike. All this is done far quicker than it can be told; so quickly is it done that often the alligator is killed by the ax only, and it is found that the bullet had never struck him, and he had only been either stunned, or so demoralized as to forget his own power.

This cut in the back, severing the vertebrae, places the alligator entirely hors de combat. There is even no flopping about in the bottom of the boat where he is then thrown. Now the hunters are ready to proceed on to their next capture.

The morning generally finds the hunters with their boat loaded, and they are glad of a short rest and—breakfast. There then remains but the task of skinning their game and salting the hides down in barrels, ready for shipment.

Leo L. Stratner.

DANDELION.
(Taraxacum taraxacum).
FROM TRIMEN'S MEDICINAL PLANTS.

235

DANDELION.

(*Taraxacum taraxacum* Karst.)

> You are bilious, my good man. Go and pay a guinea to one of the doctors in those houses.... He will prescribe taraxacum for you, or pil. hydrarg.—Thackeray, Philip, ii.

Dandelion is a perennial herb thoroughly familiar to everyone, as it is found almost everywhere throughout all temperate and north temperate countries. It has a basal tuft of rather large, spatulate to lanceolate, deeply incised leaves. There are several slender, cylindrical, hollow stalks, six to twelve inches long, each one ending in a bright yellow flower head with numerous small flowers. The fully matured fruits form a white, fluffy head and are easily removed and scattered by air currents. Each fruit is a miniature parachute and every child has blown upon the fruit head and watched the individual fruits sail for great distances, suspended in air by the parachute-like expansion of the pappus. Roots are quite large, branching, rather fleshy. The plant contains a milky juice, having a bitter taste.

The Dandelion is said to be a native of Greece, southern Europe and Asia Minor. It has spread very rapidly and widely via the commercial routes. It has become thoroughly naturalized in the United States and Canada, forming the most conspicuous plant in farmyards, along roadsides, meadows, pastures and in orchards. Flowers are matured throughout the entire season, but chiefly in the spring and again in the late summer or early autumn. The plant belongs to the same family as the sunflower, daisy, goldenrod and iron weed.

Dandelion has been used medicinally for many centuries, and the name is derived from the Latin dens leonis, meaning lion's tooth, referring to the incised leaves. Theophrastus described the plant and lauded it very highly in the treatment of liver complaints and for freckles. Later (980-1037 A. D.) Arabian physicians employed it very extensively, principally in jaundice and other liver complaints. During the middle ages the milky juice of this plant was highly recommended in the treatment of diseases of the eye. During the sixteenth century European physicians found it useful as a quieting and sleep-producing remedy.

The poor of nearly all countries collect the young, crisp leaves in the early spring and prepare therefrom a salad, resembling lettuce salad. The poor in large cities visit vacant lots, in which the plants usually grow abundantly, and collect the leaves for home consumption, or fill large, often dirty, sacks, and vend it among the poor tenement dwellers. This is certainly a dangerous procedure, as all manner of dirt and disease germs are found on the leaves, to say nothing of dirty hands, utensils and containers of the collectors. No doubt many a case of typhoid fever or other germ disease among the poor could be traced to this source. In country districts there is little danger connected with eating Dandelion leaves, and they really form a good, palatable salad when properly prepared.

The leaves are also cooked, usually with leaves of other plants (species of chenopodium), forming "greens," highly relished by the poor. The American Indians as well as savages of other countries eat large quantities of the leaves raw, more rarely cooked. In Germany and other European countries the roots are collected, dried, roasted and used as a substitute for coffee.

The principal use of this plant has thus far been medicinal, but its value as a curative agent has certainly been overrated. It has been used in dropsy, pulmonary diseases, in stomach derangements, in hepatic or liver disorders, in icterus, blotchy skin and other skin diseases, for biliary calculi, in hypochondriasis, etc. It has no marked curative properties in any disorder. Beyond mildly laxative and tonic properties it has no effect whatever. Using taraxacum preparations for a considerable length of time causes digestive disorders, mental excitement, vertigo, coated tongue and nausea.

In lawns the plant proves a great nuisance, as it displaces the grass, and it is difficult to exterminate. The plants must be dug up, roots and all, carted away and burned. This should be done early, before the seeds are sufficiently mature to germinate. For medicinal use the roots are gathered in March, July and November, cleaned, the larger roots cut longitudinally, dried and packed to be shipped to points of consumption. The juice expressed from the fresh roots is also used.

ALBERT SCHNEIDER.

FROM SPRING TO RIVULET.

Still dances the brook with its murmurs gay,
Down through the woods and under the way,
Splashing o'er rocks,—through meadow agleam,
To lose itself in the larger stream.
It passes a laugh with ferns that peer
To see their forms in its waters clear;
It meets a rock, and dashes spray
At moss and lichens that light its gray;
And yet, as it nears where violets hide
'Neath soughing pines, its waters glide
With hardly a sound, lest the tender flower
Should feel, in its haste, too hard a shower.
But ever it sings, be it night or day,
Year after year, in the selfsame way,
"Here I tinkle, and there I dash,
I ripple, I murmur, I gaily splash;
Such a mad, such a glad little brook am I,
Singing along 'neath a summer sky!"

But just as gay as it is in June
Is the brook as it sings its winter tune.
Jack Frost makes his call,—and droop the ferns;
Again and again the sprite returns,
Till over the pool beneath the pines
A magical covering gleams and shines.
Now hide and seek does the brooklet play,
For it dashes forth once more on its way,
Again to be hidden beneath the snow,
That gives no hint of the songster below.
But the grand old trees that love it well,
And the winter bird,—they both can tell
That ever it sings, as it sang of old,
When winds are bleak and days are cold,
"Here I tinkle, and there I dash,
I ripple, I murmur, I gaily splash;
Such a mad, such a glad little brook am I,
Singing along when snowflakes fly!"

—GRACE E. HARLOW.

INDEX

Volume XII—June, 1902, to December, 1902, inclusive.

PAGE

ORDER BLANK.

BIRDS AND NATURE PICTURES

In Natural Colors. Size, 7×9 inches.

PRICE. Assorted as desired, two cents each; one cent each if one or more subscribers to CHILD GARDEN or BIRDS AND NATURE are sent at the same time.

SPECIAL OFFERS. (1) 75 plates (our selection) and BIRDS AND NATURE, one year, $2.00. (2) 75 plates with CHILD-GARDEN, $1.50. (3) The complete set, 536 plates, 1 cent each, $5.36. Send for catalogue for further information. Mark pictures desired and return this sheet. A. W. MUMFORD, 203 Michigan Ave., Chicago.

Date_____

I enclose_____for which please send the following order to

Name,_____

Street,_____

P. O._____

State,_____

1 Nonpareil.
2 Resplendent Trogon.
3 Mandarin Duck.
4 Golden Pheasant.
5 Australian Parrakeet.
6 Cock of the Rock.
7 Red Bird of Paradise.
8 Yellow-throated Toucan.
9 Red-rumped Tanager.
10 Golden Oriole.
11 American Blue Jay.
12 Swallow-tailed Indian Roller.
13 Red-headed Woodpecker.
14 Mexican Mot Mot.
15 King Parrot.
16 American Robin.
17 American Kingfisher.
18 Blue-mountain Lory.
19 Red-winged Blackbird.
20 Cardinal, or Red Bird.
21 Bluebird.
22 Barn Swallow.
23 Brown Thrasher.
24 Japan Pheasant.
25 Bobolink.
26 American Crow.
27 Flicker.
28 Black Tern.
29 Meadow Lark.
30 Great Horned Owl.
31 Rose-breasted Grosbeak.
32 Canada Jay.
33 Purple Gallinule.
34 Smith's Longspur.
35 American Red Crossbills.
36 California Woodpecker.
37 Pied-billed Grebe.
38 Bohemian Waxwing.
39 Long-billed Marsh Wren.
40 Arizona Jay.
41 Screech Owl.
42 Orchard Oriole.
43 Marsh Hawk.
44 Scissor-tailed Flycatcher.
45 Black-capped Chickadee.
46 Prothonotary Warbler.
47 Indigo Bird.
48 Night Hawk.
49 Wood Thrush.
50 Catbird.
51 Yellow-throated Vireo.
52 American Mockingbird.
53 Black-crowned Night Heron.
54 Ring-billed Gull.
55 Logger-head Shrike.
56 Baltimore Oriole.
57 Snowy Owl.
58 Scarlet Tanager.
59 Ruffed Grouse.
60 Black and White Creeping Warbler.
61 American Bald Eagle.
62 Ring Plover.
63 Mallard Duck.

64 American Avocet.
65 Canvas-back Duck.
66 Wood Duck.
67 Anhinga, or Snake Bird.
68 American Woodcock.
69 White-winged Scoter.
70 Snowy Heron, or Little Egret.
71 Osprey.
72 Sora Rail.
73 Kentucky Warbler.
74 Red-breasted Merganser.
75 Yellow Legs.
76 Skylark.
77 Wilson's Phalarope.
78 Evening Grosbeak.
79 Turkey Vulture.
80 Gambel's Partridge.
81 Summer Yellow Bird.
82 Hermit Thrush.
83 Song Sparrow.
84 Yellow-billed Cuckoo.
85 Ruby-throated Hummingbird.
86 House Wren.
87 Phœbe.
88 Ruby-crowned Kinglet.
89 Mourning Dove.
90 White-breasted Nuthatch.
91 Blackburnian Warbler.
92 Gold Finch.
93 Chimney Swift.
94 Horned Lark.
95 Yellow-bellied Sapsucker.
96 Warbling Vireo.
97 Wood Pewee.
98 Snow Bunting.
99 Junco.
100 Kingbird.
101 Summer Tanager.
102 White-fronted Goose.
103 Turnstone.
104 Belted Piping Plover.
105 Wild Turkey.
106 Cerulean Warbler.
107 Yellow-billed Tropic Bird.
108 European Kingfisher.
109 Vermillion Flycatcher.
110 Lazuli Bunting.
111 Mountain Bluebird.
112 English Sparrow.
113 Allen's Hummingbird.
114 Green-winged Teal.
115 Black Grouse.
116 Flamingo.
117 Verdin.
118 Bronzed Grackle.
119 Ring-necked Pheasant.
120 Yellow-breasted Chat.
121 Crowned Pigeon.
122 Red-eyed Vireo.
123 Fox Sparrow.
124 Bob-white.
125 Passenger Pigeon.
126 Short-eared Owl.
127 Rose Cockatoo.
128 Mountain Partridge.
129 Least Bittern.
130 Bald Pate Duck.
131 Purple Finch.
132 Red-bellied Woodpecker.
133 Saw-whet Owl.
134 Black Swan.
135 Snowy Plover.
136 Lesser Prairie Hen.
137 Black Duck.
138 Wilson's Petrel.
139 Blue-Gray Gnatcatcher.
140 American Coot.
141 Ivory-billed Woodpecker.
142 American Sparrow Hawk.
143 Silver Pheasant.
144 Scaled Partridge.
145 Ovenbird.
146 American Three-toed Woodpecker.
147 Bartramian Sandpiper.
148 Nightingale.
149 Roseate Spoonbill.

236 Hooded Merganser.
237 Medicinal Plant: Cloves.
238 Common Ground Hog.
239 Common Mole.
240 Azalea.
241 Medicinal Plant: Nutmeg.
242 American Barn Owl.
243 Kangaroo.
244 Hoary Bat.
245 Nashville Warbler.
246 English Grapes.
247 Swift Fox.
248 Hyacinth.
249 Cedar Waxwing.
250 Hyrax.
251 Medicinal Plant: Coffee.
252 Bonaparte's Gull.
253 Common Baboon.
254 Grinnell's Water Thrush.
255 Hairy-tailed Mole.
256 Cineraria.
257 A Feather Changing from Green to Yellow.
258 Western Yellow-throat.
259 Myrtle Warbler.
260 Blue-winged Yellow Warbler.
261 Golden-winged Warbler.
262 Mourning Warbler.
263 Chestnut-sided Warbler.
264 Black-throated Blue Warbler.
265 Pointer Dog.
266 Shells.
267 Marbles.
268 Ores.
269 Minerals.
270 Water Lilies.
271 Yellow Perch.
272 Beetles.
273 Forests.
274 Grand Canon.
275 Terraced Rocks, Yellowstone Park.
276 Rooster and Hen.
277 Oil Well.
278 Polished Woods.
279 Brook Trout.
280 Niagara Falls.
281 Purple Ladies' Slipper.
282 Medicinal Plant; Tea.
283 Towhee.
284 Canary.
285 Carolina Paroquet.
286 Chipmunk.
287 Peach.
288 Common Minerals and Valuable Ores.
289 Narcissus.
290 Medicinal Plant: Coca.
291 Red-tailed Hawk.
292 Maryland Yellow-throat.
293 Lyre Bird.
294 Cowbird.
295 Wild Cat.
296 European Squirrel.
297 Virginia Rail.
298 Blue-winged Teal.
299 Yellow-headed Blackbird.
300 Black Squirrel.
301 Weasel (Ermine).
302 Medicinal Plant; Quince.
303 Quartz.
304 Lily of the Valley.
305 Killdeer.
306 Cinnamon Teal.
307 Clapper Rail.
308 Gopher.
309 Mink.
310 Carbons.
311 Medicinal Plant; Licorice.
312 Yellow Ladies' Slipper and Painted Cup.
313 Peacock.
314 Willow Ptarmigan.
315 Steller's Jay.
316 Ruddy Duck.
317 Muskrat.
318 Medicinal Plant; Poppy.
319 Primrose.
320 Copper and Lead Ores.
321 American Bittern.

322 Scarlet Ibis.
323 Massena Partridge.
324 Ring-billed Duck.
325 Medicinal Plant; Thyme.
326 Bloodroot.
327 Western Blue Grosbeak.
328 Shells.
329 Magpie.
330 Red-breasted Nut-hatch.
331 Purple Martin.
332 Ring-necked Dove.
333 Opossum.
334 Genista.
335 Medicinal Plant; Digitalis.
336 Raven.
337 Wilson's Thrush.
338 Red or Wood Lily.
339 Common Sunfish.
340 A Mountain River.
341 Insects.
342 Brittany—(Cows).
343 Harvesting in the Great Northwest.
344 Homing Pigeon.
345 Swamp Rose Mallow.
346 Yellow Ladies' Slipper.
347 New England Aster. Late Purple Aster.
348 Wild Yellow or Canadian Lily.
349 Vesper Sparrow.
350 Calico Bass.
351 Mountain Lake.
352 Fruit: Banana.
353 Oswego Tea or Bee Balm.
354 Fringed Gentian. Closed or Blind Gentian.
355 Tall or Giant Sunflower. Black-eyed Susan or Oxeye Daisy.
356 Wild Columbine.
357 American Redstart.
358 Trout.
359 Ocean Waves.
360 Domestic Fowls.
361 Western Willet.
362 Buffle-Head.
363 American Eared Grebe.
364 Louisiana Tanager.
365 Luna and Polyphemus Moths.
366 Prong-horned Antelope.
367 Sensitive Plant.
368 Medicinal Plant; Almond.
369 Western Horned Owl.
370 Long-crested Jay.
371 Fulvous Tree-duck.
372 Red-breasted Sapsucker.
373 Promethean and Secropian Moths.
374 Irish Setter.
375 Pitcher Plant (Nepenthes).
376 Medicinal Plant; Mandrake.
377 Hawk Owl.
378 Knot or Robin Snipe.
379 White-winged Crossbill.
380 Townsend's Warbler.
381 Water Shells.
382 Collared Lizard.
383 Fruit: Apple.
384 Medicinal Plant; Vanilla.
385 American Rough-legged and Young Red-tailed Hawks.
386 Short-billed Dowitcher.
387 Great-tailed Grackle.
388 Hooded Warbler.
389 Land Shells.
390 Gila Monster.
391 Medicinal Plant; Cassia Cinnamon.
392 Fruit: Pomegranate.
393 Owl Parrot.
394 Gray Parrot.
395 White Pelican.
396 Marbled Murrelet.
397 Black Bear.
398 Pond and River Shells.
399 Fruit: Orange.
400 Medicinal Plant; Pepper.
401 Crested Curassow.
402 Harlequin Duck.
403 Canada Grouse.
404 Dovekie.
405 Beaver.
406 Marine Shells.
407 Fruit: Lemon.

408 Medicinal Plant: Cubebs.
409 Audubon's Oriole.
410 Marbled Godwit.
411 Rusty Blackbird or Grackle.
412 Surf Scoter.
413 American Elk.
414 Nautilus Shells.
415 Flowers: Mountain Laurel. Trailing Arbutus.
416 Medicinal Plant: Hops.
417 Bullock's Oriole.
418 Sanderling.
419 Great Northern Shrike.
420 Brandt's Cormorant.
421 Buffalo.
422 Agates.
423 Flowers: Great Mullein. Moth Mullein.
424 Medicinal Plant: Cocoa Fruit.
425 Anna's Hummingbird.
426 Rufous Hummingbird.
427 White-throated Sparrow.
428 Parula Warbler.
429 Tourmaline.
430 Indian Elephant.
431 Walrus.
432 Bengal Tiger.
433 Yellow-bellied Flycatcher.
434 Olive-sided Flycatcher.
435 Tree Sparrow.
436 Black-throated Green Warbler.
437 Beryl.
438 African Lion.
439 Alaskan Moose.
440 Polar Bear.
441 Pine Grosbeak.
442 Field Sparrow
443 Carolina Wren.
444 Black-poll Warbler.
445 Turquois.
446 Striped Hyena.
447 Giraffe.
448 Miriki Spider Monkey.
449 White-eyed Vireo.
450 Rivoli Hummingbird.
451 Worm-eating Warbler.
452 Chipping Sparrow.
453 Topaz.
454 Rhesus Monkey.
455 Asiatic or Bactrian Camel.
456 Zebra.
457 Golden-crowned Kinglet.
458 King Rail.
459 Brown-headed Nuthatch.
460 Sharp-shinned Hawk.
461 Quartz.
462 Greenland Whale.
463 Bur or Spear Thistle and Pasture or Fragrant Thistle.
464 Irish Moss.
465 Blue-headed Vireo.
466 California Thrasher.
467 Broad-tailed Hummingbird.
468 Broad-winged Hawk.
469 Quartz.
470 Domestic Cat.
471 Soapwort or Bouncing Bet and Snake-head or Turtle-head.
472 Sugar Cane.
473 Winter Wren.
474 Leconte's Sparrow.
475 Northern Phalarope.
476 Hairy Woodpecker.
477 Opal.
478 Purple Violet and Hepatica.
479 Sheep.
480 English Walnut.
481 Black-chinned Hummingbird.
482 Burrowing Owl.
483 Audubon's Warbler.
484 Red-backed Sandpiper.
485 Garnet.
486 Black Cohosh and Arrow Head.
487 Cows.
488 Sweet Flag.
489 Green Heron.
490 Varied Thrush.
491 Short-billed Marsh Wren.
492 Prairie Warbler.
493 Birth Stones.

494 Horse.
495 Robin's Plantain and Blue Vervain.
496 Medicinal Plant: Cotton.
497 Swallow-tailed Kite.
498 Alice's Thrush.
499 Carolina Chickadee.
500 Violet-green Swallow.
501 Starfish.
502 "Old Faithful" Geyser.
503 Sea or Marsh Pink and Fire-weed.
504 Medicinal Plant: Tobacco.
505 Palm Warbler.
506 Long-billed Curlew.
507 Everglade Kite.
508 Grasshopper Sparrow.
509 Feldspar.
510 Silver-spot Butterfly.
511 Cowry Shells.
512 Fruit: Cherries.
513 Philippine Yellow-breasted Sun-bird.
514 Great Gray Owl.
515 Green-crested Flycatcher.
516 Louisiana Water-thrush.
517 Amber.
518 Leaf Butterfly.
519 Snails of the Ocean.
520 Fruit: Tomatoes.
521 Pileated Woodpecker.
522 Starling.
523 Arkansas Goldfinch.
524 Black-bellied Plover.
525 Diamond and Sapphire in Matrix.
526 Horned Toads.
527 Moth (Attacus atlas).
528 Fruit: Egg Plant.
529 Hooded Oriole.
530 Chuck-will's-widow.
531 Gray-crowned Leucosticte.
532 White-crowned Sparrow.
533 Carnations.
534 Kangaroo Mouse.
535 Fruit: Persimmons.
536 Medicinal Plant; Dandelion.

A SET INCLUDING ONE OF EACH OF THE ABOVE 536 PICTURES FOR $5.36.
Order some of these Pictures for Bird Day and Arbor Day.

A. W. MUMFORD, PUBLISHER,
203 Michigan Ave., Chicago.

TESTIMONIAL OF
BIRDS AND NATURE PICTURES
536—2 Cents Each

We have been supplying some of these pictures to the *Chicago Tribune* for supplements. On the editorial page of the *Tribune*, Sunday issue, May 11, 1902, appeared a letter from one of the *Tribune's* subscribers, containing the following sentences:

"To-day's Passenger Pigeon is something which will rejoice the heart of every bird lover. In fidelity to life the picture cannot be surpassed."

TYPICAL FOREST TREES in PHOTOGRAVURE 9×12

First Series.
1. Black Oak.
2. White Pine.
3. American Elm.
4. Lombardy Poplar.
5. Tamarack.
6. Soft Maple.
8. White Birch.

Second Series.
1. Red Oak.
2. Silver Leaf Poplar.
3. Hickory.
4. Hard Maple.
5. Fir Balsam.
6. White Ash.
7. White Cedar.
8. Beech.

Third Series.

1. White Oak.
2. Black Walnut.
3. Horse Chestnut.
4. Basswood or Linden.
5. Black Ash.
6. Butternut.
7. Locust.
8. Bitternut Hickory.

40 cents a Series; the Three Series, $1.00, postpaid.

I heartily approve of the idea and think the photographs will do a great deal of good. The tree habit with trunk and leaf habit is admirable. JOHN M. COULTER, Dept. of Botany, University of Chicago.

SIRS:—Enclosed please find a check for $15.00, for which please forward copies of your publication. They are just what we need. Yours truly, G. STRAUBENMULLER, Associate Superintendent, New York.

No teacher should be without a set of our Forest Trees.
Sample sent on request.

ORIGINAL RINEHART REPRODUCTIONS

From colored photographs, showing in detail the fantastic coloring, gaudy clothing, head dresses and ornaments of the following subjects:

1 Chief Wolf Robe (Cheyenne)
2 Chief Mountain (Blackfeet)
3 Hattie Tom (Apache)
4 Chief Hollow Horn Bear (Sioux)
5 Chief Grant Richards (Tonkawa)
6 Chief White Man (Kiowa)
7 Wichita Papoose
8 Sac and Fox Papoose
9 Broken Arm on Horseback
10 Chief White Buffalo (Arapahoe)
11 Eagle Feather and Papoose (Sioux)
12 Ts-I-Do-We-Tsh- (Pueblo)
13 Brushing Against (Apache)
14 Kill Spotted Horse (Assiniboine)
15 Alice Lone Bear (Sioux)
16 Thunder Cloud (Blackfeet)
17 Three Fingers (Cheyennes)
18 Chief Red Bear (Arapahoe)
19 Good Eagle (Sioux)
20 Gov Diego Narango, Santa Clara (Pueblo)
21 Chief Louison (Flathead)
22 Chief Josh (Apache)
23 Chief Little Wound (Ogalalla)
24 Chief Black Man (Arapahoe)
25 Chief White Swan (Crow)
26 Chief Wets It (Assiniboine)
27 Apache Papoose
28 A Pair of Broncho Busters
29 Two Little Braves
30 Black Man (Arapahoe)
31 High Bear (Sioux)
32 Chief Red Cloud (Sioux)
33 Blue Wings (Winnebago)
34 Chief Joseph (Nez Perces)
35 Chief Geronimo (Guyiatle) Apache
36 Ahane (Wichita)
37 Chief Sitting Bull (Sioux)
38 Annie Red Shirt (Sioux)
39 Yellow Feather (Maricopa)
40 Little Wound Chief (Ogalalla Sioux)

Size, 7×9 inches Price, 10 cents each
Any 12 for $1.00 or the 40 for $2.00

AS A SPECIAL OFFER

We will send you BIRDS AND NATURE one year and the above 40 pictures for $3.00. The regular value is $5.00.

BIRDS AND NATURE one year and 10 pictures, for $1.70.

A. W. MUMFORD, Publisher 203 Michigan Ave., Chicago

Transcriber's Notes

- Created an eBook cover from elements within the issue.

- Reconstructed the Table of Contents (originally on each issue's cover).
- Retained copyright notice on the original book (this eBook is public-domain in the country of publication.)
- Silently corrected a few palpable typos.
- The index contains links to articles in other issues of *Birds and Nature* magazine, which can be installed locally:

Gutenberg #47881: Volume 12 Number 1, June 1902
Gutenberg #47882: Volume 12 Number 2, July 1902
Gutenberg #47883: Volume 12 Number 3, August 1902
Gutenberg #47884: Volume 12 Number 4, September 1902

Transcriber's Note on Linking between eBooks

This eBook contains "relative" links to other Project Gutenberg eBooks. These links function correctly whether the books are read online, or installed on a local drive or a website.

To install these books in another file system, create a subdirectory for each eBook, as in this outline:

```
mybooks/
  40000/
    40000-h/
      40000-h.htm
      images/
        ...
  40001/
    40001-h/
      40001-h.htm
      images/
        ...
  ...
```

Each eBook is in a separate directory; its directory name is the Project Gutenberg number for the eBook.

Each eBook directory may contain files in various formats; only the HTML files are relevant here; other files are optional.

HTML files are in a subdirectory consisting of the Gutenberg number followed by "-h".

The HTML file itself has a name consisting of the Gutenberg number followed by "-h", with a file extension of ".htm".

Associated media files (such as images, MIDI files, etc.) are contained in a further subdirectory "images"

To view these files, open any of the "*-h.htm" files in a web browser.

*** END OF THE PROJECT GUTENBERG EBOOK BIRDS AND NATURE, VOL. 12 NO. 5 [DECEMBER 1902] ***

course, we hope that you will support the Project Gutenberg™ mission of promoting free access to electronic works by freely sharing Project Gutenberg™ works in compliance with the terms of this agreement for keeping the Project Gutenberg™ name associated with the work. You can easily comply with the terms of this agreement by keeping this work in the same format with its attached full Project Gutenberg™ License when you share it without charge with others.

1.D. The copyright laws of the place where you are located also govern what you can do with this work. Copyright laws in most countries are in a constant state of change. If you are outside the United States, check the laws of your country in addition to the terms of this agreement before downloading, copying, displaying, performing, distributing or creating derivative works based on this work or any other Project Gutenberg™ work. The Foundation makes no representations concerning the copyright status of any work in any country other than the United States.

1.E. Unless you have removed all references to Project Gutenberg:

1.E.1. The following sentence, with active links to, or other immediate access to, the full Project Gutenberg™ License must appear prominently whenever any copy of a Project Gutenberg™ work (any work on which the phrase “Project Gutenberg” appears, or with which the phrase “Project Gutenberg” is associated) is accessed, displayed, performed, viewed, copied or distributed:

> This eBook is for the use of anyone anywhere in the United States and most other parts of the world at no cost and with almost no restrictions whatsoever. You may copy it, give it away or re-use it under the terms of the Project Gutenberg License included with this eBook or online at www.gutenberg.org. If you are not located in the United States, you will have to check the laws of the country where you are located before using this eBook.

1.E.2. If an individual Project Gutenberg™ electronic work is derived from texts not protected by U.S. copyright law (does not contain a notice indicating that it is posted with permission of the copyright holder), the work can be copied and distributed to anyone in the United States without paying any fees or charges. If you are redistributing or providing access to a work with the phrase “Project Gutenberg” associated with or appearing on the work, you must comply either with the requirements of paragraphs 1.E.1 through 1.E.7 or obtain permission for the use of the work and the Project Gutenberg™ trademark as set forth in paragraphs 1.E.8 or 1.E.9.

1.E.3. If an individual Project Gutenberg™ electronic work is posted with the permission of the copyright holder, your use and distribution must comply with both paragraphs 1.E.1 through 1.E.7 and any additional terms imposed by the copyright holder. Additional terms will be linked to the Project Gutenberg™ License for all works posted with the permission of the copyright holder found at the beginning of this work.

1.E.4. Do not unlink or detach or remove the full Project Gutenberg™ License terms from this work, or any files containing a part of this work or any other work associated with Project Gutenberg™ .

1.E.5. Do not copy, display, perform, distribute or redistribute this electronic work, or any part of this electronic work, without prominently displaying the sentence set forth in paragraph 1.E.1 with active links or immediate access to the full terms of the Project Gutenberg™ License.

1.E.6. You may convert to and distribute this work in any binary, compressed, marked up, nonproprietary or proprietary form, including any word processing or hypertext form. However, if you provide access to or distribute copies of a Project Gutenberg™ work in a format other than “Plain Vanilla ASCII” or other format used in the official version posted on the official Project Gutenberg™ website (www.gutenberg.org), you must, at no additional cost, fee or expense to the user, provide a copy, a means of exporting a copy, or a means of obtaining a copy upon request, of the work in its original “Plain Vanilla ASCII” or other form. Any alternate format must include the full Project Gutenberg™ License as specified in paragraph 1.E.1.

1.E.7. Do not charge a fee for access to, viewing, displaying, performing, copying or distributing any Project Gutenberg™ works unless you comply with paragraph 1.E.8 or 1.E.9.

1.E.8. You may charge a reasonable fee for copies of or providing access to or distributing Project Gutenberg™ electronic works provided that:

- You pay a royalty fee of 20% of the gross profits you derive from the use of Project Gutenberg™ works calculated using the method you already use to calculate your applicable taxes. The fee is owed to the owner of the Project Gutenberg™ trademark, but he has agreed to donate royalties under this paragraph to the Project Gutenberg Literary Archive Foundation. Royalty payments must be paid within 60 days following each date on which you prepare (or are legally required to prepare) your periodic tax returns. Royalty payments should be clearly marked as such and sent to the Project Gutenberg Literary Archive Foundation at the address specified in Section 4, “Information about donations to the Project Gutenberg Literary Archive Foundation.”

- You provide a full refund of any money paid by a user who notifies you in writing (or by e-mail) within 30 days of receipt that s/he does not agree to the terms of the full Project Gutenberg™ License. You must require such a user to return or destroy all copies of the works possessed in a physical medium and discontinue all use of and all access to other copies of Project Gutenberg™ works.

- You provide, in accordance with paragraph 1.F.3, a full refund of any money paid for a work or a replacement copy, if a defect in the electronic work is discovered and reported to you within 90 days of receipt of the work.

- You comply with all other terms of this agreement for free distribution of Project Gutenberg™ works.

1.E.9. If you wish to charge a fee or distribute a Project Gutenberg™ electronic work or group of works on different terms than are set forth in this agreement, you must obtain permission in writing from the Project Gutenberg Literary Archive Foundation, the manager of the Project Gutenberg™ trademark. Contact the Foundation as set forth in Section 3 below.

1.F.

1.F.1. Project Gutenberg volunteers and employees expend considerable effort to identify, do copyright research on, transcribe and proofread works not protected by U.S. copyright law in creating the Project Gutenberg™ collection. Despite these efforts, Project Gutenberg™ electronic works, and the medium on which they may be stored, may contain “Defects,” such as, but not limited to, incomplete, inaccurate or corrupt data, transcription errors, a copyright or other intellectual property infringement, a defective or damaged disk or other medium, a computer virus, or computer codes that damage or cannot be read by your equipment.

1.F.2. LIMITED WARRANTY, DISCLAIMER OF DAMAGES - Except for the “Right of Replacement or Refund” described in paragraph 1.F.3, the Project Gutenberg Literary Archive Foundation, the owner of the Project Gutenberg™ trademark, and any other party distributing a Project Gutenberg™ electronic work under this agreement, disclaim all liability to you for damages, costs and expenses, including legal fees. YOU AGREE THAT YOU HAVE NO REMEDIES FOR NEGLIGENCE, STRICT LIABILITY, BREACH OF WARRANTY OR BREACH OF CONTRACT EXCEPT THOSE PROVIDED IN PARAGRAPH 1.F.3. YOU AGREE THAT THE FOUNDATION, THE TRADEMARK OWNER, AND ANY DISTRIBUTOR UNDER THIS AGREEMENT WILL NOT BE LIABLE TO YOU FOR ACTUAL, DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES EVEN IF YOU GIVE NOTICE OF THE POSSIBILITY OF SUCH DAMAGE.

1.F.3. LIMITED RIGHT OF REPLACEMENT OR REFUND - If you discover a defect in this electronic work within 90 days of receiving it, you can receive a refund of the money (if any) you paid for it by sending a written explanation to the person you received the work from. If you received the work on a physical medium, you must return the medium with your written explanation. The person or entity that provided you with the defective work may elect to provide a replacement copy in lieu of a refund. If you received the work electronically, the person or entity providing it to you may choose

to give you a second opportunity to receive the work electronically in lieu of a refund. If the second copy is also defective, you may demand a refund in writing without further opportunities to fix the problem.

1.F.4. Except for the limited right of replacement or refund set forth in paragraph 1.F.3, this work is provided to you 'AS-IS', WITH NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

1.F.5. Some states do not allow disclaimers of certain implied warranties or the exclusion or limitation of certain types of damages. If any disclaimer or limitation set forth in this agreement violates the law of the state applicable to this agreement, the agreement shall be interpreted to make the maximum disclaimer or limitation permitted by the applicable state law. The invalidity or unenforceability of any provision of this agreement shall not void the remaining provisions.

1.F.6. INDEMNITY - You agree to indemnify and hold the Foundation, the trademark owner, any agent or employee of the Foundation, anyone providing copies of Project Gutenberg™ electronic works in accordance with this agreement, and any volunteers associated with the production, promotion and distribution of Project Gutenberg™ electronic works, harmless from all liability, costs and expenses, including legal fees, that arise directly or indirectly from any of the following which you do or cause to occur: (a) distribution of this or any Project Gutenberg™ work, (b) alteration, modification, or additions or deletions to any Project Gutenberg™ work, and (c) any Defect you cause.

Section 2. Information about the Mission of Project Gutenberg™

Project Gutenberg™ is synonymous with the free distribution of electronic works in formats readable by the widest variety of computers including obsolete, old, middle-aged and new computers. It exists because of the efforts of hundreds of volunteers and donations from people in all walks of life.

Volunteers and financial support to provide volunteers with the assistance they need are critical to reaching Project Gutenberg™'s goals and ensuring that the Project Gutenberg™ collection will remain freely available for generations to come. In 2001, the Project Gutenberg Literary Archive Foundation was created to provide a secure and permanent future for Project Gutenberg™ and future generations. To learn more about the Project Gutenberg Literary Archive Foundation and how your efforts and donations can help, see Sections 3 and 4 and the Foundation information page at www.gutenberg.org.

Section 3. Information about the Project Gutenberg Literary Archive Foundation

The Project Gutenberg Literary Archive Foundation is a non-profit 501(c)(3) educational corporation organized under the laws of the state of Mississippi and granted tax exempt status by the Internal Revenue Service. The Foundation's EIN or federal tax identification number is 64-6221541. Contributions to the Project Gutenberg Literary Archive Foundation are tax deductible to the full extent permitted by U.S. federal laws and your state's laws.

The Foundation's business office is located at 809 North 1500 West, Salt Lake City, UT 84116, (801) 596-1887. Email contact links and up to date contact information can be found at the Foundation's website and official page at www.gutenberg.org/contact

Section 4. Information about Donations to the Project Gutenberg Literary Archive Foundation

Project Gutenberg™ depends upon and cannot survive without widespread public support and donations to carry out its mission of increasing the number of public domain and licensed works that can be freely distributed in machine-readable form accessible by the widest array of equipment including outdated equipment. Many small donations ($1 to $5,000) are particularly important to maintaining tax exempt status with the IRS.

The Foundation is committed to complying with the laws regulating charities and charitable donations in all 50 states of the United States. Compliance requirements are not uniform and it takes a considerable effort, much paperwork and many fees to meet and keep up with these requirements. We do not solicit donations in locations where we have not received written confirmation of compliance. To SEND DONATIONS or determine the status of compliance for any particular state visit www.gutenberg.org/donate.

While we cannot and do not solicit contributions from states where we have not met the solicitation requirements, we know of no prohibition against accepting unsolicited donations from donors in such states who approach us with offers to donate.

International donations are gratefully accepted, but we cannot make any statements concerning tax treatment of donations received from outside the United States. U.S. laws alone swamp our small staff.

Please check the Project Gutenberg web pages for current donation methods and addresses. Donations are accepted in a number of other ways including checks, online payments and credit card donations. To donate, please visit: www.gutenberg.org/donate.

Section 5. General Information About Project Gutenberg™ electronic works

Professor Michael S. Hart was the originator of the Project Gutenberg™ concept of a library of electronic works that could be freely shared with anyone. For forty years, he produced and distributed Project Gutenberg™ eBooks with only a loose network of volunteer support.

Project Gutenberg™ eBooks are often created from several printed editions, all of which are confirmed as not protected by copyright in the U.S. unless a copyright notice is included. Thus, we do not necessarily keep eBooks in compliance with any particular paper edition.

Most people start at our website which has the main PG search facility: www.gutenberg.org.

This website includes information about Project Gutenberg™, including how to make donations to the Project Gutenberg Literary Archive Foundation, how to help produce our new eBooks, and how to subscribe to our email newsletter to hear about new eBooks.