BIRDS AND NATURE

A. W. MUMFORD
CHICAGO

BIRDS AND NATURE

IN NATURAL COLORS

A NEW EDITION

PAGE PLATES OF FORTY-EIGHT COMMON BIRDS BY
COLOR PHOTOGRAPHY

A GUIDE IN THE STUDY OF BIRDS AND THEIR HABITS

VOLUME II

COMPLETE IN FIVE VOLUMES WITH 240 PAGE PLATES IN COLORS.
BEING A SCIENTIFIC AND POPULAR TREATISE ON
FOUR HUNDRED BIRDS OF THE UNITED
STATES AND CANADA.

CHICAGO
A. W. MUMFORD, Publisher
536 S. CLARK ST.

KINGFISHER.
(Ceryle alcyon).
⅝ Life-size.

The Belted Kingfisher (*Ceryle alcyon*)

By Charles Bendire

Length, about 13 inches. Not to be confused with any other American bird.

Range: Breeds from northwestern Alaska and central Canada south to the southern border of the United States, winters from British Columbia, Nebraska, Illinois, Indiana, Ohio and Virginia south to the West Indies, Colombia and Guiana.

The cry of the kingfisher, which suggests a watchman's rattle in vigorous hands, can be mistaken for the note of no other bird; nor, for that matter, is the bird himself likely to be confused with any other species. Whether flying, perched on a branch over a stream, or diving for small fish, our kingfisher is always himself, borrowing none of his peculiarities from his neighbors. Many of his tropical brothers catch insects for a living; but our bird, early in the history of the development of the kingfisher family, discovered that fish were easier to catch and in the long run more filling than insects, and hence renounced the family habit and assumed the role of fisherman. Instead of using a hollow tree as a nest site, the kingfisher has apparently learned a lesson from the sandswallows and excavates a burrow for himself in some sandbank, usually not far from pond or stream; and you may be sure that any pond chosen by him for a haunt is well stocked with fish. The fish he kills are chiefly minnows and of small value, but the bird sometimes makes a nuisance of himself about fish hatcheries, where his skill in catching young food fish often brings him speedy doom.

The Belted Kingfisher, ordinarly simply called the Kingfisher, is one of our best-known birds, and it is generally distributed in suitable localities throughout the North American continent, though seldom very common anywhere. In general appearance it is a striking though rather top-heavy looking bird. Its satin plumage feels dense and smooth to the touch, as if it were oiled, while its soft, weak feet look out of all proportion to its rather large head and body. They seem almost inadequate to support its weight, and certainly do not appear to be much adapted to walking, an exercise in which I have never seen one indulge.

As a rule each pair of birds seems to claim a certain range on some suitable stream, lake, or millpond, and should others intrude on this they are quickly driven off. Clear streams or ponds, bordered with perpendicular banks and low brush-covered shores, are their favorite resorts, and along such places one will not have to go far before hearing the characteristic rattle of the Kingfisher, or perhaps seeing one perched on a partly submerged snag or rock, on a pile of driftwood near the shore, or on some small branch directly overhanging the water.

Every bird seems to have several favorite perches along its range, each perhaps quite a distance away from the next, to which it flies from time to time, generally uttering its well-known shrill rattle in doing so. It is a sedentary bird, but ever watchful and rather shy, sitting frequently for an hour at a time in the

same position, occasionally moving its head back and forward, watching for its prey as a cat does for a mouse. In such a posture the Kingfisher is one of the most charming features of brook and pool. Should an unfortunate fish come within sight at such times, our lone fisher is at once alert enough, craning its neck and looking into the water until the proper moment arrives for it to plunge downward, head first, completely disappearing out of sight, and usually emerging with wriggling captive firmly grasped in its bill, for it rarely misses its victim. It generally rises some feet in the air before dashing perpendicularly into the water.

While different kinds of small fish undoubtedly constitute a large part of the Kingfisher's food where readily procurable, various species of crustacea, and such insects as beetles, grasshoppers, and the large black crickets found in many of our Western states, are also eaten, as well as frogs and lizards.

In favorite spots where fish are plenty, and where there is no suitable place for a perch, they sometimes remain poised for a minute or more, hovering in the air some six feet over the water, as does the Sparrow Hawk when searching for grasshoppers and mice in a meadow. When a fish is caught it is at once carried in the bill to the nearest perch or rock, against which it is beaten until dead, and is then swallowed head first. The indigestible parts, such as bones and scales, are afterwards ejected through the mouth in oblong pellets, which can be seen lying around in their burrows or about their favorite perches.

The first migrants to return from their winter quarters appear in the Middle states generally about the second week in March, and sometimes a week or so later, according to the season. In higher latitudes they appear later and not until after the ice commences to break up. In our Southern states nest-making commences usually in April; in the Northern ones, rarely before the first week in May, and in arctic North America and northern Alaska, seldom earlier than the latter half of June. The return migration from their breeding grounds in our Northern states sometimes begins about the latter part of September, and in mild falls not before the middle of October, and occasionally still later, the birds remaining until the streams become covered with ice.

The favorite nesting sites of the Kingfisher are perpendicular clay or reasonably compact sand banks, occasionally mixed more or less with gravel. These banks or bluffs usually abut directly on water. A nearly circular burrow or tunnel is dug into these, averaging about four inches in diameter. They are excavated by the birds; the entrance hole is usually from two to three feet below the top of the bank, but sometimes fully twenty feet from the top. The burrows vary in length from four to fifteen feet, according to the nature of the soil, and sometimes run in perfectly straight for the entire distance; again they diverge at different angles, at various distances from the entrance. The nesting-chamber is dome-shaped, usually from eight to ten inches in diameter, and always at a slightly higher level than the entrance hole.

The time required to dig out a burrow depends largely on the nature of the

soil to be removed, taking sometimes two or three weeks, but generally much less. I have seen an instance where a pair of these birds excavated a new burrow in a rather friable clay bank near Fort Lapwai, Idaho, to a depth of five feet in a little over three days. How they manage to dig so rapidly, considering their short and weak-looking feet, with which they must remove the greater part of the material, has always been a mystery to me, and I would not believe them capable of accomplishing such an amount of work had I not seen it done. When not disturbed, the same nesting site is resorted to from year to year. Sometimes the male burrows an additional hole near the occupied nesting site, usually not over three feet deep, to which he retires to feed and pass the night.

The number of eggs varies usually from five to eight, and sets of six or seven are most often found. Instances, however, have been recorded where as many as fourteen eggs have been found at one time. If the first set of eggs is taken, the birds abandon the burrow and excavate a second one near by, and frequently within a few feet of the first one, and lay a second set, consisting rarely of more than six eggs. Only a single brood is raised in a season.

In a newly excavated nest the eggs are usually laid on the bare ground, while in such as have been occupied in previous seasons, the eggs are frequently found deposited on quite a thick layer of fish bones, scales, crawfish shells, etc.

The Purple Martin (*Pogne subis*)

Length, about 8 inches.

Range: Breeds throughout the United States and southern Canada, south to central Mexico; winters in South America.

Habits and economic status: This is the largest as it is one of the most beautiful of the swallow tribe. It formerly built its nests in cavities of trees, as it still does in wild districts, but learning that man was a friend it soon adopted domestic habits. Its presence about the farm can often be secured by erecting houses suitable for nesting sites and protecting them from usurpation by the English sparrow, and every effort should be made to increase the number of colonies of this very useful bird. The boxes should be at a reasonable height, say 15 feet from the ground, and made inaccessible to cats. A colony of these birds on a farm makes great inroads upon the insect population, as the birds not only themselves feed upon insects but rear their young upon the same diet. Fifty years ago in New England it was not uncommon to see colonies of 50 pairs of martins, but most of them have now vanished for no apparent reason except that the martin houses have decayed and have not been renewed. More than three-fourths of this bird's food consists of wasps, bugs, and beetles, their importance being in the order given. The beetles include several species of harmful weevils, as the clover-leaf weevils and the nut weevils. Besides these are many crane flies, moths, May flies, and dragonflies.

The Ruby-Crowned Kinglet (*Regulus calendula*)

By W. Leon Dawson

Length, about 4¼ inches. Olive green above, soiled whitish below, concealed feathers on head (crest) bright red.

Range: Breeds in southern Canada, southern Alaska, and the higher mountains of the western United States; winters in much of the United States and south to Guatemala.

Habits and economic status: In habits and haunts this tiny sprite resembles a chickadee. It is an active, nervous little creature, flitting hither and yon in search of food, and in spring stopping only long enough to utter its beautiful song, surprisingly loud for the size of the musician. Three-fourths of its food consists of wasps, bugs, and flies. Beetles are the only other item of importance (12 per cent). The bugs eaten by the kinglet are mostly small, but, happily, they are the most harmful kinds. Treehoppers, leafhoppers, and jumping plant lice are pests and often do great harm to trees and smaller plants, while plant lice and scale insects are the worst scourges of the fruit grower—in fact, the prevalence of the latter has almost risen to the magnitude of a national peril. It is these small and seemingly insignificant birds that most successfully attack and hold in check these insidious foes of horticulture. The vegetable food consists of seeds of poison ivy, or poison oak, a few weed seeds, and a few small fruits, mostly elderberries.

Surely there is no one who can meet this dainty monarch in one of his happy moods without paying instant homage. His imperium is that of the spirit, and those who boast a soul above the clod must swear fealty to this most delicate expression of the creative Infinite, this thought of God made luminous and vocal, and own him king by right divine.

It was only yesterday I saw him, Easter day. The significant dawn was struggling with great masses of heaped-up clouds, the incredulities and fears of the world's night; but now and again the invincible sun found some tiny rift and poured a flood of tender gold upon a favored spot where stood some solitary tree or expectant sylvan company. Along the river bank all was still. There were no signs of spring save for the modest springing violet and the pious buckeye, shaking its late-prisoned fronds to the morning air, and tidily setting in order its manifold array of Easter candles. The oak trees were gray and hushed, and the swamp elms held their peace until the fortunes of the morning should be decided. Suddenly from down the riverpath there came a tiny burst of angel music, the peerless song of the Ruby-crown. Pure, ethereal, without hint of earthly dross or sadness, came those limpid, swelling notes, the sweetest and the gladdest ever sung—at least by those who have not suffered. It was not, indeed, the greeting of the earth to the risen Lord, but rather the annunciation of the glorious fact by heaven's own appointed herald.

RUBY-CROWNED KINGLET.
About Life-size.

The Ruby-crowned Kinglet has something of the nervousness and vivacity of the typical wren. It moves restlessly from twig to twig, flirting its wings with a motion too quick for the eye to follow, and frequently uttering a titter of alarm, chit-tit or chit-it-it. During migrations the birds swarm through the tree-tops like warblers, but are oftener found singly or in small companies in thickets or open clusters of saplings. In such situations they exhibit more or less curiosity, and if one keeps reasonably still he is almost sure to be inspected from a distance not exceeding four or five feet. It is here, too, that the males are found singing in the spring. The bird often begins sotto voce with two or three high squeaks, as though trying to get the pitch down to the range of mortal ears before he gives his full voice. The core of the song is something like tew, tew, tew, tew, sweet to eat, sweet-oo eat," the last phrases being given with a rising inflection, and with an accent of ravishing sweetness. The tones are so pure that they may readily be whistled by the human listener, and a musical contest provoked in which one is glad to come out second best.

I once saw a kinglet in a royal mood. A young ruby-crowned was caroling, and quite prettily, in the lower branches of an old oak tree hard by. I was watching him closely to see if I might catch a glint of red, when up darted an older rival and flashed a jewel so dazzling as to fairly smite the eye. The youngling felt the rebuke keenly, and retired in great confusion. It seems that when the bird is angry it has the power of erecting its crest and so unveiling the full glory of the ruby crown.

Audubon's Warbler (*Dendroica auduboni*)

Length, about 5 inches. Much like the yellow-rump but with yellow crown and throat patch.

Range: Breeds from central British Columbia, Alberta and southwestern Saskatchewan to our southern border, east to South Dakota and Nebraska; winters from California and Texas, south to Guatemala.

America is particularly favored by the presence of the beautiful wood warbler family, the members of which are excelled by few birds in symmetry of form, pleasing coloration and graceful motions. They are also of highly beneficial habits. No member of the wood warbler family is more characteristic of the group than this beautiful bird. In voice, coloration, and habits it is almost the counterpart of the yellow-rump of the eastern states, for which indeed it might easily be mistaken were it not for its yellow throat, the corresponding area in the yellow-rump being white. It summers in the mountains and shows off to advantage against the dark foliage of the pines. It seems to have little fear of man and in winter frequents orchards, gardens, and dooryards. Wherever it may be it keeps up an incessant hunt for its insect food, in the pursuit of which, like many others of its family, it sometimes essays the role of flycatcher, being very expert and nimble on the wing. This warbler also devours large numbers of ants, flies, scale and plant lice, and various noxious beetles and bugs.

The Chickadee

By H. L. Gordon

Chickadee, chickadee, chickadee-dee!
That was the song that he sang to me—
Sang from his perch in the willow tree—
Chickadee, chickadee, chickadee-dee.
My little brown bird,
The song that I heard
Was a happier song than the minstrels sing,—
A paean of joy and a carol of spring;
And my heart leaped throbbing and sang with thee,
Chickadee, chickadee, chickadee-dee.

My birdie looked wise
With his little black eyes,
As he peeked and peered from his perch at me,
With a throbbing throat and a flutter of glee,
As if he would say—
Sing trouble away,
Chickadee, chickadee, chickadee-dee.

Only one note
From his silver throat;
Only one word
From my wise little bird;
But a sweeter note or a wiser word
From the tongue of mortal I never heard
Than my little philosopher sang to me
From his bending perch in the willow tree,
Chickadee, chickadee, chickadee-dee.

Come foul or fair,
Come trouble and care—
No—never a sigh
Or a thought of despair!
For my little bird sings in my heart to me,
As he sang from his perch in the willow tree—
Chickadee, chickadee, chickadee-dee;
Chickadee-dee, chickadee-dee;
Chickadee, chickadee, chickadee-dee.

Plea of the English Sparrow

By Helen M. Richardson

I'm but a common sparrow and I dress
In colors plain. My song an untrained chirp.
By brave persistence, only, have I earned
A right to live among the birds that sing
Their love notes 'mid the branches of your trees.
When other birds fly southward I remain
To make the winter hours less dreary seem
To those whose kindness I have learned to prize.
Beside the junco and the chickadee
I've fed on crumbs within your dooryard strewn,
And chirped my thanks in my plain sparrow way.
Yet ever have I sought to match my skill
At arts less homely with the feathered tribe
That make the trees melodious with song.
By patient effort I at last have learned
The trick whereby, poised upon outspread wings,
Unwary insects and the harmful moth
I may secure; while in its leafy haunts
I have been known to trap the timid worm.
The trade of woodpecker I've e'en essayed.
Nor can the agile grasshopper escape
When I the chase begin.
Methinks, kind friends,
Now that an expert's skill I have attained,
I should be treated with the deference due
All laborers who have worked their upward way
So when you bid the sportsman stay his gun
And let the song-bird live and multiply,
Because, forsooth, he is the friend of man,
Pray heed the English sparrow's chirping plea,
And class him in the song-bird's company.

The Red-Winged Blackbird (*Agelains phoenicens*)

By Henry W. Henshaw

Length, about 9½ inches.

Range: Breeds in Mexico and North America south to the Barren Grounds; winters in southern half of United States and south to Costa Rica.

Habits and economic status: The prairies of the upper Mississippi Valley, with their numerous sloughs and ponds, furnish ideal nesting places for redwings, and consequently this region has become the great breeding ground for the species. These prairies pour forth the vast flocks that play havoc with grain fields. East of the Appalachian Range, marshes on the shores of lakes, rivers, and estuaries are the only available breeding sites, and, as these are comparatively few and small, the species is much less abundant than in the West. Redwings are eminently gregarious, living in flocks and breeding in communities. The food of the redwing consists of 27 per cent animal matter and 73 per cent vegetable. Insects constitute practically one-fourth of the food. Beetles (largely weevils, a most harmful group) amount to 10 per cent. Grasshoppers are eaten in every month and amount to about 5 per cent. Caterpillars (among them the injurious army worm) are eaten at all seasons and aggregate 6 per cent. Ants, wasps, bugs, flies, dragonflies and spiders also are eaten. The vegetable food consists of seeds, including grain, of which oats is the favorite, and some small fruits. When in large flocks this bird is capable of doing great harm.

Abundant summer resident. A few remain all winter. Nest deep and coarse, made of marsh grasses, weed stalks and the like, lined with fine grasses and root fibers; placed among bushes or cat-tails in swampy places; eggs three to five; song, a musical chuck-a-leé-dlè.

Red-winged blackbird so fully describes this beautiful fellow that one needs only to see him to know him.

Perhaps red-shouldered would have been a better name for only a small part of the wing is red, nor is the wing-patch wholly red; its hind margin is more buff or yellow than red.

If you wish to make his acquaintance, go to the low grounds in spring or summer while the nest is being made or tended. You do not have to hunt him there, he announces himself. How nervous and excited he becomes! He is so afraid that you will discover his nest near by; and yet he tells you all about it! He can not understand that you are not an amphibian and must keep to the dry ground. If you only had a pair of rubber boots, he would probably show the way to the nest in his anxiety to keep you from it. How he cackles and chatters and clicks! Now see the red on the wing! Could anything be brighter or prettier than he as he sways on the stalk of a last year's cat-tail or balances himself on a spray of willow!

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RED-WINGED BLACKBIRD.
½ Life-size.

You would not take his mate to be any relation to him, they are so unlike—she is a dull brownish blackbird. Her head and back are a dirty black streaked with rusty brown. The breast is covered with short, narrow streaks of black and white. Usually her shoulder has no scarlet epaulet though sometimes it has a reddish tinge.

The farmer again finds a friend in these birds for injurious insects and seeds make up more than three-fourths of their food.

In the summer and early fall they gather in large flocks and forage over the grain and corn fields. Now the farmer thinks they are doing him an injury, and no doubt they are, especially when the flocks are very large; but he should not forget their valuable service through the months of spring and early summer when they were eating cut-worms, army-worms, locusts and grasshoppers. Had it not been for these birds, he would not have as much grain to divide with them.

Before and After Summer

By Thomas Hardy

Looking forward to the Spring
One puts up with anything.
On this February day,
When the winds leap down the street,
Wintry scourgings seem but play;
And these later shafts of sleet—
Sharper pointed than the first—
And these later snows—the worst—
Are a half-transparent pane
Giving on a bright domain.

Shadows of the October pine
Reach into this room of mine:
On the pine there stands a bird;
He is shadowed with the tree.
Mutely perched he bills no word;
Blank as I am even is he.
For those happy suns are past
Forediscerned in winter last.
When went by their pleasure then?
I, alas, discerned not when.

Bird Citizens in Winter

By Harriet Woodward Clark

Courageous indeed are the few of our bird acquaintances whom, because they brave the rigors of our northern winters and remain with us the year round, we have come to regard as citizens.

We rejoice at the coming of the feathered guests who make the summer cheery with their songs, and whose housekeeping projects afford us so much pleasure. But we have a real affection for those plucky little citizens who endure without complaint the discomforts which the winter brings, and do not migrate with their companions at the first hint of frost. Let us make out a list of the bird citizens in winter, for they certainly deserve honorable mention. The first one who comes to mind is that plucky little fellow, the very impersonation of valor, although small in size—the chickadee. No matter how cold or dismal it is, he makes the best of it, and his cheerful uncomplaining voice singing the refrain "chick-a-dee-dee-dee" is enough to drive away a fit of the vapors. He is a messenger of hope, and we could ill spare this little citizen from our borders, even for a brief visit south.

The blue jay is a large, handsome bird who brightens our winter landscape. One day, last winter, I noticed a pair of them flitting from limb to limb on a tree whose branches were covered with a light snow. Their brilliant blue and white wings, flashing in the sunlight, made a wonderfully pretty picture in color. The blue jay has a harsh voice, resembling that of the parrot. He has, however, a whistling note which is tuneful. The blue jay is a social bird and is fond of company, but his manners are none of the best. He chatters noisily, and his voice is raised to a high pitch, as he tells one jolly story after another. I have been told that the blue jay, like the parrot, can be taught to talk. He certainly is imitative, and a splendid fellow to have about in winter. Like the squirrel, the blue jay collects acorns and chestnuts in the fall, and hides them in the hollow of some favorite tree, where he finds them later. The blue jay is not well liked by his associates, for he has a bad habit of stealing the eggs of other birds and eating them. This is assuredly a dishonorable proceeding, and merits punishment. Still, I cannot help liking the saucy fellow who occasionally visits my yard in winter, and hope that he will, in time, develop the traits necessary for good citizenship.

The nuthatch, kinglet, and snowbird are also permanent residents. The little nuthatch is a common sight as he comes about our houses, seeking crumbs. He is a chum of the chickadee, and they may often be seen eating side by side. The nuthatch is a pretty, plump little bird, with bluish gray back and white underneath. The snowbirds and kinglets are seen only occasionally about here, as they keep in shelter in the coldest weather.

One bird who never fails to visit the trees about the house, and for whose coming I watch each winter, is the downy woodpecker. You cannot fail to recog-

nize him in his sober dress of black and white and his chisel-shaped beak. If you do not recognize this sturdy citizen by his coloring, you cannot fail to hear the rat-a-tap-tap with which noise he drums the trees, seeking for insects or grubs concealed in the bark. Up and down the tree he works quickly, stopping now and then to seize his prey with long, pointed tongue, which he projects into the hole he has made in the bark, thus securing the coveted insect. This thrifty citizen has his home in the trunk of some tree. He chisels into dead limbs of trees and, when he has made a hole large enough and deep enough, builds himself a nest. It is a nice, snug home for him in winter, and he is not usually seen out far from home except on sunny days. The woodpecker is a silent bird, and prefers his own society to that of others of his kind. He stalks about by himself, and I have never noticed more than one solitary tapper on the tree at a time. Woodpeckers are home-lovers, and are sure to find their own nests when nightfall comes.

Another winter favorite is the goldfinch, a dainty bird with yellow vest and jet black turban. His home is in the low bushes that skirt the pastures, and his food he finds at hand in the seeds of the tall weeds that peer above the snow in midwinter. If he can locate his nest in the vicinity of a clump of thistles, he is jubilant; for thistle seeds are much admired as articles of food by these tiny citizens. The goldfinch has a sweet voice, and its merry twitterings, when the mercury registers even zero, should be a lesson in contentment for those of human kin who are constantly reviling the clerk of the weather.

A curious bird whom we call one of our citizen birds and of whom much is said, and yet so little really known, is the owl. The solemn face, with its wide-open, staring eyes, gives an appearance of great sagacity; yet it is a well-known fact that in many ways the owl is a stupid bird. He also has some traits of character which are to be deplored in a citizen of any country. He is a thief of the sneaking type, which arouses contempt. He steals out of his hollow tree at night, making no noise, but creeping silently upon his prey. He has well been dubbed "a cat with wings." His prey is usually some unfortunate field mouse which has ventured forth at twilight itself seeking food. The owl also takes a fancy to small birds, when rats and mice are not in plenty. As may be supposed, his appearance makes a great commotion in the bird world.

"Look out for the robber! Look out for the murderer!" the little birds chatter noisily as, at the approach of the owl, they scatter for safe hiding places. The cry of the owl is dismal and makes the flesh creep. I do not wonder that the birds recognize an enemy as they hear the "tu-whit, tu-whoo, tu-whoo," in the silence of the night.

A robber chief, powerful and daring, whom we are not proud to call citizen, is the hawk. He is a bird of prey, fond of rodents, small birds, and chickens. In a place where I was once living, I saw, in winter, a hawk at the top of a pine tree in a grove across the road. He had a poor sparrow in his talons, dead either

from fright or from the sharp claws piercing his heart. The hawk silently stripped his victim clean of feathers, and they fluttered one by one down to the ground. He then ate the flesh with great relish, afterward resuming his flight. No one loves the hawk, and his reputation for viciousness is universal.

In winter, when the thaw begins to melt the snow, we hear the monotonous "caw! caw! caw!" of the crow. Unlovely in color, in voice, and in character, the crow is looked upon askance by all beings, both feathered and human. On the whole, however, the crow is a good-natured clumsy fellow, who is not to be blamed for his ignorance of the usages of good society. He has his own interpretation as to what mine and thine really mean, which fact often involves him in trouble.

Grouse are found in the deep woods in cold weather. They are not a familiar bird to most of us, as they keep in hiding the larger part of the time, running under cover in search of food and roosting in trees at night. Their favorite haunt is a fallen log, on which at some seasons of the year they drum. The sounds of their strokes can be heard quite a distance away.

A whole community of tree sparrows is a common sight in winter. They alight on the snow, chase each other through it as though playing some game, burrow in it for a snow bath, keeping up all the while a cheerful chirping and twittering, as though it were the time for sunny skies and leafy trees.

Occasionally a robin remains with us all the year, as well as a few song sparrows. The latter, however, do not sing until springtime, as a rule. There is a beautiful story told in connection with the song sparrow. It seems this little bird has a confiding way of building its nest on the ground. Some time since, the United States army, under the command of General David Stanley, was crossing our western plains. Its purpose was to discover a route for a great railroad. As the army with its men and horses, mules and wagons, plodded along, the order to halt came suddenly. A short distance directly in front of General Stanley was a song sparrow's nest full of young birds. The mother bird was hovering near, uttering piteous cries of distress as she saw the destruction of her babies imminent. The next order the army received was, clear and sharp: "Left oblique!" The long procession of men and horses, mules and wagons, swerved to one side and passed far around that tiny bird's nest. We are told that for years afterwards an abrupt bend in the trail marked the spot where a high-minded general had compassion even for the suffering of a bird. Such an act of humanity deserves honorable mention whenever the name of General David Stanley is spoken.

There are simple and inexpensive methods of showing our bird citizens that we desire them to stay with us during the cold weather. We must be hospitable to the extent of furnishing them with food, and if we can offer them shelter that they will accept we are that much more fortunate. Grain and suet put in accessible places will always be appreciated by our feathered friends, and in severe weather may save some of them from starvation.—*Countryside Magazine.*

SNOWY OWL.
(Nyctea nyctea.)
¼ Life-size.

The Snowy Owl (*Nyctea nyctea*)

By Gerard Alan Abbot

Length: 25 inches.

Range: Northern portion of northern hemisphere. Breeds north of United States. In winter migrates south to Middle states.

No Arctic explorer has yet penetrated too far north to find the snowy owl. Private Long, of the Greeley expedition, who raised six of these owlets, released them only because food became scarce enough for men during the second winter of hardship, much less for such greedy pets. "They had inordinate appetites," says the commander, "and from the time they were caught, as young owlets, swallowed anything given to them. I remember one bolting a whole sandpiper about half his own size. Over a hundred and fifty squas (robber gulls) were killed and fed to these owls. It was interesting to note that, although they had never used their wings, the owls flew well." In another volume, General Greeley describes the Snowy Owls' eggs as "somewhat larger than, though closely resembling, the white egg of a hen. Sergeant Israel found it very palatable. The male bird showed signs of fight when the egg was taken, while the female looked on from about one hundred yards. The first owl observed was on April 29, since then one or more have been frequently seen. The nest is a mere hole hollowed out on the summit of a commanding knoll, and furnished with a few scattered feathers, grass, etc."

The Snowy Owl breeds from Labrador northward, and wanders southward in winter into the northern United States.

Like the hawk owl, it is diurnal in its habits, but is most active in early morning and again about dusk. Like the hawk owl, too, it occupies a commanding perch for hours on the watch, occasionally dropping on a rodent or sailing about, soon to return to the same perch.

"During January and February of 1902, there occurred a remarkable invasion by snow owls, reported from localities as diverse as southern Michigan and Long Island. They were especially abundant in Ontario, and were much sought for their plumage. According to Mr. Ruthven Deane, "a Mr. Owens, taxidermist, living near Mooresville, Middlesex county, received and mounted twenty-two specimens during the winter, and commented on the fact that thirteen years ago he prepared exactly the same number, not having handled a single specimen during the interim." Mr. Deane collected information of more than 430 of these owls that were killed during this one flight.

"The home of the snowy owl is on the immense moss and lichen covered tundras of the boreal regions, where it leads an easy existence, finding an abundant supply of food during the short Arctic summers. Hunting its prey at all hours, it subsists principally upon the lemming, and it is said to be always abundant wherever these rodents are found in numbers. Other small rodents are also

caught, as well as ptarmigan, ducks and other water fowl, and even the Arctic hare, an animal fully as heavy again as the owls." (Bendire.)

This great bird nests on the ground, laying from three to ten eggs.

The Bald Eagle (*Haliaeetus lencocephalus lencocephalus*)

By I. N. Mitchell

Length, 30 inches; extent of wings, 7 feet.

Range: North America.

How strong, alert and masterful! What a feeling of dignity and confidence emanates from his bearing! Is it strange that our fathers regarded him as a fitting emblem of courage, strength, self trust and independence?

This "Lord of the air" perching over the folds of "Old Glory" in our illustration, will undoubtedly recall to our readers Old Abe, the famous War Eagle of Wisconsin.

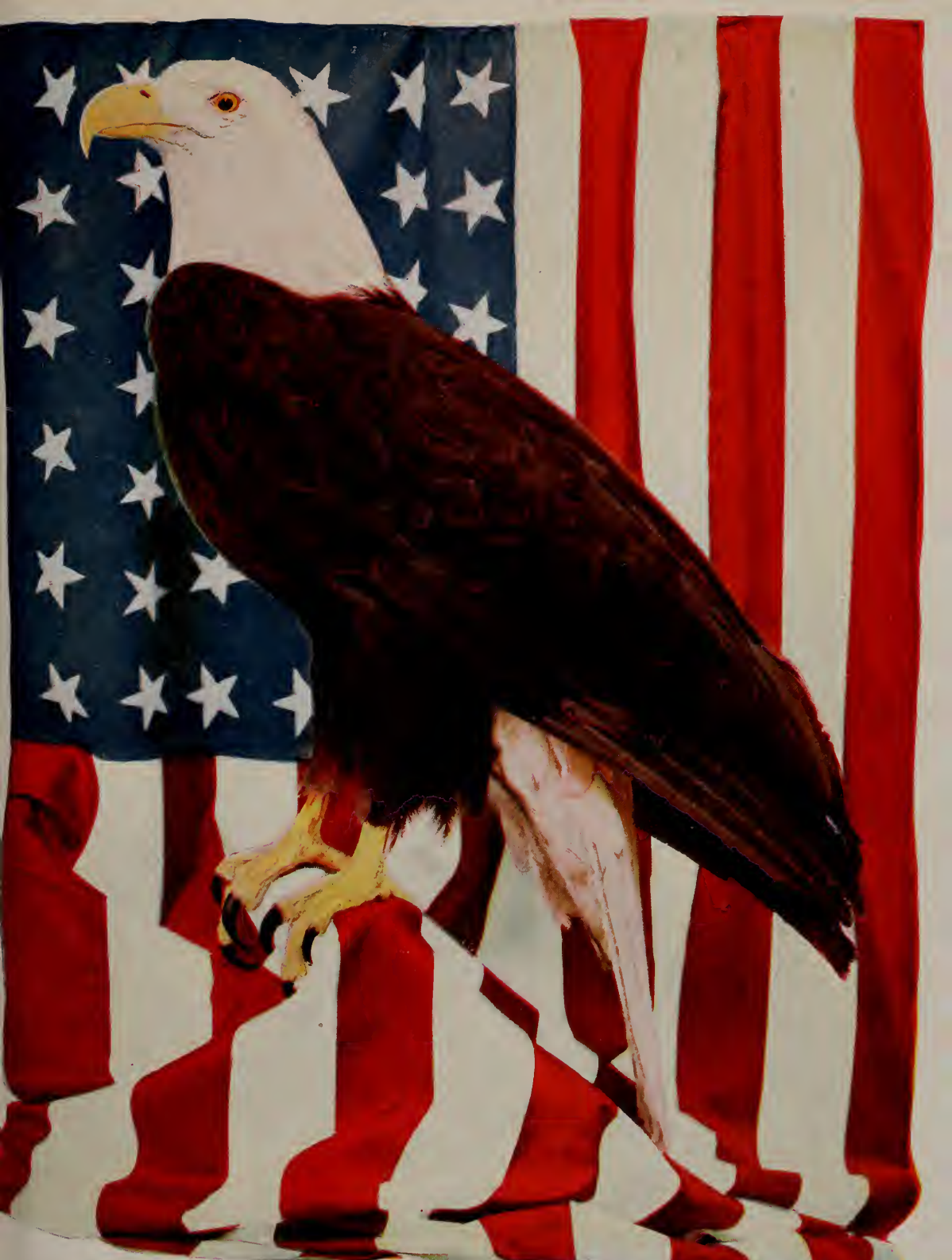
Through the ages the eagle has been a favorite national emblem. The old Romans placed him upon their standard and even carried the living bird into battle. In the fall of 1861, in emulation, perhaps, of the old Roman warriors, Company C of the Eighth Wisconsin Volunteers started to the front bearing a young eagle on a standard close to the colors of the regiment. The bird at that time was a little less than a year old and quite different in appearance from his likeness in our illustration. Then his feathers were all a dark brownish black; but, like the soldiers with whom he was marching, he had volunteered for three years. This gave him time to come into full plumage while at the front.

In the fourth year of his age his head and tail became white and there was no doubt then that he was a real bald or white-headed eagle.

When he was first purchased from some Indians for a bushel of corn by the late Mrs. McCann of Chippewa Falls, she decleared that he was only a young crow. The Southerners made fun of him by calling him crow and buzzard.

But Old Abe justified not only his name but his character as a war eagle. He was with the "Eagle Regiment" in camp, on the march and in battle for nearly four years. He was in thirty-six of the thirty-eight battles and skirmishes in which the regiment participated. He became very much attached to the men and the men to him. He was no coward, but went into battle with defiant screams and beating wings. His influence, in increasing the courage of the men was so great that he became a special mark for the enemy. Although his feathers were cut by bullets on two or three occasions, he came out of the war with only a slight wound on one of his wings.

Wisconsin is certainly fortunate in having in her history an eagle of such unusually strong character. Perhaps this strong personality of "Old Abe" was partly due to his constant association with the men in camp and battle. Perhaps



AMERICAN BALD EAGLE.

his friends and historians have been "to his virtues very kind, and to his faults a little blind."

It is not unusual for writers to belittle the eagle and to express regret that he was chosen as the national symbol. He is a coward, they say, a robber, even a carrion hunter. It was because he is "a bird of bad moral character and does not get his living honestly" that Benjamin Franklin opposed his employment as our national emblem. There are some facts in the life of the eagle that give support to these criticisms. With all his strength of wing and beak and talons he will allow his nest to be rifled of eggs or young without serious resistance. Although able to fish for himself, at least in a very moderate way, it is well known that he prefers to have the fish hawk do his fishing for him. Perched on some commanding tree or cliff, he watches the fish hawk dive for his prey. He then mounts high in the air. When the hawk is well above the water, the eagle swoops down upon him with a scream, the frightened hawk drops his prey, the eagle darts down and, seizing it before it reaches the water, carries it away to his own nest.

Fish are the chief article of diet with the eagle. To obtain them they patrol the beaches of lakes and pick up the fish that are washed ashore. The bald eagle is common along the western coast of Michigan. In a half day's walk along the beach one may see a dozen of them, and all gaining their food from stranded fish, not always fresh.

Audubon, however, speaks highly of the eagle and describes his splendid skill in capturing ducks, geese and swans. Major Bendire also speaks well of this splendid bird, and commends him for his skill and courage.

Eulogy on "Bob White"

Wm. T. Hornaday

"To my friend, the epicure: The next time you regale a good appetite with blue points, terrapin stew, filet of sole and saddle of mutton, touched up here and there with the high lights of rare old sherry, rich claret and dry monopole, pause as the dead quail is laid before you on a funeral pyre of toast and consider this: 'Here lies the charred remains of the farmer's ally and friend, poor Bob White. In life he devoured 145 different kinds of bad insects and the seeds of 129 anathema weeds. For the smaller pests of the farm he was the most marvelous engine of destruction that God ever put together of flesh and blood. He was good, beautiful and true; and his small life was blameless. And here he lies dead, snatched away from his field of labor, and destroyed, in order that I may be tempted to dine three minutes longer after I have already eaten to satiety.'"

Protecting the White Egret

T. Gilbert Pearson, secretary of the National Association of Audubon Societies, says that there is a splendid prospect of restoring to Florida and other states the beautiful white egrets which once frequented the lakes and rivers. On a visit of inspection to the rookeries along the South Atlantic and gulf coasts, he found the Audubon wardens everywhere, faithful in their work and gratified at successfully protecting the colonies of herons and other water birds, fast becoming rare, thanks to the plume hunters.

"It is now my opinion," says Mr. Pearson, in an interview in the New York Evening Post, "that we will be able to bring these birds back just as our warden work on the Atlantic coast and about the great lakes has restored the gulls, terns and other seabirds which fifteen years ago were nearly exterminated by the millinery feather hunters. Of course, we have to watch the state legislatures every and other seabirds which fifteen years ago were nearly exterminated by the milliners," he added.

The birds protected, especially in the southern colonies, are the white egrets, whose nuptial ornaments furnish the delicate "aigrettes" so coveted by milliners and so tempting to gunners. The Audubon Association employs wardens armed with extensive police authority to guard them in many swamps in Florida, Georgia, South Carolina and North Carolina. Each warden has charge of a more or less extensive district, and they protect in the aggregate nearly all known egret colonies in the United States. Herons, roseate spoonbills and other beautiful species of subtropical birds are guarded in the rookeries, along with the egrets, and large numbers of ducks, gallinules, rails and other water fowl. Here they rear their young in undisturbed security on the association's reservations to the benefit of the whole country.

Mr. Pearson visited one rookery in the Big Cypress swamp in south Florida, which he estimates contains not less than 100,000 specimens of the wood ibis alone, besides other water birds.

The Audubon Association expends not less than $10,000 a year safeguarding rare water birds in various odd corners of the United States. The large expenditure, which at first was somewhat experimental, is showing itself to be well justified, and there is good reason to believe that a continued maintenance of the present system of guarding heron rookeries and the breeding places of the other useful and ornamental birds of the country will restore them to their ancient haunts in approximately their former abundance.

I Used to Kill Birds

By Henry W. Longfellow

[When Mr. Longfellow was a little boy he asked his mother to let him go hunting. She did so and he killed a little bird. He saw it die and felt sorry that he had killed it. Then he went home and told his mother that he would never kill birds again.]

I used to kill birds in my boyhood,
Bluebirds and robins and wrens,
I hunted them up in the mountains,
I hunted them down in the glens.
I never thought it was sinful—
I did it only for fun—
And I had rare sport in the forest
With the poor little birds and my gun.

But one beautiful day in the spring-time
I spied a brown bird in a tree,
Merrily swinging and chirping,
As happy as bird could be.
And raising my gun in a twinkling,
I fired, and my aim was too true,
For a moment the little thing fluttered,
Then off to the bushes it flew.

I followed it quickly and softly,
And there to my sorrow I found,
Right close to its nest full of young ones,
The little bird dead on the ground!
Poor birdies! For food they were calling;
But now they could never be fed,
For the kind mother-bird who had loved them
Was lying there bleeding and dead.

I picked up the bird in my anguish,
I stroked the wee motherly thing
That could never more feed its dear young ones,
Nor dart through the air on swift wing.
And I made a firm vow in that moment,
When my heart with such sorrow was stirred
That never again in my life-time
Would I shoot a poor innocent bird!

The Yellow-Bellied Sapsucker (*Sphyrapicu-Varius*)

By C. Hart Merriam

Length, about 8½ inches. Only woodpecker having top of head from base of bill red, combined with a black patch on breast.

Range: Breeds in northern half of the United States and southern half of Canada; winters in most of the States and south to Costa Rica.

Habits and economic status: The yellow-bellied sapsucker is rather silent and suspicious and generally manages to have a tree between himself and the observer. Hence the bird is much better known by its works than its appearance. The regular girdles of holes made by this bird are common on a great variety of trees; in all about 250 kinds are known to be attacked. Occasionally young trees are killed outright, but more loss is caused by stains and other blemishes in the wood which result from sapsucker punctures. These blemishes, which are known as bird pecks, are especially numerous in hickory, oak, cypress, and yellow poplar. Defects due to sapsucker work cause an annual loss to the lumber industry estimated at $1,250,000. The food of the yellow-bellied sapsucker is about half animal and half vegetable. Its fondness for ants counts slightly in its favor. It eats also wasps, beetles (including, however, very few wood-boring species), bugs, and spiders. The two principle components of the vegetable food are wild fruits of no importance and cambium (the layer just beneath the bark of trees). In securing the cambium the bird does the damage above described. The yellow-bellied sapsucker, unlike other woodpeckers, thus does comparatively little good and much harm.

Nest a deep cavity in a tree trunk, the bottom softened with fine chips; eggs five to seven.

As shown in the cut, the striking features of the male sapsucker are the bright scarlet on crown and throat, the double band, black and white, bordering the throat patch and the long white bar on the side of the wing. The female's throat is white and the crown is sometimes black.

How well this woodpecker shows the marks of his family! His position on the tree says—woodpecker; his strong sharp, pick-axe-like bill says—woodpecker; his toes—two in front and two behind—say woodpecker, and even his tail with its stiff feathers braced against the bark for a support tells the same tale.

If you would know the sapsucker when you see him, remember that long white bar on the side of the wing. You can see this bar as far as you can see the bird, and frequently when the scarlet crown and throat cannot be seen. It is not easy to confuse the sapsucker with the red-headed woodpecker—as some do—if one remembers that while the whole head and neck of the red-head are red, only the crown and throat of the sapsucker are red. In parts of the country the sapsucker is appropriately called the red-throated woodpecker.

YELLOW-BELLIED SAPSUCKER.
$\frac{3}{8}$ Life-Size.

This last name is more fitting than yellow-bellied woodpecker, there is so little yellow on the under parts, but the name that fits him best is the one that he has earned—sapsucker. He arrives late in March or early in April soon after the sap has begun to flow in the trees. The hard or sugar maple seems to be his favorite tree and he promptly goes to work digging holes in the bark, often rows of holes half way or more around the tree. These pits soon fill with sap and he delights in emptying his little artesian wells. He sometimes sits near a hole for hours at a time collecting the sap as it comes, more frequently he goes from hole to hole or from tree to tree.

But, does he dig holes only in the maple? Look at the basswood! No wonder the little boy wondered if it had had the smallpox! Look at the poplar, birch, hickory, apple and slippery elm trees! Evidently he is fond of the juicy inner bark of these trees for their holes do not fill with sap as those of the maple do. These trees give our well digger meat only while the maple gives him meat and drink.

The sapsucker is not the only one to sip the sugar water from the flowing wells.

In the Spring the sapsucker shows himself to be what all birds are—great drinkers. At this season he may turn on the tap for a while, but the rest of the year, like the other birds, he must find running or standing water or do as the oriole does, tap some kind of juicy fruit as the apple or grape. This ought to be a suggestion to the bird-lover and the fruit grower. If you wish to attract the birds about the home, or to keep them from injuring the fruit, follow Mr. Lawrence Bruner's advice and keep a pan of water where they may freely use it for drinking and bathing.

Sometimes the sapsucker is injurious to trees. He strips the outer bark off to get at the inner bark; sometimes he drills so many holes that the tree is really girdled and set back in its growth or even killed. But when we note how many of the great, thrifty basswoods, poplars, hickories and red-elms *have had the smallpox* and are covered with pits, we conclude that the bird is not as harmful as some people suppose him to be.

You would think that when the woodpeckers had once mastered the art of digging their food out of the limbs and trunks of trees they would stick to their trade, but at least two of them do not. The flicker and the sapsucker have departed from the ways of their fathers and have learned to prefer ants to wood-boring grubs. The flicker is the greatest ant eater among birds and the supsucker is next. Over one-third of his food consists of ants.

The regular woodpecker tongue is a barbed spear and is used for piercing grubs and drawing them from their burrows for food. Not so the tongue of the sapsucker. His tongue is brushy at the end, like that of the flicker, and is much better for getting sap from pits and ants from their holes than a spear-pointed tongue would be.

They really do considerable mischief by drilling holes in the bark of apple,

thorn-apple, and mountain ash trees in such a way as to form girdles of punctures, sometimes 2 feet or more in breadth (up and down), about the trunks and branches. * * * The holes, which are sometimes merely simple punctures, and sometimes squarish spaces (multiple punctures) nearly half an inch across, are placed so near together that not infrequently they cover more of the tree than the remaining bark. Hence, more than half of the bark is sometimes removed from the girdled portions, and the balance often dries up and comes off. Therefore it is not surprising that trees which have been extensively girdled generally die, and mountain ash are much more prone to do so than either apple or thorn-apple trees, due, very likely, to their more slender stems. This is the only one of the woodpeckers that does much of any harm to trees.

The Yellow Warbler (*Dendroica aestiva aestiva*)

By Herman C. DeGroat

Length, little more than 5 inches. Mostly yellow, breast and belly streaked with reddish brown.

Range: North America, breeding generally throughout its range south to California, New Mexico, Missouri and northern South Carolina; winters in Central and South America.

The "yellow bird," or wild canary, as it is sometimes called, is one of the commonest of the warbler tribe, and ranges over a vast extent of territory, being found here and there from ocean to ocean. Unlike some of its relatives, it prefers open thickets, especially of willows, to thick woodland, and often builds its pretty nest by the roadside or in garden shrubbery. Though not an expert musician, the yellow warbler sings early and often, and in zeal makes up what it lacks in quality of voice. Because its nest is easily found by the initiated, this warbler is often victimized by the infamous cowbird and is forced to bring up one, or even two, young cowbirds in place of its own rightful progeny. It is pleasant to be able to record the fact that sometimes the clever warbler knows enough,—how it knows it is another matter,—to evade the unwelcome responsibilities thus thrust upon it, and builds a platform over the alien egg and then continues its domestic affairs as originally planned. Indeed cases are on record when two cowbirds' eggs have been found in a nest, each covered up by a separate layer of nest material. If this is not intelligence of a high order, how else can we characterize it? The food of this warbler consists almost exclusively of harmful insects, including the black olive scale.

The yellow warbler reaches the northern states about May 1st, having made a long journey by easy stages from Mexico and Central America, where it winters. It leaves again for the South early in September. Many persons confuse it with the goldfinch, which may be easily known by its black wings and crown. These are entirely distinct species.

Like the robin and the English sparrow, the yellow warbler has little fear of man. It may be found in the woods, the fields, the orchards, the parks, and the garden. If there is a tree or a shrub on your premises, you may expect a daily visit from this friendly little creature as it searches here and there among leaves and branches for its food, which consists of larvae, caterpillars and the eggs of insects.

While it is calling upon you, you may expect to hear a little song which aptly describes the singer itself, for it seems to say, sweet, sweet, sweet, sweetie. By gentle treatment you may induce this bird to build its nest in your shrubbery or trees where you can watch the family for many days. A contribution of cotton batting for nest-lining will be gratefully accepted. A shallow dish fastened to a tree and supplied daily with fresh water for drinking and bathing purposes will hold the warblers to your grounds and attract many other birds as well.

The remarkable intelligence of the yellow warbler is shown in the plan by which it often avoids the task of hatching the eggs laid in its nest by the heartless cowbird. Being too small to remove the unwelcome egg, it frequently bridges its nest and builds a second story above and upon the first, thus leaving the strange egg unhatched. An invasion of the second nest by the cowbird sometimes follows, when the addition of a third story may result. If, however, the warbler has laid some of its own eggs before the cowbird comes to its nest, it may decide, after an excited discussion of the matter with its mate, to hatch all eggs together rather than desert its own. Few of the small birds have either wisdom or determination of the yellow warbler, and hence they accept the burden of raising cowbirds without realizing the fraud practiced upon them.

"The Birds of Killingworth"

By Henry Wadsworth Longfellow

You call them thieves and pillagers; but know
They are the winged wardens of your farms,
Who from the cornfields drive the insidious foe,
And from your harvests keep a hundred harms.

Even the blackest of them all, the crow,
Renders good service as your man-at-arms,
Crushing the beetle in his coat of mail,
And crying havoc on the slug and snail.

The Golden Oriole (*Oriolus galbula*)

By F. E. L. Beal

Length: 8 inches.

Range: Tropical, southwestern Mexico, Central America, rare along the southern border of the United States.

It derives its name from the bright golden yellow with which the feathers of the adult male bird are largely tinged. We find the Golden Oriole in America only. According to Mr. Nuttall, it is migratory, appearing in considerable numbers in west Florida, about the middle of March. It is a good songster, and, in a state of captivity, imitates various tunes.

This beautiful bird feeds on fruits and insects, and its nest is constructed of blades of grass, wool, hair, fine strings and various vegetable fibers, which are so curiously interwoven as to confine and sustain each other. The nest is usually suspended from a forked or slender branch in shape like a deep basin, and generally lined with fine feathers.

"On arriving at their breeding locality they appear full of life and activity, darting incessantly through the lofty branches of the tallest trees, appearing and vanishing restlessly, flashing at intervals into sight and amidst the tender, waving foliage, and seem like living gems intended to decorate the verdant garments of the fresh-clad forest."

It is said these birds are so attached to their young that the female has been taken and conveyed on her eggs, upon which, with resolute and fatal instinct, she remained faithfully sitting until she expired.

An Indiana gentleman relates the following story:

"When I was a boy, living in the hilly country of southern Indiana, I remember very vividly the nesting of a pair of fine orioles. There stood in the barnyard a large and tall sugar tree with limbs within six or eight feet of the ground.

"At about thirty feet above the ground I discovered evidences of an oriole nest. A few days later I noticed they had done considerable more work, and that they were using horsehair, wool and fine strings.

"They appeared to have some knowledge of spinning, as they would take a horsehair and seemingly wrap it with wool before placing it in a position on the nest."

How Birds Protect Trees

By Florence Merrian Bailey

Trees are like great hotels—they are so alive with their busy little insect people. Like hotels, when we are looking for rooms, there is a choice between outside ones and dark inside ones. The outside ones are in cracks in the bark. Here, in the fall, visiting moths stow away their eggs in snug winter bedchambers,

GOLDEN ORIOLE.
Life-size.

and sleepy butterfly children wind themselves in their silken covers and rest quietly still spring calls them to unfold their wings and seek the flowers.

Beneath the bark, in the inside rooms, live the wood borers, and up and down the long hallways boring ants run busily to and fro.

In the spring the eggs left in the bark hatch into hungry worms, and thousands of these new guests climb up to the airy roof gardens of the tree hotels to dine in the green banquet halls on fruit and leaves. Indeed, so many hungry insect folk board in the hotels, and live on the wood and leaves, that if no bound were put on their work the boarders would quite eat up their hotels.

One small wood borer alone can kill a whole great tree, and thousands and thousands of hungry worms and insects are always at work in our shade trees.

Wood ants finds the holes the borers have made, and go on from them, tunneling deeper and deeper into the heart of the trees, till they have honeycombed the timber with their galleries. Anyone who goes to the woods can see their work. Did you never find a pile of sawdust at the foot of a tree, or see a streak of the dust on the bark? That is the work of the ants, and while you watch, one of the little black workmen will often come out of a hole in the bark, drop its load of dust, and hurry back inside for more. The poor trees suffer sorely, but, fortunately, there are not only hungry insects, but also hungry birds; and the birds, knowing full well that the trees are their best banquet halls, flock to them eagerly.

The woodpeckers spend most of their time chiseling through the bark for insects, so well hidden in the wood that only such sharp bills and barbed tongues as theirs can reach them. In winter they join the cheery chickadees, searching here and there over the crannies of the bark for insect's eggs. The champion of their band has such a good appetite that it thinks nothing of eating five thousand eggs a day.

Besides the special bark and wood birds that meet over the trunks and branches, protecting the body of the tree, there are other birds that guard its head and feet.

Every country boy knows how mice girdle the apple trees, gnawing their bark just above the snow in winter. They do so much harm we would often have to go without apples if it were not for the hawks and owls; but these birds are great mousers, and work night and day to save the orchards.

The tree-top protectors are more numerous than any of the other tree birds, and when the leaves come out in the spring they fall to work with a will.

When an army of insects descends upon an orchard or grove, baring the trees of leaves, nearly all the birds in the whole neighborhood come to the rescue. And so the birds work all through the year—the tree-trunk birds and owls in winter, and the tree-top birds in summer—all working to protect the trees, which the insects are trying to destroy.

Birds of a Smoky City

By Edward B. Clark

The birds' true homes are in the green fields, the hedges, and the woodlands of the country, and the bird-student is fortunate whose lines are cast in such pleasant places throughout the entire year. The songsters, however, are not utterly neglectful of their city friends. To a creature whose life is passed in the freshness of the fields or in the fragrance of pine forests, there must be something pitiful in the condition of him whose daily round is one of grind and grime and noise.

The realist may frown if he will, yet the city-dwelling bird-student loves to think that it is some touch of tenderness that prompts the birds in spring and fall to turn aside from the broader migration paths to brighten with color and song the few green spots in the great bustling towns. No one who feels a desire to scrape acquaintance with the songsters should be kept from the attempt by the fact that he lives in a city and has few opportunities to seek the country-side. During certain times of the year our cities' parks are rich in bird life and afford full opportunity for study.

My own city observations of birds have been confined largely to Chicago. No place could seem less likely to be attractive to the dainty warbler or the tuneful white throat than this city with its shroud of smoke and its ceaseless clatter. Yet it is doubtful if many other places in the land, of like limited area, hold as much bird life in the spring months as do the parks of this sooty city.

Many journeys in fields far from civilization, and holding a dense feathered population, have never succeeded in making me forget the delights and surprises of my first bird-hunting trip in Lincoln Park, Chicago. Although hunting, my only weapon was an opera-glass. I was but a recently added attendant to the bird train, and I was skeptical of songster possibilities in a park skirted with cable-car lines and thronged seven days a week with pleasure-seekers. My companion had hunted these fields aforetime, and said that we surely should see something, though I thought the outlook was as cold as the day, for this bird-seeking trip was made early in March before winter had shown the least disposition to let go his grip.

As a boy I had gathered some bird-lore in a sort of haphazard way, and when on that March morning we neared the edge of the south pond and heard a rattling cry, I exclaimed, "Kingfisher!" as quickly as did my companion. We reached the shore just in time to see a belted kingfisher, the halcyon of the ancients, light on a dead limb of a tree on Willow Island. The pond was ice-bound throughout, and the fish beneath the glittering surface were safe from attack. The wonder was how the kingfisher in this uncongenial clime could escape starvation. The cold March sunlight showed his fine feathers in all their beauty. He had sunk his head well down between his shoulders. It seemed to me that he must be

cold, and that he was wishing mightily he could pull his feathered topknot down over his ears like a hood. Once halcyon darted from his perching-place and poised in the air over the ice, as it is his custom to do when about to strike his prey. For a moment I actually feared that the bird was deceived by a bit of transparent ice through which he could see a fish and was about to dash himself against the hard surface and end his fishing days forever. He was wiser than we knew, however, and after poising for a while, as though it were only to exercise his wings, he flew back to his dead-limb perch.

Just then we heard the note of a shrike. The bird was on his watch-tower at the tiptop of an elm. He seemed to be taking something of an interest in the kingfisher. It was the great northern shrike, or butcher-bird, and it is barely possible—his summer range being in the far North—that never before had he met one of the tribe to which belonged the belted knight below. Finally the shrike flew to the willow and took a place just above the kingfisher's head. The shrike is a bird of prey, but he never strikes quarry of the fisher's size. Halcyon finally became a little restive under the gaze of his visitor, who had cocked his head on one side and was staring with all his might. The shrike dropped to a lower limb. He was within a foot of the kingfisher's head. This was too much of an impertinence, and the bigger bird left his perch, but as he did so he sprang that watchman's rattle of his full in the face of the shrike. That weird cry of the waterside is enough to unsettle even stronger nerves than those of a butcher, and the frightened shrike turned tail and fled. The kingfisher, who probably had noted the effect of his voice, made for the northern end of the pond, twisting and retwisting his rattle in a sort of glee as he scurried along.

Into Lincoln Park on that March morning had come the first song sparrow of the year. There is never a daylight hour in all the seasons when this little fellow, conscious of the melody within him, does not seem willing to give it voice. The song sparrow is no silk-and-satin singer. He comes into the scene in plain homespun, but the listener loses all thought of the garb in the sweetness of the strain.

The sparrow's song was marred by a harsh note that came from the branches of the only pine tree that then stood on the little peninsula which runs from the north into the park pond. It was the voice of the bronzed grackle. This bird, better known as the crow blackbird, is sable enough in color on a dark day, but when the sun strikes him his garb is of beaten gold and Tyrian purple. We found the grackle, and found him all alone. That day was the first time of meeting with this blackbird individual whose acquaintance I enjoyed I firmly believe for five successive years. Crow blackbirds are fond of company and it is seldom that you find one separated from its fellows. This Lincoln Park bird, a male in fine plumage, stayed about the pond and the animal house for ten days before any of his kindred from the south joined him. He found the tame ducks' quarters a splendid foraging-place, and there he picked up every day much more than his share of corn. Finally, when the bird was joined by his comrades, I of course

was unable to tell him from his mates, but the next year more than a week before any other grackles were to be seen, a single male appeared at the park and at once sought out the ducks' corn-pit. The same thing happened the three succeeding springs, and there never has been a doubt in my mind that it was the same bird whom remembrance of the fat feeding-grounds had tempted to a northern flight long before others of his kind.

An inquiry of one of the officials on the day of my first Chicago acquaintance with the grackle brought the information that the blackbirds were not in the habit of visiting the park. If this were true, that year marked the first appearance of the grackles in Lincoln Park, but I have long since ceased to place any confidence in the powers of observation of the ordinary park guardian. One morning when I had seen and identified within the limits of the pleasure ground thirty-eight varieties of native wild birds, I was informed by a policeman, who said he had seen five years of service in the same place, that in all that time there had been nothing wearing feathers in evidence except English sparrows.

Before that first March day trip was ended we saw within the Lincoln Park limits a few robins and bluebirds, and great numbers of juncoes and fox sparrows. The white-breasted nuthatches performed their gymnastic feats on every third tree trunk. One of the lessons for beginners in bird-study to learn from this bleak outing—and there was one beginner who learned it well—is, that no matter how forbidding weather conditions may be, there are always surprises in store for him who seeks the birds in their haunts.

The presence of ponds in all the larger parks of our cities makes these breathing places of the people especially attractive to the birds. To the ponds the city dweller owes it largely that the variety as well as the number of the feathered visitors is so great. During the fullness of the tide of migration the bird visitors are not limited to the smaller land species. In the early morning hours the wild ducks are to be found upon the waters, plovers and sand-pipers run along the shores, herons perch upon tree branches in secluded places, and bitterns rest in the sedge grasses. In Lincoln Park on the same day I saw the ruby-throated humming bird and the great bald eagle. The eagle was not one of the forlornly feathered and unhappy looking prisoners in the big gilded cage, but a great soaring bird whose birthright was freedom. Between these size extremes of the feathered kingdom there can be found few birds that do not on some April or September day find their way into Lincoln Park.

In this day when the bullying English sparrow is abroad in the land, it hardly seems possible that it can be the same native bird individuals that drop into the parks year by year. If the same birds do come back, they must have either short memories or spirits forgiving enough to rank them with the saints. The sparrows never cease their persecutions. At times tragedies result, and at other times the sparrows' encounters with his American cousins take on the semblance of broad comedy. One spring morning, just at sunrise, I saw a bittern

drop into the damp grasses along the edge of the south Lincoln Park pond. The sparrows discovered the big bog-trotter as soon as I did. They weighed down the willow branches just above his head, and were all talking at once and at the tops of their voices. They asked the bittern what he was doing there, what right he had on sacred sparrow soil, where he got his long legs, and why he needed a bill the size of a plumber's. They questioned him and jeered at him for five minutes, but he answered not a word. Finally the stakedriver, as the bittern is called in swampy society, became tired of the noise and flew to the little willow-planted island in the middle of the pond. A small bird rarely attacks a larger one when the object of attack is at rest. On the ground or in a tree the assaulted one can readily use its weapons of offense and defense. On the wing, however, it is a different matter. No sooner had the bittern left the ground in lumbering flight than the sparows descended upon him in a cloud, each one pecking the hapless visitor in passing. Some of the assailants fairly rode on his back using both beak and claw to his torment and confusion. When the bittern reached a resting place at the island's edge, he was in a state of mind. In the broad stretches of his native swamp the English sparrow was an unknown quantity. There were swamp sparrows there to be sure, but they were an American product, musical, harmless, and good fellows withal; surely these ill-mannered creatures could be no kin of theirs.

Once lighted, the bittern turned from the water and faced inland. He was looking squarely into the eyes of a score of his sparrow persecutors. He took one comically awkward step forward and made a drive with his powerful beak at one of his tormentors. The blow fell far short of the mark, but had the beak been a foot longer, the alert sparrow would have been out of range before that sharp battering ram could strike home. The bittern was attended by a train of sparrows all the day long. He tried every part of the south pond's banks. He was allowed neither to eat nor to rest. I saw the sparrow horde still harrying the bird as I passed the place at sunset. The next day the visitor had disappeared, and I hope that his night's flight landed him safely among the marsh wrens and the red-winged blackbirds of the swamp stretches which he calls his home.

Lincoln Park, Chicago, has become known as the highway of the warblers. From the time that the first myrtle bird appears in April until the last "Cape May" has passed north in the month whose name it bears, the park is a rich field for the study of this most interesting family. The warbler, whether you find it in Lincoln Park or along the spring flood-burdened banks of the Illinois River, has a beauty and a character all its own. There are bird-students who seek other fields of study for other birds, but in the full tide of the warbler migration they turn their steps to the city's parks. It is not at all unusual in a good warbler year to find every park tree that offers a food supply of insects bearing a burden of these little creatures, in gold, brown, red, yellow, black, blue, and scarlet. Some of them, with seemingly barely feather surface enough to show one color, are attired in almost every hue known to the eye of man.

The yellow warblers nest by scores within the limits of the parks of all Northern cities. I found the nest of this bird once fastened to the slender stem of a rose-bush in the rose-garden at Jackson Park, Chicago. It was not more than three feet from the ground, and at the edge of a walk upon which passed the thousands of visitors who went daily to enjoy the bloom of the flowers. The little home was flanked on either side by a great blossom, while another opened its petals just above. Within the space of a few cubic inches there was as much of beauty as it is the province of this world to hold anywhere within like restricted limits. The people poked inquisitively into the warblers' housekeeping, but the birds paid little heed, though their hearts probably fluttered with an unutterable fear. The mother bird fed the little ones while trespassing human beings lifted the red rose roof to look into the nest. Though disaster was feared, the devoted parents finally successfully led the young forth for their first flight in life.

The bluebirds, the scarlet tanagers, the cerulean warblers, the Baltimore orioles, the robins, nearly the whole tribe of native sparrows, the woodpeckers, and not infrequently the hawks and the owls, find rest and food within sound of the clanging bells of surface cars and of the rumble of the wheels of elevated roads. I once flushed a woodcock at the base of the Lincoln Park statue of the Indian pony and rider, and for three weeks of one spring month a wild wood duck rested on the waters of a pond in the park and showed its brilliant plumage to thousands of visitors.

It is to Lincoln Park that I owe the first chance since boyhood of seeing a living passenger pigeon. There are men of middle age today who remember when the flocks of wild pigeons darkened the sun, and when every gun in the land brought down its share, and more than its share, of the creatures that flew low and blindly to their destruction. There were so many millions of the birds forty years ago that no one dreamed that the day would come within a generation when a single pigeon sitting on a tree in a city park might be thought to be the last of its race. No satisfactory explanation has ever been given for the disappearance of the passenger pigeon. Today it is well-nigh as rare as the great auk, and the reported occurrence of one of the birds in any part of the country is a matter of scientific interest.

The pigeon that I met on that April morning in the year 1894, in Lincoln Park, was perched on the limb of a soft maple and was facing the rising sun. It was a male bird in perfect plumage. There were no trees between him and the lake to break the sun's rays from his breast. Every feather shone, and the bird's neck was gem-like in its brilliancy. Tennyson needed no special poetic license to write of the "Burnished dove." I watched the pigeon through a glass for fully ten minutes. A park loiterer approached and said he wished that he had a gun; that it was the first wild pigeon he had seen in thirty years. That man had no soul above pigeon pie.

A city park is not the safest resting-place for a creature upon whom may

PURPLE GALLINULE.

depend the saving of a race from extinction. I flushed the pigeon, hoping that it would direct its flight northward, and not rest until it had passed beyond the limits of boys with slingshots and stones. It left its perch, but to my dismay it shaped its course straight toward the heart of the smoky city. Good wishes followed its arrowy flight, but the bird's life history is closed, as the last one died a few months ago.

The Purple Gallinule (*Ionornis martinicus*)

By Gerard Alan Abbot

Length: 13 inches.

Range: South Atlantic and Gulf states, casually northward to New York, Maine and Wisconsin.

This brilliant bird is common to the Southern states. It is generally associated with the Florida gallinule, but is marked by more brilliant plumage.

It has little of the aspect of a gallinule, but stands higher, and has its legs more forward. As it walks, the neck is alternately bridled up or thrown forward, and its short black and white tail is changed from a semi-erect to a perpendicular position, with a flirting motion. As this bird walks over the tangled leaves and stems of aquatic plants resting on the surface of the water, it moves with great deliberation, frequently standing still and looking leisurely about. Ever on the lookout for any danger that may menace it, at the least noise it hides among the rushes. Only when its place of concealment is invaded is flight attempted, when progress in the air is heavy and not well sustained. Its voice is loud and strong, but has in it nothing remarkable.

It is a near relation of the rails, and, like them, is a shy and timid bird. An expert swimmer, but more inclined to wade. When walking it steps or strides with dignity—a graceful walker.

Worms, mollusks, and the fruit of aquatic plants are its food. It gathers seeds and carries them to its beak with its claws, and it also makes use of them in clinging to the rushes, where the water is very deep.

The nest is a platform of reed stalks built in rushes over water or in marshes; eight to ten eggs are laid. Often builds sham nests. Cackles like a chicken.

Feed the Winter Birds

By W. M. Morrill

From many quarters has the appeal been made of late to feed the non-migratory birds at such times during the present winter as it will be impossible for them to secure their natural food. It is very important that this be borne in mind. There can be no better way to prepare for such contingency than to procure at once and keep on hand grain or other food to be scattered judi-

ciously in favorable locations at times of emergency. The protection which has been extended by law to so many of the wild birds ought to be supplemented by further provision in behalf of the beneficial birds of the winter.

However bitter may be the cold or how deep the snows, there are nevertheless a great many birds which strangely choose to remain near their summer haunts and weather out the inclement season. Indeed there are almost myriads of small birds in winter far to the north of us who have bravely elected to withstand even severer conditions of cold and storm. How all these tiny mites of life are able to find such shelter as will prevent them from perishing and obtain food enough to tide them over till spring is a mystery; and why they should seemingly prefer frigid cold to warmth beneath summer skies and scant food instead of abundance, is still a greater one.

Perhaps they have forgotten the way to the sunny south, or more likely they are aware of the perils of so long a journey which must be encountered both when going and coming. And so they remain and make the most of the short, cheerless days of winter and may be seen, if you look closely, stirring about continuously during the hours of daylight, busily searching for food.

Who are some of our permanent bird residents? Probably you would mention first the woodpecker. Often has he called your attention to his presence by a merry tattoo on some dead and hollow limb. He is verily working for dear life—to satisfy his appetite, and in doing so he is rendering a service to man that is well-nigh incalculable. There will be less grubs, caterpillars and borers to injure your trees and your fruit next season, if the woodpeckers are working in your orchard during the winter.

The chickadees, sometimes known as titmice, are light-hearted little fellows that grace the winter landscape. They are friendly birds and general favorites, more numerous in winter than summer. They will come to your door or window if you encourage them with crumbs during the "hard times." In their quest for food they destroy myriads of caterpillar eggs, moth larvae, dormant bark beetles and plant lice.

The nuthatches and kinglets may often be seen in company with the chickadees, and together they do much to enliven the dull days of winter. Spry but not shy are these restless little acrobats—tree-wardens of such skill and perseverance as to make their presence indispensable.

The juncos, goldfinches and snow buntings need have no fears of the rigors of winter so long as the snows do not bury the weed patches. How much the farmer or gardener is indebted to these birds for keeping down the weed growth it would be impossible to overestimate.

The blue jay and crow we have with us in season and out. Noisy, cunning and mischievous as they are, said to know more about our ways than we do of theirs, there are few of us so ungenerous as to resent their presence or begrudge them of their meagre living when the fairer singers have deserted us. Indeed, the sharp and vibrant notes of these hardy birds on a frosty winter morning are words of cheer and inspiration to most of us.

But there are times of stress for all these winter pilgrims—days when the snow-drifts have buried the food supplies of some, and the driving, freezing sleet has locked up the storehouses upon which others are wont to depend. It is, then, not a question of the severity of the cold nor of shelter with the birds that winter with us, but rather a problem of finding a continuous food supply. The establishment of feeding-places for the birds in suitable localities is good economic policy; the recipients will be grateful for such service and will reward you when you, too, are in need of their help.

The Bird and the Farmer

By Frank M. Chapman

In the growing of field and garden crops, of grains and vegetables, the farmer produces a more artificial state of affairs than that which is occasioned by the fruit-grower, or, at least, the orchardist. The nature of his crops, their frequent tilling, and often early reaping, all combine to make them afford poor nesting-sites, even for such birds as would be likely to select them. To most insectivorous birds, however, areas devoted to farming purposes do not offer suitable nesting places, and it follows, therefore, that where the farmer most needs the services of insect-eating birds there these birds are deprived of surroundings in which they might find shelter and rear their young.

We shall later see how, to some extent, these conditions may be remedied. In the meantime we may inquire more closely into the relations of the bird and the farmer. Birds are of value on the farm (1) as insect-eaters, (2) as seed-eaters, (3) as mouse or rodent-eaters. Birds are injurious on the farm when they attack the crops, such damage being essentially restricted to corn, rye, and other grains. As in other cases, it is our object to learn what species are beneficial and what injurious, and to determine whether the harm done by certain species at certain seasons is outweighed by the good they do at other seasons.

The value of birds as insect-eaters is so obvious it will be unnecessary to dwell here on this phase of their relations to agriculture. One instance, however, may be cited in which birds preserved a crop through the destruction of its insect foes. It came under the observation of so excellent an authority as Prof. F. E. L. Beal, of the U. S. Department of Agriculture, from whose address before the New Jersey State Horticultural Society I quote as follows: "Field observation and stomach examination both show that the Rose-breasted Grosbeak makes the Colorado potato beetle the principal part of its food whenever it can be obtained. A case which came under my own observation will show how thoroughly they do their work. A small field of about a fourth of an acre was visited by a pair of Grosbeaks as soon as the potatoes were fairly above the ground. At first the beetles increased faster than the birds could destroy them, but after the young of the birds had hatched the beetles began to diminish, and by the time the young were able to fly the field was clear—not a beetle was to be found."

This illustrates also the tendency of birds to prey upon some insect which, in becoming unduly abundant, offers them an unusual supply of food. Birds, for example, have been known to gather in great numbers to repel, as it were, an invasion of grasshoppers. Quoting again from Professor Beal's address: "Ground-feeding birds eat these insects at all times when they can be obtained;

but in the month of August, which is the month when they attain their maximum abundance and frequently become a pest, nearly all birds, no matter what their usual food habits may be, come to the ground and eat grasshoppers. Such birds as the Baltimore oriole, and the cuckoo, which normally find their food upon the trees, change their habits in August and leave the trees to forage upon the ground. A few years ago, when the western part of the country was devastated by the Rocky Mountain locust, it was found that nearly every species of bird, even the larger hawks, and ducks and geese, fed upon them to a considerable extent."

One of the notable achievements of the economic ornithologist has been to emphasize the value of seed-eating birds, the sparrows, doves, blackbirds and others. It is a common error to believe that birds are of service to man only as insect-eaters, and that the non-insectivorous species, if not harmful, are, at lesat, of no particular use. But the fact is that these same insignificant looking sparrows are the farmers' best allies in his never-ending warfare against weeds.

During the winter weed seeds form practically the entire fare of a number of species of sparrows, the seeds of amaranth, crab grass, ragweed, and pigeon grass being the kinds devoured most frequently.

Dr. S. D. Judd, of the U. S. Department of Agriculture, who has made a special study of the food habits of seed-eating birds, states that 1,000 pigweed seeds were found in the stomach of a snowbunting killed at Shrewsbury, Mass., in February, and that 700 seeds of pigeon grass were taken from a single tree sparrow; and the investigations of Professor Beal in the State of Iowa show that this species during the period of its presence, from October until April, destroyed each year about 875 *tons* of weed seeds.

Further practical evidence of the seed-eating ability of birds is furnished by Dr. Judd, who writes: "On a farm in Maryland, just outside the District of Columbia, tree sparrows, fox sparrows, white throats, song sparrows and juncoes fairly swarmed during December in the briers of the ditches between the cornfields. They came into the open fields to feed upon weed seed, and worked hardest where the smartweed formed a tangle on low ground. Later in the season the place was carefully examined. In one cornfield near a ditch the smartweed formed a thicket over 3 feet high, and the ground beneath was literally black with seeds. Examination showed that these seeds had been cracked open and the seed removed. In a rectangular space 18 square inches were found 1,130 hayseeds, and only two whole seeds. Even as late as May 13, the birds were still feeding on the seeds of these and other weeds in the fields; in fact, out of a collection of 16 sparrows 12, mainly song, chipping and field sparrows, had been eating old weed seed. A search was made for seeds of various weeds, but so thoroughly had the work been done that only half a dozen seeds could be found. The birds had taken practically all the seed that was not covered; in fact, the song sparrow and several others scratch up much buried seed."

To the recent researches of the economic ornithologist we must also turn for exact information concerning the food of hawks and owls. No birds have been more maligned and misunderstood than these birds of prey. The misdeeds of two or three species have brought all the members of their family into disrepute. Because one hawk has been seen to catch a chicken all hawks are "chicken hawks," and, consequently, to be killed whenever opportunity offers. Not only is no protection afforded these birds by law, but in some states a bounty has been given for their destruction. Indeed, a law of this nature was passed by the Massachusetts Legislature, and the history of the so-called "Scalp Act" in Pennsylvania furnishes a convincing illustration of the direct pecuniary loss which may follow ignorance of the economical value of birds. Quoting from the report for 1886 by Dr. C. Hart Merriam, Chief of the Biological Survey of the Department of Agriculture: "On the 23d of June, 1885, the Legislature of Pennsylvania passed an act known as the 'scalp act,' ostensibly 'for the benefit of agriculture,' which provides a bounty of fifty cents each on hawks, owls, weasels and minks killed within the limits of the state, and a fee of twenty cents to the notary or justice taking the affidavit.

"By virtue of this act about $90,000 has been paid in bounties during the year and a half that has elapsed since the law went into effect. This represents the destruction of at least 128,571 of the above-mentioned animals, most of which were hawks and owls.

"Granting that 5,000 chickens are killed annually in Pennsylvania by hawks and owls, and that they are worth twenty-five cents each (a liberal estimate in view of the fact that a large portion of them are killed when very young), the total loss would be $1,250, and the poultry killed in a year and a half would be worth $1,875. Hence it appears that during the past eighteen months the State of Pennsylvania has expended $90,000 to save its farmers a loss of $1,875. But this estimate by no means represents the actual loss to the farmer and the taxpayer of the state. It is within bounds to say that in the course of a year every hawk and owl destroys at least a thousand mice or their equivalent in insects, and that each mouse or its equivalent so destroyed would cause the farmer a loss of two cents per annum. Therefore, omitting all reference to the enormous increase in the numbers of these noxious animals when nature's means of holding them in check has been removed, the lowest possible estimate of the value to the farmer of each hawk, owl, and weasel would be $20 a year, or $30 in a year and a half.

"Hence, in addition to the $90,000 actually expended by the state in destroying 128,571 of its benefactors, it has incurred a loss to its agricultural interests of at least $3,857,130, or a total loss of $3,947,130 in a year and a half, which is at the rate of $2,631,420 per annum. In other words, the state has thrown away $2,105 for every dollar saved! And even this does not represent fairly the full loss, for the slaughter of such a vast number of predaceous birds and mammals

is almost certain to be followed by a correspondingly enormous increase in the numbers of mice and insects formerly held in check by them, and it will take many years to restore the balance thus blindly destroyed through ignorance of the economic relations of our common birds and mammals."

Detailed results of the analysis of the stomach contents of our hawks made by the ornithologists of the U. S. Department of Agriculture fully substantiate this claim of the economic value of most of these birds and are given beyond.

Owls, because of their nocturnal habits, are even better mousers than hawks. It is their habit to disgorge, in form of pellets, the fur and bones of their prey, and in 675 such pellets, from the barn owl, taken in one of the towers of the Smithsonian Institute at Washington, Dr. A. K. Fisher found the remains of 1,119 meadow or field mice, 4 pine mice, 452 house mice, 134 rats, and several other species of small mammals, together with a few small birds of no especial economic importance.

No farmer whose corn in field or granary, whose potatoes and other crops have been damaged by the destructive field mice, can fail to realize on reading these figures what a powerful ally he has in owls.

In the face of all these benefits conferred by birds as insect, seed, and mouse-eaters, we perhaps can view more charitably the depredations of the crows and blackbirds in our corn and grain fields. The tarring of corn proves an effective means of making it unpalatable to crows, but no such convenient means has been discovered for protecting fields of grain from the ravages of the hordes of blackbirds which are attracted to them by the bountiful supply of choice foods they offer, and in this instance man has so far disturbed Nature's balance that the scales have been turned against him, and the bird has become an enemy rather than a friend.

The Redstart (*Setophaga ruticilla*)

By Henry W. Henshaw

Length, nearly 5½ inches. To be distinguished from other warblers by its coloration and its motions. (See below.)

Range: Breeds from central British Columbia and eastern Canada to Washington, Utah, Colorado, Oklahoma and North Carolina; winters in the West Indies and from Mexico to Ecuador.

Its beauty of form and plumage and its graceful motions place this dainty bird at the head of our list of wood warblers—a place of distinction indeed. The bird appears to be the incarnation of animated motion and fairly dances its way through the forest. Spanish imagination has coined a suggestive and fitting name for the Redstart, *candelita,* the little "torch bearer." The full appropriateness of the name appears as the graceful creature flits through the greenery, displaying the salmon-colored body and the bright wing and tail patches. The Redstart is not unknown in some parts of the west, but it is essentially a bird of the eastern

AMERICAN REDSTART.
Life-size.

states, where it is a common inhabitant of open woodland disricts. The wood warblers are not our most artful architects, and in this respect the Redstart does not depart from the traditions of its kind. While it builds a rather neat and compact structure of strips of bark, plant fibres and the like, placing it in a sapling not far from the ground, the nest is not the thing of beauty one might be led to expect from such a fairy-like creature. Ornamental as the Redstart is, it possesses other claims on our gratitude, for it is a most active and untiring hunter of insects, such as spittle insects, tree-hoppers and leaf-hoppers, and both orchard and forest trees are benefited by the unceasing warfare it wages.

The Redstart is the presiding genius of the woodland and grove. He is a bit of a tyrant among the birds, and among his own kind is exceedingly sensitive upon the subject of metes and bounds. As for the insect world he rules it with a rod of iron. See him as he moves about through a file of slender poplars. He flits restlessly from branch to branch, now peering up at the under surface of a leaf, now darting into the air to secure a heedless midge, and pounces upon it with an emphatic snap, now spreading the tail in pardonable vanity or from sheer exuberance of spirits; but ever and anon pausing just long enough to squeeze out a half-scolding song. The pale-colored female, contrary to the usual wont, is not less active nor less noticeable than the male, except as she is restrained for a season by the duties of incubation. She is ever believed to sing a little on her own account, not because her mate does not sing enough for two, but because she—well, for the same reason that a woman whistles,—and good luck to her!

During the mating season great rivalries spring up, and males will chase each other about in most bewildering mazes, like a pair of great fire-flies, and with no better weapons—fighting fire with fire. When the nesting site is chosen the male is very jealous of intruders, and bustles up in a threatening fashion, which quite overawes most birds of guileless intent.

Redstart's song is sometimes little better than an emphatescent squeak. At other times his emotion fades after the utterance of two to three notes, and the last one dies out.

One knows exactly where to look for Redstart's nests, but for all that it is not easy to see a "knot" in the fork of a young sapling, matched to a nicety with the surrounding bark, and often hidden by a leaf or two—not many, but just enough. The fabric is a model of daintiness and close weaving. Strips of the inner bark of common milkweed or shredded grapevine bark form the bulk of the nest. The structure does not often embrace the sustaining branches, but the ends of its component strips are made fast to the rough bark of the sapling; besides this, frequent guy ropes and stays of gossamer are thrown out. A snug lining of roller grass and horse-hair completes the home, which measures commonly one and seven-eighths inches across and one and a half inches deep inside. Two broods are sometimes raised in a season.

The Great Horned Owl (*Bubo virginianus virginianus*)

By I. N. Mitchell

Length, about 22 inches. The great size and long ear tufts sufficiently distinguishes this owl.

Range: Resident over the greater part of North and South America.

This, our largest owl, inhabits heavily forested and unsettled regions and is becoming more and more rare in thickly populated areas. It is well known by its far reaching call—"hoo-hoo-hoo-hoo"—which is heard best in the still small hours of the night, when it echoes across the expanse of canyon and forest in the far west.

This owl destroys many partridges and other game birds, and unhoused poultry is never safe from its nocturnal attacks. Its deeds are those of darkness, since usually it hunts only at night, though when disturbed in the daytime it can see well enough to take good care of itself. Its bill of fare is a long one and includes many kinds of mammals and birds. It is one of the few creatures which when hungry do not hesitate to attack the skunk, and it appears to have no great difficulty in killing this rather formidable little beast. That it does not always do so with entire impunity is evident from the odor frequently attaching to its feathers. Its destruction of rodents entitles it to our gratitude, especially when it kills pocket gophers, rats, mice, ground squirrels and rabbits. In some parts of the west rabbits are responsible for much damage to orchards and crops and consequently their reduction is a blessing. Nevertheless the protection of this big and fierce owl cannot be recommended on sound economic grounds.

Most abundant in heavy timber; nest, coarse, of sticks, bark, and feathers; eggs, two or three, white; note, a prolonged whoo-hoo-hoo; begins nesting in February.

How those great yellow eyes with their black pupils stare out from under the long ear tufts! Horns? No, they are not really horns, they are soft and harmless but appear enough like horns to get the name and certainly give this little fellow a fiercer appearance than he would have without them. Our little screech owl has similar ear-tufts and is accordingly sometimes called the little horned owl.

There is a very keen pair of ears under those tufts of feathers, for night hunting demands sharp ears as well as sharp eyes and soft feathers.

It is quite likely that these staring eyes and bristling ears serve the great horned owl a good purpose. Imagine them peering from the dense leafage; how like a wild cat he would look! He needs to look fierce, for he has to sit around all day, and though he chooses the thickest woods and tries to hide among the branches and leaves, he is nevertheless often discovered by smaller birds that regard him as their mortal enemy. The crow, the jay, the kingbird, and others of the flycatcher tribe, especially, torment him, while other less courageous birds

30 GREAT HORNED OWL. (Bubo virginianus.)

gather around and add to the row, causing him to glare and hiss and snap his bill in an effort to scare them away. But they are persistent and give him no peace, so he finally tumbles out of the hiding place that no longer hides and makes off to some other retreat. In the night time, however, it is a different matter. Then he is the fiercest of birds, strong and daring. He is the feathered tiger of the forest. Partridge, quail, and many other wild birds large and small, go to supply the family larder. Chickens, guinea fowl, and even turkeys are attacked in the poultry yard and are killed far beyond his need of food. So destructive of game birds and poultry is this great horned owl that it is condemned by both national and state governments. Quite likely the sentence is just, yet the villain has his good qualities. Birds are not his only prey. He kills large numbers of small animals that are much more destructive than himself. The rabbits that girdle the young orchard trees, the mice that destroy great quantities of grain, those prowling chicken thieves, the rat and the skunk, "await alike the inevitable hour." "Four out of every five of these owls that are brought in have been scented by a skunk. Two nests that have come under the writer's observation had the remains of skunks on them beside the young."

The department of agriculture at Washington, after a careful and extensive study of the food habits of the owls, condemns the great horned owl as unworthy of protection. But it is the only one condemned. All of the other owls regularly found are found to be very beneficial on account of the very large numbers of mice, shrews, gophers, rats, rabbits, grasshoppers, and beetles that are destroyed by them.

The great horned owl's repertoire consists of two performances. His common "Whoo, hoo-hoo! Whoo, hoo-hoo-hoo!" is startling but not thrilling. His uncommon one is positively uncanny. Of all wild yells of owl at night, the great horned's screech stirs deepest fright. Mr. Chapman describes it as a "loud, piercing scream, one of the most blood-curdling sounds I have ever heard in the woods." "When that note comes," says Mr. Mathews, "one will think he hears the 'crack 'o doom.'" If the screech owl's note is weird, this is horrible; it has the sound of murder in it; no cat on a back-yard fence can produce a yell as hideous! Upon hearing the screech for the first time one's mind instinctively reverts to those lines in Scott's *Lady of the Lake.*

"At once there rose so wild a yell
Within that dark and narrow dell,
As all the fiends from heaven that fell,
Had pealed the banner-cry of hell!"

To a Skylark

By Percy Bysshe Shelley

The daintiness and delicacy of the poet's touch in this poem has made it immortal.

Hail to thee, blithe spirit!—
Bird thou never wert—
That from heaven or near it
Pourest thy full heart
In profuse strains of unpremeditated art.

Higher still and higher
From the earth thou springest
Like a cloud of fire;
The blue deep thou wingest,
And singing still dost soar, and soaring ever singest.

In the golden lightning
Of the sunken sun,
O'er which clouds are brightening,
Thou dost float and run,
Like an unbodied joy whose race is just begun.

The pale purple even
Melts around thy flight;
Like a star of heaven
In the broad daylight
Thou art unseen, but yet I hear thy shrill delight.

All the earth and air,
With thy voice is loud,
As, when night is bare,
From one lonely cloud
The moon rains out her beams, and heaven is overflowed.

What thou art we know not;
What is most like thee?
From rainbow clouds there flow not
Drops so bright to see,
As from thy presence showers a rain of melody:—

Like a poet hidden
In the light of thought
Singing hymns unbidden,
Till the world is wrought
To sympathy with hopes and fears it heeded not;

Teach me, sprite or bird,
What sweet thoughts are thine;
I have never heard
Praise of love or wine
That panted forth a flood of rapture so divine.

Chorus hymeneal,
Or triumphal chaunt,
Matched with thine, would be all
But an empty vaunt,
A thing wherein we feel there is some hidden want.

What objects are the fountains
Of thy happy strain?
What fields or waves or mountains?
What shapes of sky or plain?
What love of thine own kind? What ignorance of pain?

Waking or asleep,
Thou of death must deem
Things more true and deep
Than we mortals dream,
Or how could thy notes flow in such a crystal stream?

Teach me half the gladness
That thy brain must know,
Such harmonious madness
From my lips would flow,
The world should listen then, as I am listening now.

The Orchard Oriole (*Icterus spurius*)

By Thomas Nuttall

Length, about 7¼ inches. Our only oriole with black and chestnut markings. Female grayish olive green.

Range: Confined to eastern North America. Breeds from North Dakota, Minnesota, Wisconsin, Michigan, southern Ontario, central New York and Massachusetts south to northern Florida, the Gulf Coast and southern Mexico, west to central Nebraska and western Kansas; winters from southern Mexico to northern Columbia.

Though clad in modest garb (for an oriole) and in no respect a rival of the Baltimore, the orchard oriole has merits of his own. As his name implies, he is a lover of orchards, and I have always associated him with the glory of apple orchards in full bloom and with the delicious perfume with which the air is heavy. Amidst such surroundings, the black and chestnut livery of the orchard oriole marks him as one of the princes of our bird world. Gardens and parks also know him well, and he is not averse to swinging his nest from the trees that shade the farmer's house. His nest betrays his connection with the family of weavers, but his skill does not equal that of the Baltimore and he is content with a smaller pensile basket made chiefly of grasses. His song, like his dress, is modest, but it is exceedingly sweet, and one who hears it is sure to pause in his walk and wish that it were longer and given more frequently.

The orchard oriole is chiefly insectivorous, as indeed are all of our species.

The orchard oriole has many of the habits of the Baltimore oriole, and arrives about a week later. They enter the southern boundary of the United States early in March and remain there until October. They do not, however, often migrate farther north and east than the state of Connecticut.

Their stay in the United States, it appears from Wilson, is little more than four months, as they retire to South America early in September, or at least do not winter in the southern states. According to my friend Mr. Ware, they breed at Augusta in Georgia; and Mr. Day observed the species at Major Long's winter quarters on the banks of the Missouri.

Audubon remarks that the northern migrations of this species, like those of the Baltimore oriole, are performed by day, and that the males arrive a week or ten days sooner than their mates. They appear to affect the elevated and airy regions of the Allegheny mountains, where they are much more numerous than the Baltimore orioles.

The orchard oriole is an exceedingly active, sprightly, and restless bird; in the same instant, almost, he is on the ground after some fallen insect, fluttering amid the foliage of the trees, prying and springing after his lurking prey, or

ORCHARD ORIOLE.
⅔ Life-Size.

flying and tuning his lively notes in a manner so hurried, rapid and seemingly confused that the ear is scarce able to thread out the shrill and lively tones of his agitated ditty. Between these hurried attempts he also gives others, which are distinct and agreeable, and not unlike the sweet warble of the red-breasted Grosbeak, though more brief and less varied.

In choosing the situation of his nest he is equally familiar with the Baltimore oriole, and seems to enjoy the general society of his species, suspending his most ingenious and pensile fabric from the bending twigs of the apple tree. Like the nest of the other, this is constructed in the form of a pouch from three to five inches in depths, according to the strength or the flexibility of the tree on which he labors. In a weeping willow, according to Wilson, the nest is one or two inches deeper than if in an apple tree, to obviate the danger of throwing out the eggs or the young by the sweep of the long, pendulous branches. It is likewise slighter, as the crowding leaves of that tree afford a natural shelter of considerable thickness.

That economy of this kind should be studied by the orchard oriole will not surprise so much as the laborious ingenuity and beautiful tissue of its nest. It is made exteriorly of a fine woven mat of long, tough and flexible grass, as if darned with a needle. The form is hemispherical, and the inside is lined with downy substances—sometimes the wool of the seeds of the buttonwood—forming thus a commodious and soft bed for the young. This precaution of a warm lining, according to Audubon, is dispensed with in the warm climate of Louisiana.

The eggs are four or five, of a very pale bluish tint, with a few points of brown and spots of dark purple, chiefly disposed at the greater end. The female sits about fourteen days, and the young continue in the nest ten days before they become qualified to flit along with their parents; but they are generally seen flying about the middle of June.

Previous to their departure, the young, leaving the care of their parents, become gregarious, and assemble sometimes in flocks of separate sexes, from thirty to forty or upward. In the South they then frequent the savannas, feeding much on crickets, grasshoppers and spiders. Their ordinary diet is caterpillars and insects, of which they destroy great numbers. In the course of the season they likewise feed on various kinds of juicy fruits and berries; but their depredations on the fruits of the orchard are very unimportant.

The Wood Duck (*Aix sponsa*)

By Geraid Alan Abbott

Length, about 19 inches. The elongated crest of feathers and variegated plumage of white and brown, spotted with chestnut, ochraceous and steel blue are characteristic.

Range: Breeds from Washington to middle California, and from Manitoba and southeastern Canada to Texas and Florida; winters chiefly in the United States.

It can be said of this duck, as of no other, that it is our very own, since most of the breeding area it occupies is within our territory, and by far the greater number of the species winter within the United States. The story of its former abundance on our ponds and streams and of its present scarcity is a sad commentary on our improvidence and a warning for the future. Happily, it is not yet too late to save this most beautiful of our ducks, and under proper regulations it may be expected not only to hold its own, but to increase until it is once more a proper object for the skill of sportsmen. Under present conditions all true sportsmen should refrain from its further pursuit.

As is well known, the wood duck is one of the few wildfowl that builds its nest in hollow trees, and the security thus provided for the young is one of the factors to be relied upon for the increase of the species. North, south, east and west, the States of every section are, or should be, interested in the preservation of this distinctively American duck, and should make suitable regulations for its welfare and see to their enforcement.

This most beautiful of ducks seems to be dressed in a studied attire to which the addition of a flowing crest adds a finish of peculiar elegance; and hence Linnæus has dignified the species with the title of *sponsa*, or the bride. This splendid bird is peculiar to America, but extends its residence from the cold regions of Hudson Bay in the fifty-fourth parallel to Mexico and the Antilles. Throughout a great part of this vast space, or at least as far south as Florida and Mississippi, the Wood Duck is known to breed.

In the interior they are also found in Missouri and along the woody borders and still streams which flow into most of the great northwestern lakes of the St. Lawrence. The Wood Duck has indeed but little predilection for the seacoast, its favorite haunts being the solitary, deep and still waters, ponds, woody lakes, and the mill dams in the interior, making its nest often in decayed and hollow trees bending over the water.

Though many migrate, probably to the shores of the Mexican Gulf, numbers pass the winter in the states south of Virginia. Early in February they are seen associated by pairs on the inundated banks of the Alabama, and are frequent at the same season in the waters of west Florida. In Pennsylvania they usually nest late in April or early in May, choosing the hollow of some broken or decayed

WOOD DUCK.

tree, and sometimes even constructing a rude nest of sticks in the forks of branches. The eggs, twelve or thirteen in number, are yellowish, rather smaller than those of the domestic hen, and they are usually covered with down, probably plucked from the breast of the parent.

The same tree is sometimes occupied by the same pair for several successive years in the nesting season. The young, when hatched, are carried down in the bill of the female and afterward conducted by her to the nearest water. For these places when once selected, if not disturbed, they sometimes show a strong predilection, and are not easily induced to forsake the premises, however invaded by noise and bustle. While the female is sitting the male is usually perched on some adjoining limb of the same tree, keeping watch for their common safety. The species is scarcely ever gregarious; they are seen only in pairs or by families. The common note of the drake is *peet, peet,* but when on his post as sentinel, on espying danger, he makes a sort of crowing noise, like *hoo eek, hoo eek.*

The food of the Wood Duck consists principally of acorns, the seeds of aquatic plants such as those of the wild oats and insects which live in or near the water. I have seen a fine male whose stomach was wholly filled with a mass of the small flower beetles, which are seen so nimbly flying over or resting on the leaves of the pond lily. The Duck must be very alert in quest of their prey or they could never capture these wary insects.

"Few if any more exquisitely beautiful creatures have been fashioned in the workmanship of Nature, than the Wood Duck of America," are the words of Dr. Dawson, and to them we might add the words of Mr. Chapman, "Woodland ponds and various border streams make a proper setting for the grace and beauty of this richly attired bird." They do not quack but have a pleasing and musical call, a sort of whistle.

These birds perch upon branches of trees, and are fond of acorns. They are not solely dependent upon aquatic plants and animals or even upon food which is found upon the ground, but also eat flying insects and young buds.

It seems too bad that because of unscrupulous hunters this gem of the woodland should be in danger of extermination. Then too, the open season for ducks does not offer protection, as the hunting season opens before the southern flight of most water fowl which nest in the far north, has begun. Therefore, our summer ducks are for a time the only available game.

They build their nests and seek their food in unfrequented woods near the water. Favorite nesting places are hollow branches of trees, an old woodpecker's hole, or hollow stump, preferring holes that overhang the water or are near it. They will, however, often accept sites away from the water, in which case the parent removes the young in her bill to the water as soon as they are hatched, but the young do not return to the nest. The writer has eight eggs taken at Long Lake, Minnesota, May 21, 1903. The hollow tree in which the eggs were laid was profusely lined with down and feathers.

The Long Billed Marsh Wren (*Telmatodytes palustris Palustris*)

By W. Leon Dawson

Length: Five inches.

Range: Eastern United States, north to Massachusetts, Ontario and Manatoba.

To the coots and rails belong the ooze-infesting morsels of the swamps, but all the little crawling things which venture into the upper story of the waving cat-tail forest belong the Long-billed Marsh Wren. Somewhat less cautious than the water-fowl, he is the presiding genius of flowing acres, which often have no other interest for the ornithologist. There are only two occasions when the Marsh Wren voluntarily leaves the shelter of the cat-tails or of the closely-related marshables. One of these is when he is driven south by the migrating instinct. Then he may be seen sulking about the borders of streams, sheltering in the weeds or clambering about the drift. The other time is in spring, when the male shoots up into the air a few feet above the reeds, like a ball from a Roman candle, and sputters all the way, only to drop back, extinguished, into the reeds again. This is a part of the tactics of his courting season, when, if ever, a body may be allowed a little liberty. For the rest he clings sidewise to the cat-tail stem or sprawls in midair, reaching, rather than flying from one stem to another. His tail is cocked up and his head is thrown back, so that, on those few occasions when he is seen, he does not get credit for being as large as he really is.

The wren is very free with his metallic clattering notes. As in the case of the Carolina wren, the bird gives one the impression of being chock-full, and of needing only to turn a convenient spigot to let out a flood of sounds. There is a mixture of clicking, lisping, purring, and sweet sputtering about them all which is not at all unpleasant to the ear.

In nesting this wren weaves a compact ball of dead reeds and grasses a little deeper than wide, and slung midway of the growing reeds. The interstices of the structure are tightly packed with vegetable cotton, cat-tail down, or moss,—never mud, and in my experience entrance is effected through a hole in the side, often difficult to discover, and the interior is snugly lined with down or purloined feathers. While the female is incubating, the male has a curious habit of constructing other nests in the neighboring reeds. These cocks' nests vary from three to twenty in number, and spread out through an area of a square rod or two. Some are never finished, but others are quite as carefully built as the one actually occupied. The purpose of this strange habit is unknown, except as it is probable that the male spends the night in one of them.

LONG-BILLED MARSH WREN.
Life-size.

Bird Census

A census of birds of the United States, announced by the Department of Agriculture, shows an average of sixty pairs of English sparrows to the square mile, or seven to every 100 native birds throughout the country.

The robin is shown to be the most numerous bird, with the English sparrow a close second. In the northeast robins averaged six pairs to each farm of fifty-eight acres, while English sparrows averaged five pairs to a farm. Taking 100 robins as a unit, other birds were noted in the following proportions: Cat birds, 49; brown thrushes, 37; house wrens, 28; kingbirds, 27, and bluebirds, 26.

As for density of population on each acre of farm land, there was an average of one pair of birds. Chevy Chase, Md., holds the record for density, where 161 pairs nested on twenty-three acres. Thirty-four species of birds were represented.

The bird population is much smaller than it ought to be, according to department experts, who assert that if birds were given more protection there would be an increase in numbers.

The ways of birds, animals, and insects, as these creatures have learned to work them out, possess a fascinating interest to any patient and humble observer; the more so that they are their own, and not ours. It is not necessary to put their cries and calls into the silly language of the nursery, or to give to their actions motives too human in order that we may interpret their significance truly and beautifully to children. "All sane the woods revolve," and their denizens are neither sentimental nor hysterical.

Osprey (*Pandion haliaetus carolinensis*)

Length, about 23 inches. The great size, brown upper parts and white under parts are distinguishing features.

Range: Breeds from northwestern Alaska, and central Canada south to the Gulf Coast, western Mexico and Lower California; winters from the southern United States, Lower California and Mexico to Central America.

A thin, high pitched whistle, the alarm as well as the call note of the Osprey, frequently directs the attention of the passer by to this fine hawk as he circles high in air on the watch for fish. The bird is common along our coast and to some extent along our rivers, and his bulky nest of twigs, often in low trees or sometimes on the ground, frequently attests his former presence when he is wintering elsewhere. When unmolested, Ospreys return to their own strip of territory year after year, and they and their descendants probably rear their young in the same nest for generations, repairing it from season to season as necessity requires. The Osprey lives solely on fish which he catches himself—he disdains carrion—diving from mid air upon his quarry and often burying himself in the water momentarily by the force of his descent.

The Whip-Poor-Will (*Antrostomus vociferus*)

By Alexander Wilson

Length, about 10 inches. Not to be confused with the nighthawk, which flies by day and has white wing bars, while the whip-poor-will is crepuscular and nocturnal.

Range: Breeds from the Atlantic to the plains, and from Manitoba and the eastern Canadian Provinces south to northern parts of Louisiana, Mississippi and Georgia; winters from South Carolina and the Gulf States to Central America.

This bird of the night, whose day begins with the going down of the sun when the nighthawk's ends, is common throughout the east in open woodlands, on the edges of which it likes to hunt. It dozes away the hours of daylight squatting on the ground among the leaves where its marvelous protective coloration affords it safety. No sooner have the shadows lengthened, however, than it becomes active and its characteristic note resounds through the forest glades. So plaintive is its cry and so mysterious its comings and goings, that in the minds of many its notes are associated with misfortune, as a death in the house near which it persistently calls. Its two eggs are laid among the leaves, needing no other protection than the cover of the mother's body. The whip-poor-will may be accounted one of our most efficient insect destroyers, as its immensely capacious mouth beset with bristles, a regular insect trap, would suggest. Among its prey it includes May beetles and moths. These two form the principal articles of food and as they are parents respectively of the white grub worm and an innumerable host of caterpillars their destruction is of marked benefit to agriculture.

This is a singular and very celebrated species, universally noted over the greater part of the United States for the loud reiterations of his favorite call in spring. Yet personally he is but little known, most people being unable to distinguish this from the Nighthawk, when both are placed before them; and some insisting that they are the same. This being the case, it becomes the duty of his historian to give a full and faithful delineation of his character and peculiarity of manners, that his existence as a distinct and independent species may no longer be doubted, nor his story mingled confusedly with that of another. I trust that those best acquainted with him will bear witness to the fidelity of the portrait.

On or about the twenty-fifth of April, if the season be not uncommonly cold, the Whip-poor-will is first herd in the evening, as the dusk of twilight commences, or at dawn in the morning. I first heard the Whip-poor-will on the fourteenth of April. The notes of this solitary bird, from the ideas which are naturally associated with them, seem like the voice of an old friend, and are

WHIPPOORWILL.

listened to by almost all with great interest. At first they issue from some retired part of the woods, the glen or mountain; in a few evenings, perhaps, we hear them from the adjoining coppice, the garden fence, the road before the door, and even from the roof of the dwelling house, long after the family have retired to rest. Some of the more ignorant and superstitious consider this near approach as foreboding no good to the family—nothing less than sickness, misfortune, or death to some of its members. These visits, however, so often occur without any bad consequences, that this superstitious dread seems on the decline.

He is now a regular acquaintance. Every morning and evening his shrill and rapid repetitions are heard from the adjoining woods, and when two or more are calling out at the same time, as is often the case in the pairing season, and at no great distance from each other, the noise, mingling with the echoes from the mountains, is really surprising. Strangers, in parts of the country where these birds are numerous, find it almost impossible for some time to sleep; while to those long acquainted with them the sound often serves as a lullaby to assist their repose.

These notes seem pretty plainly to articulate the words which have been generally applied to them, *whip-poor-will,* the first and last syllables being uttered with great emphasis, and the whole in about a second to each repetition; but when two or more males meet, their *whip-poor-will* altercations become much more rapid and incessant, as if each were straining to overpower or silence the other. When near, you often hear an introductory cluck between the notes. At these times, as well as at almost all others, they fly low, not more than a few feet from the surface, skimming about the house and before the door, alighting on the wood-pile, or settling on the roof. Toward midnight they generally become silent, unless in clear moonlight, when they are heard with little intermission till morning. If there be a creek near, with high precipitous bushy banks, they are sure to be found in such situations. During the day they sit in the most retired, solitary and deep-shaded parts of the woods, generally on high ground, where they repose in silence. When disturbed, they rise within a few feet, sail low and slowly through the woods for thirty or forty yards, and generally settle on a low branch or on the ground. Their sight appears deficient during the day, as, like owls, they seem then to want that vivacity for which they are distinguished in the morning and evening twilight. They are rarely shot at, or molested; and from being thus transiently seen in the obscurity of dusk, or in the deep umbrage of the woods, no wonder their deep markings of plumage should be so little known, or that they should be confounded with the nighthawk, whom in general appearance they so much resemble.

The female begins to lay about the second week in May, selecting for this purpose the most unfrequented part of the wood, often where some brush, old logs, heaps of leaves, etc., had been lying, and always on a dry situation. The

eggs are deposited on the ground, or on the leaves, not the slightest appearance of a nest being visible. These are usually two in number, in shape much resembling those of the Nighthawk, but having the ground color much darker and more thickly marbled with dark olive. The precise period of incubation I am unable to say.

In traversing the woods one day in the early part of June, along the brow of a rocky declivity, a Whippoorwill rose from my feet, and fluttered along sometimes prostrating herself, and beating the ground with her wings, as if just expiring. Aware of her purpose, I stood still and began to examine the space immediately around me for the eggs or young, one or other of which I was certain must be near. After a long search, to my mortification I could find neither; and was just going to abandon the spot, when I perceived somewhat like a slight moldiness among the withered leaves, and on stooping down, discovered it to be a young Whippoorwill, seemingly asleep, as its eyelids were nearly closed; or perhaps this might only be to protect its tender eyes from the glare of day. I sat down by it on the leaves, and drew it as it then appeared. It was probably not a week old. All the while I thus engaged, it neither moved its body nor opened its eyes more than half; and I left it as I found it. After I had walked about a quarter of a mile from the spot, recollecting that I had left a pencil behind, I returned and found my pencil, but the young bird was gone.

Early in June, as soon as the young appear, the notes of the male usually cease, or are heard but rarely. Toward the latter part of summer, a short time before these birds leave us, they are again occasionally heard; but their call is then not so loud, much less emphatic, and more interrupted than in spring. Early in September they move off toward the South.

The favorite places of resort for these birds are on high, dry situations; in low, marshy tracts of country they are seldom heard. It is probably on this account that they are scarce on the seacoast and its immediate neighborhood; while toward the mountains they are very numerous. The Whippoorwill is never seen during the day, unless in circumstances such as have been described. Their food appears to be large moths, grasshoppers, ants, and such insects as frequent the bark of old rotten and decaying timber. They are also expert at darting after winged insects. They will sometimes skim in the dusk, within a few feet of a person, uttering a kind of low chatter as they pass. In their migrations north, and on their return, they probably stop a day or two at some of their former stages. It is highly probable that they migrate during the evening or night.

Whippoorwill Time

By Madison Cawein

Let down the bars; drive in the cows;
The west is dyed with burning rose:
Unhitch the horses from the ploughs,
And from the cart the ox that lows,
And light the lamp within the house.
The whippoorwill is calling,
"Whip-poor-will; whip-poor-will,"
Where the locust blooms are falling
On the hill:
The sunset's rose is dying,
And the whippoorwill is crying,
"Whip-poor-will; whip-poor-will;"
Soft, now shrill,
The whippoorwill is crying
"Whip-poor-will."

Unloose the watch-dog from his chain:
The first stars wink their drowsy eyes:
A sheep-bell tinkles in the lane,
And where the shadow deepest lies
A lamp makes bright the kitchen pane.
The whippoorwill is calling,
"Whip-poor-will; whip-poor-will,"
Where the berry-blooms are falling
On the rill:
The first faint stars are springing,
And the whippoorwill is singing,
"Whip-poor-will; whip-poor-will;"
Softly still
The whippoorwill is singing,
"Whip-poor-will."

The cows are milked; the cattle fed;
The last far streaks of evening fade:
The farm-hand whistles in the shed,
And in the house the table's laid;
The lamp streams on the garden-bed.

The whippoorwill is calling,
"Whip-poor-will; whip-poor-will,"
Where the dog-wood blooms are falling
On the hill:
The afterglow is waning,
And the whippoorwill's complaining,
"Whip-poor-will; whip-poor-will;"
Wild and shrill,
The whippoorwill's complaining,
"Whip-poor-will."

The moon blooms out, a great white rose:
The stars wheel onward towards the west:
The barnyard cock wakes once and crows:
The farm is wrapped in peaceful rest:
The cricket chirs: the firefly glows.
The whippoorwill is calling,
"Whip-poor-will; whip-poor-will,"
Where the bramble-blooms are falling
On the rill:
The moon her watch is keeping,
And the whippoorwill is weeping,
"Whip-poor-will; whip-poor-will;"
Lonely still,
The whippoorwill is weeping,
"Whip-poor-will."

The Skylark (*Alanda arvensis*)

By Joseph Grinnell

Length: 7 inches.

Range: Native of England, found in Oregon, Washington; rare on Long Island and southeastern Ohio.

"Under the greenwood-tree,
Who loves to lie with me,
And tune his merry note
Unto the sweet bird's throat;
Come hither, come hither, come hither;
Here shall he see
No enemy
But winter and rough weather."

In Shakespeare's play, "As You Like It," scene V., Amiens, a close student of nature, is made to sing this song.

It probably caused his companion, Jaques, to remember the skylark of his own boyhood, for he besought Amiens to "sing it again." But Amiens argued with his friend that it would make him "melancholy." However, he sang again, and it is supposed that the two lived over the days of their boyhood, when they lay on the grass under the greenwood-tree, just on the edge of a corn-field, and listened to the skylark tuning his merry note in his own sweet throat.

Dear to the heart of English boys and other people is the skylark, on account of which, and for the reason that Britishers of any age may like to meet an old friend should they chance to take up this book in their travels, we are giving a chapter to this bird. In the play, Jaques and Amiens sing later together all about their favorite lark (it is presumed):

"Who loves to live i' the sun,
Seeking the food he eats
And pleased with what he gets."

Surely the skylark loves to live i' the sun, for he is always in the open, summer and winter, as if he would be sure to not miss a single sunbeam. As is the case with most of our birds who dwell or nest near our homes, the skylark does not seek man for his own sweet sake, but for the sake of what the farm holds; though no marauder is this lark, for it eats ground insects nearly the whole year—crickets, and beetles, and grubs, and worms, and little folk who see no further than their noses. To be sure, in late fall, after the farmer's buckwheat and other grains are ripened and mostly harvested, the larks visit the fields in flocks to gather up the crumbs and grow fat on the change from a meat to a vegetable diet.

This growing fat, by reason of his generous diet in late fall, just before the snows come, serves the same purpose as does the fattening of bear just before winter. The snow covers lark's "meat victuals" all up, and the birds must fall back at times on their stores laid by under their skin for this very season. Though they do not hibernate, they still have use for their fat. So has the gunner, and the people with snares ready to set for the unwary and hungry birds.

A recent writer, commenting on this autumn sport of the Englishman, excuses their seemingly wanton destruction by observing that "were they not thus taken, large numbers would doubtless meet natural death in their autumn flights." To quote Shakespeare again, "Oftentimes, excusing of a fault doth make the fault the worse."

There seems to be a sort of inconsistency in the fact that, from earliest times, the human family have been guilty of eating what most they love—or what most they do declare to love. The flavor of the flesh of a bobolink or skylark is hardly out of the mouth before the tongue takes to praising the favorite bird with a

psalm or hymn; in due time the poet and singer bethinks him of his annual feast of flesh, and his spiritual appreciation grows thin.

We are thankful, in spite of all this, that the poets and singers sing on. They have immortalized the skylark of Europe as no other known bird is immortalized.

Superstition claims the bird as peculiarly its own. Do not its prophets divine things mysterious and darkly subtle by the skyward flight of the bird? And its song! Any priest of the craft may read in its varying notes all sorts of fortunes to people and clans.

And the eggs of the skylark! Were they not speckled and streaked by passing night winds in the shape of fairies with garden gourds filled with the ink juice of the deadly night-shade berries? Were the skylark's eggs white they would be "moon-struck," and the hatchlings would sing the song of the night-owl. In spite of the speckled eggs and the usual grassy cover of the nest, these are too often the successful object of the prowling boy. Though it must be confessed that in this, as in the case of the robbery of other birds, it is not always the original finder of the nest who is guilty of theft. Shakespeare was aware of this fact, for in "Much Ado About Nothing" he makes Benedick speak of "the flat transgression of a school boy, who, being overjoyed with finding a bird's nest, shows it to his companion, and *he* steals it."

The mistake was in "showing it his companion." Though, should the companion happen to be a girl, he need have no fear. The nest will be undisturbed next time he visits the spot.

For eight months of the English year does the skylark sing, prodding the lazy, comforting the sorrowful, accusing the guilty, making more merry the glad. On account of its ever-circling upward flight, the bird is believed to hold converse with heaven. In capacity it is supposed to be "longing for the sky" when it flings itself against the roof of its cage. To protect it against harm in this last, soft cloth is sometimes used for the cover to its home.

In winter, when the skylarks cover the sandy plains of Great Britain, they have but a single cry, having laid by their songs with which to "wake the spring"; or it may be with them as in the case of our bobolinks—after a diet of ripe grains they are "too full for utterance." But when spring is actually astir, then are the larks abroad in the sky. Francis Rabelais, as long ago as the fourteenth century, loved the English spring for the sake of the skylark, and the thoughts the bird inspired in him. Having no appetite, apparently, for the bird when he is fattened for eating, the poet longed for larks in the act of singing, as if, could he hold one of them in his hand when it was articulating, he might come by its written song, as the telegrapher reads the scroll as it unwinds. But he wouldn't be content with one bird, oh, no!—if ever the "skies should fall" he made up his mind to "catch larks" by the basketfuls. But the heavens never were known to

fall in lark-singing time, and the poet is long since under the sod with the skylarks nesting above him.

To be like a singing bird has been the longing of human hearts in all ages; as if we realize that there is medicine in song as in nothing else—medicine to the singer. And so there is. No higher compliment could be paid by a poet to the memory of his friend than the following, dated in the seventeenth century. There is a happy lesson of work, and good nature, and lightness of heart in a trying occupation too good to lose.

"There was a jolly miller once,
Lived on the River Dee;
He work'd and sung from morn to night,
No lark more blithe than he."

Several attempts to introduce the English Skylark into America have been made, with no satisfactory results. It is hoped to some day have them feel at home on the Pacific coast, where the varying moist and dry climates of north and south would give them the pleasures of their natural migrations. But although we may never have the skylark with us, we have its relative in our horned or shore larks. In its habits it resembles its lark kindred in the Old World, singing on the wing, nesting on the ground, feeding on the same food, walking rapidly, reserving flight at the last resort when pursued.

The horned lark is so named on account of a little tuft of feathers on each side of the forehead, which it raises or lowers at pleasure. It nests in the north very early, even before the snow is all melted, and brings off two or more broods in a season. In the autumn it exchanges its beautiful song for a good appetite, and fattens itself on grains and berries in anticipation of possible winter hunger. It may be seen all over North America at some season of the year, in fall and winter in flocks.

In California we have the Mexican horned larks, which cover the mesas and rise reluctantly in large numbers when surprised. They love to follow the open country roads, running out of the track while we pass, but returning as soon as we have gone our way. On rainy days—which, by the way, are the best of bird days—we have taken our umbrellas and strolled out to the flat lands on purpose to see these larks in their greatest numbers. They will fly, with a whirr of sound, and alight almost at our feet, to repeat the act for a mile if we choose.

In mid-summer they are seen in the vicinity of their nesting-places, standing in rows under fences or plants with mouths wide open, seeming to choose hot sand to flying straight across the short desert to mountain retreats. The horned larks, wherever seen, suggest contentment and pleasure in life as they find it.

The Loon (*Gavia immer*)

By Arthur H. Norton

Length: 28 to 36 inches.

Range: Northern part of the northern hemisphere.

One's introduction to the Loon is likely to be through the medium of its voice, and it may seem to be the incarnation of the spirit of the wilderness-waters, for its abiding places are in the solitude of lakes rimmed with dark forests, and distant blue hills, or on the broad bosom of the tossing sea. Like the spirits of old legends, it seems never to sleep, but to be ranging these realms both day and night, sending abroad its wild, loud notes at all hours.

Better acquaintance with the Loon will show it to be a large, beautifully plumaged bird, remarkable for its masterly accomplishments in several directions; and, although its notes often have a sad, or even a despairing sound, it is a happy, self-reliant creature, demanding our admiration rather than our pity.

The Loon spends its life afloat, and no more powerful swimmer can be found in the bird-world. Its heavy flattened body, half submerged when swimming, affords little leverage to the driving blast, while the great webbed feet, operated by powerful muscles, drive it onward against wind and wave. Matchless swimmer though it is, it is an even more wonderful diver, for it must chase and capture fishes in their own element. If pursued by man, or if attacked by an Eagle, it instantly takes refuge beneath the surface, speeding away to a safe distance, now and then merely thrusting its head above the surface to catch breath, and again diving and speeding onward to a place of safety.

Many a Loon has escaped death by ducking at the flash of a gun, ere the shot could reach him. Though quick in diving, head foremost, it has the remarkable ability to sink its entire body beneath the surface without visible effort. This faculty belongs also to several other diving birds.

Trusting extensively in its powers of swimming over and under water to escape its enemies, and to procure its food, it nevertheless is a strong flier, although progressing with apparently labored movements, and in calm weather finding great difficulty in rising from the water. It must rise against the wind, so that the pressure of the breeze against its narrow pinions may assist in raising its weight from the surface. Once on the wing it may perform long journeys, as it does on its migrations, which take it many miles overland to and from the lake where it makes its home. On these flights it sometimes sends forth a defiant note, attracting attention to its speeding form far above tree-tops and hills. In flying over the ocean, it seems to feel that its true safety is in the water, for a sudden shout or startling sound will often cause it to drop near the surface. This habit is often taken advantage of by gunners, as the bird flies overhead.

The Loon leaves its secluded lake within the realm of the Frost Giants some-

times after the breeding season, and speeds away to spend the winter on the ocean, where the ceaseless currents and toppling waves bid eternal defiance to the grasp of the Ice King. Here it finds an abundance of food, and, with hosts of other sea-fowls, rides out the winter's fury.

With the return of spring, and the warming of its stout heart toward its mate, it again seeks the lake, and resumes its family cares. Year after year it returns for a nesting place to the same tiny islet, floating tussock (or it may be to a muskrat house), to some sandy beach in a sheltered cove, or perhaps to a point of land where turf and water meet. Sometimes the nest is fully open to view, sometimes well hidden by bushes, sometimes a mere hollow without lining, but it may be slightly or, occasionally, well lined. Rarely an elaborate nest is built in the shallow water, raised above the level of the early summer flood, and such a nest is left high and dry when the water of the lake recedes in the summer drought. If the lake is raised by summer rains, as sometimes happens, this nest may be submerged, when the unhatched young will perish.

The eggs usually number two, but sometimes only one is laid. They are about as long as goose eggs, but less in diameter, and are rich olive-brown, more or less marked with spots and lines of a deeper color. They hatch in about a month.

The baby Loons are clothed in soft down, black above, white below. In a few hours they bid farewell to the nest, and are conducted out upon the broad lake by their parents. Here their youth is spent in alternately swimming feebly, and in riding upon their parent's backs. Audubon says that the young are "fed by regurgitation for about a fortnight, and are then fed with particles of fish, aquatic insects, and small reptiles, until they are able to maintain themselves."

The deep love of the Loon for its nest and young is manifested in acts of solicitude when these are approached, and in marks of affection in fondling and guiding their weak offspring. The Loon manifests uneasiness before a storm. Perhaps it dislikes the splashing spray, or maybe its savage spirit is stirred to depths of exultation by the turmoil of wind and wave, for, with the rising gale, the bird becomes especially noisy, sending its powerful voice echoing across the water with great frequency. The performance seems contagious, for every Loon within reach of that penetrating tone raises its voice to answer, and then it may seem to a man listening that the confusion of tongues is again at hand.

The storm abated, and the sun again shining upon the water, the Loon finds life easy, and after washing its beautiful plumage with scrupulous care, and dressing each feather with oil from the gland above the base of the tail, it finds time to play, for, although a veritable savage, the Loon is possessed of social instincts and often indulges them.

Frequently little parties of from two to half a dozen or more may be seen racing across the water. Half flying, half swimming, they dash over the smooth

water at great speed, forward and back, again and again. Sometimes one or more may chase another, which dashes onward and suddenly plunges beneath the water to escape pursuit; perhaps it suddenly reappears close to another bird, that, catching the spirit of the play, acts as though seized with panic, and rushes away, pursued by others of the party. While at these sports Loons may be very noisy or nearly silent.

The social nature of this bird is also shown by the fact that it frequently gathers in companies, and further by the fact that little groups or pairs, scattered about in feeding, keep up a vocal communication with each other.

The voice of the Loon is loud, and of volume sufficient to ring above the din of storm and surf, or to echo far and wide to its family or friends over the wide lake, or across spaces of the boundless sea. Its calls are varied, fitting its different moods and expressing no mean range of emotions. Like some other birds, this one is decidedly inquisitive, and may be decoyed near an ambush by alternately waving and concealing a small cloth on a short rod. It is said that anything as a small mirror that will reflect a flash of light will also attract it, and an imitation of its voice will frequently have the same effect.

The beautiful plumage of the Loon has been in demand for millinery purposes; and the Indians and Eskimos tan its skin for the manufacture of garments and bags. These people also eat its coarse, rank flesh, a habit which T. Gilbert Pearson says is often indulged in by the natives of the coast of North Carolina. Few, however, of the number killed by white men are ever eaten, for usually all are left to decay on the shore of the lake, or, after a brief period of admiration, their bodies are consigned to the compost-heap.

The food of the Loon consists largely of fish, chiefly, no doubt, of the smaller and more worthless species. Yet the fact that it is a fish-eater has brought condemnation upon it from the fish culturists, and that without a trial. Of the species of fishes naturally occurring in a given lake not more than one-half are food-fishes for man, and only one-fourth may be called game-fishes.

Dr. Wm. C. Kendall, scientific assistant in the United States Bureau of Fisheries, has written: "In large lakes my observations lead me to believe that it does little or no harm. In most lakes salmon and trout are mostly too large for the Loon to trouble, and it restricts its diet to the smaller, surface-swimming and shore fishes, such as smelts, chubs," etc.

The possibility that the Loon may render a service to conservers of game-fishes, by holding in check in some degree the destroyers of fish-eggs, such as suckers and horned-pouts, or in destroying the fishes affected with contagious gill-fungus and other diseases, has never been given consideration. There is, however, an element of probability in this, for, by the law of survival of the fittest, the physically inferior individuals, whether inherently weaker or the victims of disease, are the ones that habitually fall prey to their enemies. Unquestionably it is the weaker specimens of the species eaten that constitute the greater part

of the Loon's diet. On the other hand some, as the suckers, are very destructive to the finest game-species, eating large quantities of their eggs, while themselves of little value as food or game. Weed and Dearborn say that "the fish they consume are generally worthless." As a matter of fact very little has been made known of the economic status of the Loon, but this little is considerably in its favor.

Audubon says of its diet: "Fishes of numerous kinds, aquatic insects, water lizards [salamanders], frogs and leeches have been found by me in its stomach, in which there is also generally much coarse gravel, and sometimes the roots of fresh-water plants."

Its diet is thus shown not only to be more varied than most persons acknowledge, but also in this respect it is without doubt beneficial. Aquatic insects large enough to attract the attention of the Loon are predacious, and in some instances have proved to be factors of sufficient importance to demand active measures for their suppression in fish ponds.

Birds in the Lost River Valley

By Edward C. Clark

It matters little whether the wind be roaring or bleating, there comes into the heart of the bird-lover March first a pulsing desire to see the first robin of the springtime. Almanacs and calendars forgotten, the true bird enthusiast can tell the first day of the first spring month by a certain quickened sense of yearning for the feathered friends of a bygone year. Unhappily, however, the first day of spring does not always bring the first songster, and after a suburban trip afield on that day had developed no birds save some storm-blown gulls, I made up my mind to go South and meet the migration midway.

My pilgrimage took me to the valley of the Lost River in southern Indiana. The grass had not yet taken on even a tinge of green, but all the hillsides were glowing with the red bloom of the maple. Some botanist will have to tell why the grass was a laggard while the towering trees were aflush. The native sparrows, the slate-colored snowbirds, and the other gleaners of the ground in this part of Hoosierdom, must look upward for their spring signs, and forget the withered grass blades of a year that is gone.

Southern Indiana, the land of the redbird, and alack, of the red mud! To hear the matchless whistling solo of the one, the bird-lover must take rather more than a surfeit of the other. Mud, mud, red March mud everywhere; but above it all a flood of melody from a thousand throats. I doubt if there be many places on earth better adapted to bird life and better loved by the birds than this southern Indiana country.

With a companion who was willing to become an enthusiast, I left the hotel on the morning following my arrival, just as the sun was touching the top of a

chain of sugar-loaf hills to the east. Although we were nearly three hundred miles south of the shore of Lake Michigan, we were not quite near enough to Dixie to have left behind us the last trace of winter. A light cloak of snow clothed the hilltops, and upon the lawn that stretched away from the hotel steps, white patches showed here and there. At the edge of one of these snowy spots a male robin, with the "brighter crimson" of the springtime on his breast, was was pulling a reluctant worm from the sod. He was especially welcome to his discoverers, for he was their first robin of the season. Before we had crossed the bridge which spans the little river, we passed a score of robin brothers and sisters, all industriously and successfully "digging for bait." We started some of the birds from their feeding-places, and thereat they made straight for the maples, where their breasts added another bit of red to the budding trees. They did not seem to resent our discourtesy, but in the joy coming from full stomachs and a glorious morning, they told us in chorus to "cheer up."

My heart was set on redbirds. I had never been so placed that I could form a close acquaintance with these gold-tongued creatures. I had seen the cardinal grosbeak—that is the redbird's other name—only on rare occasions. One year a pair of the birds visited Graceland cemetery in the city of Chicago. They were accidental visitors, and my companionship with them was limited to the space of thirty minutes. I had just enough of it to make me wish for more. There is something in the note of the cardinal grosbeak that satisfies my ear more fully, perhaps, than the song of any other bird. It has about it a wholesomeness and yet a sweetness and cheer that I have found in no other bird voice. I must confess, however, that when I have made this admission to friends who have more music in their souls than ever I may hope to have, they have regarded it as a bit of enthusiasm springing from no very sound judgment. Certain it is, however, that no one can tire of the color and marked individuality of the cardinal grosbeak.

The startled robins had returned to their feeding-ground when from some brush beyond the railroad trestle came a melodious whistle, "Beauty, beauty, beauty." It was the call of Master Redbird. Small blame to him for being vain and for pouring into the ears of his listeners the oft-repeated tale of his beauty. A song sparrow had taken to the topmost rail of a crooked fence, and his ecstatic song was coming from a throat that bade fair to split. When the full, rich notes of the cardinal came over the field and marsh, the sparrow stopped singing, as if he knew that a master's instrument was in tune. From the standpoint of pure melody, however, I am told, and I believe, that the sober-garbed song sparrow need not fear to have his voice put to the test with that of his brilliant cousin. There were a dozen cardinals in the underbrush by the swamp. The singing was constant, but for some reason of their own, the birds sang only one at a time. I thought, perhaps, they felt that a chorus of such sweetness would cloy. The Mesdames Cardinal, of whom there were several, refused to sing at all on that

morning, although their notes have a softer sweetness than have those of their red-robed lords. A man who was at work clearing land back of the cardinals' retreat said that the redbirds were more plentiful than ever. Here was some recompense for days spent in stuffy Chicago justice shops in the effort to secure the punishment of receivers of stolen goods in the shape of trapped and caged cardinals.

On our right was a great field whose soil was pierced with standing stalks of withered corn. One of the cardinals left his undergrowth retreat, and crossing our path lighted on one of the stalks about midway of its height. An ear of corn that the gleaners had overlooked was still clinging to the stem. The cardinal at once began the process of husking and shelling. With his powerful beak he pulled a strip of the husk outward and downward, and then he attacked the disclosed kernels. The sun struck the bird full and fair. His plumage was like fire, and a brilliant picture it made against the contrasting brown of the corn. The cardinal shelled at least a dozen kernels and dropped them one by one to the ground. Then he took to the ground himself and began the work of cracking the provender; at least I think he cracked it. He went through a process that was remarkably like chewing, but even a strong field-glass did not enable me to determine positively whether or not he swallowed the kernels whole. In a few minutes he left his feeding-place and went back to his friends in the underbrush. I went down into the field and examined his breakfast-table, but he had cleared it so thoroughly that not a crumb remained.

It was hard to leave the whistling redbirds behind, but there were other feathered friends and feathered strangers to be looked for, and forsooth, all the cardinals of southern Indiana are not confined to one bit of underbrush. We left the railroad track for the highroad. Soon we were overtaken by an attenuated-looking native, seated on a load of hickory staves drawn by a pair of fat horses. He politely offered the strangers a "lift," for he was going a "right smart way." His invitation was speedily accepted, for March mud makes tired tramps. The driver confided to his guests who sat on the body of the load that he worked from sunrise to sunset cutting and drawing hickory for the sum of sixty cents a day. On this he fed, clothed, and housed a wife and four children. We felt no need to commiserate this man on his lot, because he said he was contented. What is there more than this? This hewer of wood was a man of sentiment. My heart went out to him.

"Some people think I am queer," he said, "because I stop work when the brown thrush sings, and because I don't let my boys go bird-nesting."

Bless him! It is good to know that the small army of "cranks" has recruits where they are most needed.

From a beech at the left of the road came a sharp "Quank, quank." Quick as a flash our Hoosier stave-splitter said: "That's a nuthatch. Most people hereabouts call it a sapsucker. It ain't."

Here was knowledge based on observation, and not on books. The bird was a white-breasted nuthatch, and the experience of a few days showed that it was known to most of the inhabitants of that Lost River Valley as a sapsucker, a name suggestive of injury to trees, and a name which has brought upon the tribe of Indiana nuthatches much undeserved persecution.

A scream, "Keo-u, keo-u," came sharply across a field which stretched away toward the river. A large hawk was making for a solitary sycamore which stood in the field's center. He was in ignominious flight with two crows in hot pursuit. The hawk pitched upon a limb and clung there, though one of his pursuers struck him full and fair. The impact swung the hawk about, but he made no attempt to retaliate. Our driver kindly stopped his horses, and we glued our glasses on the big bird. It was a red-shouldered hawk, beyond much doubt, though positive identification at the distance was impossible. The crows took a perch just above his hawkship and dropped down alternatively to give him a peck and a wing stroke, which he took with cowardly humility. The red-shouldered hawk will strike and carry off a game-cock, but the spurless crow is his master. Why it is that this bird, so well fitted by Nature for fighting, should allow himself on all occasions to be browbeaten and thrashed is something that is past finding out. The crow is literally the *bête noir* of the hawk tribe. Perhaps the reason may be, as our Indiana friend suggested, "The crow has the devil in him, and every bird and everybody is afraid of the devil."

The road wound round the base of one of the many hills. A bird flushed from the wayside, took to the top of a pole which served as a support for the rails of the crooked fence. "One of the smaller thrushes," was the first thought, but it was too early even in southern Indiana for the hermit or the veery. The bird sang softly. No bell-like thrush notes these. The singer was the fox sparrow, the largest of his tribe, but this vocal effort was not his best. Foxie seemed to feel that even though the sun were bright in the valley, there might be storm conditions yet ahead, and that the time had not yet come for the fullness of song. It has always seemed to me that the fox sparrow of the Middle West is of a richer color than his Eastern brother. When the sun strikes his back, it is positively red; then, too, there seems to be a deeper shade to the brown spots and stripes upon the breast of our Western bird. The sparrow had been gleaning the roadside in company with a lot of juncoes, otherwise and more lengthily known as slate-colored snowbirds. The juncoes flitted leisurely along in front of the wagon, flirting their tails and showing the snow-white feathers which are their distinguishing mark. I believe that the juncoes are inordinately proud of these white markings. Certain it is that never one of them takes wing without making a greater showing of the snowy feathers. There must have been five hundred of the juncoes all told, with here and there in the flock some cinnamon-crowned Canadian tree sparrows.

The thoughts of the whole flock were bent on food. Suddenly there came

from far over the field a piercing "Killy, killy, killy." The snowbirds and the sparrows were stricken with an awful fear. There was a moment of frightened crouching, and then the flock rose as one bird and dashed into the heavy undergrowth beyond the roadside fence. A shadow passed over the ground, and from above again came the repeated and suggestive scream, "Killy, killy, killy." A sparrow hawk was abroad in search of his breakfast. It is the smallest as it is the most beautiful of all the hawks. It may be that our presence at the foot of the big cottonwood-tree, on which the hawk took its perch, saved the life of one of the trembling juncoes. At any rate, the bird made no attempt to strike feathered quarry, but with a farewell scream, flew off to a point above the center of a bare field. There it hovered gracefully for a moment after the manner of the northern shrike. Then it dropped down like the passage of light upon what was doubtless "a morsel of a mouse."

We met another sparrow hawk within a hundred rods. The bird was abundant, and the people told me that it was a permanent resident in southern Indiana. I was interested in the actions of this second little hawk, because although it was only the first week in March, I believe it was hunting a nesting site. It was screaming as shrilly as did its brother first met, and all the small birds of the neighborhood were under cover. The sparrow hawk makes its home in a hole in a tree. This particular bird flew to a cottonwood that was bare of branches for a long distance from the ground. It disappeared so suddenly after reaching the tree that our curiosity was aroused, and we left the stave-splitter and his wagon and started for the cottonwood. The tree stood alone, and the hawk could not leave it without being seen. We searched with our glasses, but found no trace of the bird. Half-way up the trunk, however, we discovered a hole. My companion picked up a club and pounded on the tree. The sparrow hawk came out of the hole with a rush, and screamed "Killy," as he flew away, and I haven't the least doubt it meant it, for we probably angered him by interfering with its affairs. Several days afterward I saw the hawk go into the same hole, and had the feat been possible, I should have climbed the tree to see if I could not find a nest and eggs, and thus establish the fact that the sparrow-hawk gets him a home at a much earlier date than the scientists put it down in the books.

The chickadee, the cheerful little character in feathers beloved of Emerson and Thoreau, tells the same lisping tale and performs the same dizzy gymnastic feats in the lindens along Lost River that he does in the elms on Concord's banks. On that March morning, the chickadee showed me a new trait in his character. I never before had known the bird to be in the least pugnacious. Yet here he was having a very decided row with a nuthatch neighbor. The birds were on the same limb, and perhaps their quarrel was over some choice bit of insect food that lay hidden in the bark. Whatever the cause, they went at each other like a pair of game-cocks. A bluejay, which let me say in passing was, strangely enough, the only one I saw in southern Indiana, was looking on at the combat with an ex-

pression of pure amazement. The jay, doubtless, had had many a pitched battle of his own, but equally doubtless he had never before looked on a sight like this. Here were two models of deportment descending to the level of the prize-ring. I know that the jay, like the human observer, wanted to cry "shame," but also, like the human observer, was kept from it by the fear of being thought inconsistent. The two feathered morsels fought for fully two minutes, and then the nuthatch turned tail and fled. He took to the trunk of a big tree, and there, head downward, began searching for food as unconcernedly as though he had never forgotten for an instant what was due to his fame as a bird of correct habit. The chickadee remained on the battle-ground, and in a moment he uttered his "phœbe" note, though whether it was intended as a cock's crow of victory or not must remain a secret.

There have been one or two grave discussions as to whether birds are deficient in the sense of smell. I came to the conclusion during my southern Indiana sojourn that some birds must be deficient in both the senses of taste and smell. In Orange County is situated a group of springs famous for their healing qualities, and—dare I say it?—infamous for their taste and smell.

The Varied Thrush (*Ixoreus naevius*)

Length, about 10 inches. Its large size and dark slate-colored upper parts, black breast collar, orange brown stripe over eye and orange brown under parts mark this thrush apart from all others.

Range: Breeds on the Pacific coast from Yakutat Bay, Alaska, south to Humboldt County, California; winters from southern Alaska to northern California.

This, one of our largest and finest thrushes, is limited to the west coast, where it finds a congenial summer home in the depths of the coniferous forests, the mystery and loneliness of which seem reflected in its nature. Although the Varied Thrush somewhat suggests our robin, it is much shyer, and its habits and notes are very different, making it more nearly akin to the small olive thrushes. It nests in the conifers, and its eggs, unlike those of the robin, are heavily blotched with brown. Its song, a single long-drawn note, has been greatly praised, and seems entirely in harmony with the bird's surroundings, being weird and inspiring. In winter the Varied Thrush abandons the forest and with it many of the habits of the recluse, and visits more open districts, including ravines and even gardens, where it becomes quite familiar.

This thrush, like its smaller brethren, feeds chiefly on the ground, and its food is largely of vegetable nature, but includes a fair proportion of insects, with millepeds and snails. Unless its habits are greatly modified by the encroachment of civilization on its domain it is not likely to be much of a factor in agricultural affairs, but it will continue to make itself useful by destroying the insect enemies of forest trees.

How to Go A-Birding

By Leander S. Keyser

It has seemed to me that, instead of calling on the birds personally, it might be pleasant to tell how to conduct our visits and observations. What is the *modus operandi* of bird study?

We would suggest, first, that one should go a-birding with his heart. Nature requires undivided attention. She can brook no rival if you would win from her the choice secrets of her being. If you give her only half a mind, she will give you but half of her revelation. You must give her your confidence before she will become communicative. Dismiss your ledgers, your politics, your family wrangles, the annoyances of the schoolhouse from your thought when you go consorting with Nature. You must have a bird in the heart if you would see and appreciate the bird in the bush. It is the heart, too, that sharpens the eyes. Not all persons can become bird students because not all have the requisite enthusiasm; not all are *en rapport.*

Odd as it may appear, I would say, do not be too scientific. Not one word would I utter in disparagement of the specialist and the technical student, providing he feels certain that he can add something new and valuable to science; but for popular amateur bird study I should protest against the slaughter of feathered innocents either for identification or structural research. Do not look upon birds as mere anatomical specimens. You need not kill and dissect birds to know all that is necessary about their structure, for there are many scientific books that will tell you all about their physiology and anatomy.

Study birds as sentient creatures, as interesting individuals, with wonderful instinct and intelligence. The bird anatomist loves science more than he loves birds, or he would never want to kill them and take them apart.

If you really love the birds you will want to study them just as they are in their outdoor haunts, where they obey the impulses of their volatile nature. To do this a good opera glass is a requisite. It partly annihilates distance, and brings the bird up to your eyes. You should get one with a large eye-piece, for with a small one you will find some difficulty in focussing the binocular upon the desired object. Be sure to avoid a glass that has bright colors, which will reflect the gleam of the sun into your eyes. Dark colors are best.

A bird key or manual is indispensable for purposes of identification. Somehow, you cannot enjoy the bird's society until you know its cognomen. A bird's name may even be very inapt, and yet—well, there is something in a name, even if it seems un-Shakespearean to say so. It is a wonderful satisfaction to know that the flitting piece of diminution in yonder tree is a golden-crowned kinglet and not a warbler or a vireo. I refer to the English names now in vogue among scientific men. . . .

Do you ask when you had better begin the study of birds? Now! In bird study, as in most right pursuits, "now is the accepted time."

The Catbird (*Dumetella carolinensis*)

By Henry W. Henshaw

Length: About 9 inches. The slaty gray plumage and black cap and tail are distinctive.

Range: Breeds throughout the United States west to New Mexico, Utah, Oregon and Washington, and in southern Canada; winters from the Gulf States to Panama.

Habits and economic status: In many localities the catbird is one of the commonest birds. Tangled growths are its favorite nesting places and retreats, but berry patches and ornamental shrubbery are not disdained. Hence the bird is a familiar dooryard visitor. The bird has a fine song, unfortunately marred by occasional cat calls. With habits similar to those of the mocking bird and a song almost as varied, the catbird has never secured a similar place in popular favor. Half of its food consists of fruit, and the cultivated crops most often injured are cherries, strawberries, raspberries and blackberries. Beetles, ants, crickets and grasshoppers are the most important element of its animal food. The bird is known to attack a few pests, as cutworms, leaf beetles, clover-root curculio, and the periodical cicada, but the good it does in this way probably does not pay for the fruit it steals. The extent to which it should be protected may perhaps be left to the individual cultivator; that is, it should be made lawful to destroy catbirds that are doing manifest damage to crops.

The catbird easily establishes a twofold right to its common name. To the eye, the plumage is the blue-gray of the common maltese lounger about our homes; to the ear, its frequent querulous caterwauls that greet an intruder into its retreat suggest some of tabby's nightly lamentations.

The catbird belongs to a family of singers. The famous mocking bird and our much praised thrasher are its near of kin, while the voluble wrens are its more distant relative. It is no wonder, then, that the catbird's glory is its song.

Occasionally the catbird returns to the state before the middle of April. The majority wait until the first week in May. By the middle of May they are in full song.

> From the coverts of the thicket comes a wondrous burst of song;
> Tripping gaily, pressing, crowding, flood the liquid notes along!
> 'Tis the catbird, dear old Orpheus, with a heart as full of joy
> As our quaint old Quaker poet or his whistling bare-foot boy.

A hundred and fifty years ago the catbird received its first scientific name. It was then called a flycatcher. In 1831 it was given a new name by Swainson, an English naturalist, who must have been very much charmed by our blue-gray singer, for he not only named it Orpheus, after the famous singer of ancient Thrace, but painted the lily by calling it *Orpheus felivox,* the sweet-voiced

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CATBIRD.
$\frac{3}{5}$ Life-size.

Orpheus. The great Audubon used the name Orpheus in 1839. In 1847 the name was again changed, this time to *mimus,* the mocker, showing that the people had recognized a new quality in the song. In 1855 some prosy, Greek-minded student thought to make the name fit still more precisely, and changed it to the unmusical *galeoscoptes,* the imitator of the cat.

We regret, however, that the appropriate name Orpheus, standing for the catbird's real major character as a singer, should give way to one standing only for an occasional minor note of alarm.

As the copses come into leafage in May catbirds and thrashers fill the air with their delightful song. Now the ear may distinguish between these two famous singers. We listen to the trills and runs and vocal gymnastics.

We close our eyes and give the ears the whole enjoyment. How similar the strains! And yet there is a difference; gradually the ear makes its analysis. Repetition, yes, the notes that come from the top spray of the tree come in couplets, while those that come from the midst of the thicket do not repeat. The poet is right; the thrasher calls from his lookout:—

> "Shuck it, shuck it; sow it, sow it,
> Plough it, plough it; hoe it, hoe it."

And again:—

> "That's the wise thrush, *he sings each song twice over,*
> Lest you should think he never could recapture
> The first fine careless rapture."

By his song the thrasher classes himself with the old Italian Masters, and gains effect by repetition, while the catbird is more Wagnerian, and keeps closer to the simple aria.

The appearance of refinement that comes from the neatness and smoothness of the catbird's well groomed plumage is supported by its bearing. Close acquaintance leads to an admiration of its grace of movement, its alertness, and, above all, its self-possession. Retirement, even seclusion, is a part of its nature, but not timidity. This the picnicker in grove or park discovers with no little pleasure. He flips a bit of cake out toward a catbird and enjoys its alertness. Apparently occupied with its own concerns in the bush, it comes promptly toward the offering, nearer and nearer, not boldly, like a beggar, and yet not timidly. It does not appear to be taking chances. There is no halting, no apparent weighing of the probabilities of getting the cake and escaping with life, as with the robin. Up it comes to within a yard or so, takes the cake and retires with dignified precipitation.

The catbird knows his rights, and knowing, dares maintain. The old birds are valiant defenders of the nest, especially when the young are making that first perilous journey into the big world beyond its rim. Then they can outdo even the robin and jay in their solicitous racket.

The Phoebe (*Sayornis phoebe*)

By Edward B. Clark

Length: About 7 inches. Distinguishing marks are the dusky brown color, dark brown cap and white margined outer tail feathers.

Range: Lives mainly in the east. Breeds from about middle Canada south to northeastern New Mexico, central Texas, northern Mississippi and mountains of Georgia; winters from south of latitude 37 degrees to southern Mexico.

Few of our birds have won a more secure place in our hearts than plain little phœbe, who has no pretensions to beauty of plumage or excellence of song. For this its confiding disposition and trusting ways are responsible, and many a farmer listens for its familiar voice in early spring and welcomes it back to its accustomed haunts under the old barn. Originally building its nest on the face of cliffs, the phœbe soon forsook the wilds for man's neighborhood, and year after year apparently the same pair returns to the identical rafter in the barn, the shelter of the porch, or the same nook under the foot bridge which they have claimed for their own for many seasons. The insistent call of "phœbe-phœbe" is as familiar as the pipe of the robin.

The phœbe has further claims to the favor of man since it is one of the most useful of birds, living almost wholly on insects, among which are many noxious kinds, as May beetles, click beetles, and several species of weevils, including the boll weevil and the strawberry weevil. As if reluctant to leave their northern home, many phœbes remain with us till late fall, and individuals may be seen lingering in sheltered places in the woods long after other fly-catchers have started for the tropics.

The robin and the bluebird are called harbingers of spring. They are nothing of the kind. The phœbe is spring's real harbinger. The phœbe belongs to the family called flycatchers, and this means that it lives entirely upon a diet of winged insects. Now, winged insects are not abroad in cold weather. When they appear early spring appears with them, and at the same instant comes the phœbe. When the phœbe leaves for the South in the fall we may know that warm weather is over, for it will not leave as long as its food supply is buzzing about in the sun. So it is that the phœbe marks the coming of one season and the passing of another.

The phœbe's call is one of the plaintive sounds of nature, and were it not that in early spring every call of the wild seems to hold something of cheer, the bird's note would seem to express a settled melancholy. Later in the year, when the green is gone and the north wind is beginning to feel its strength, the sorrow in the phœbe's note smothers its sweetness. The bird is dressed like a gray nun, and with somber tones in voice and garb it may seem more than passing strange that the phœbe is so well known and so well loved of men.

The phœbe's confidence in its human neighbors has gained it a place in their

PHOEBE.

affection. Trust begets trust, and the phœbe will place its nest over the lintel of a man's door and there calmly and unafraid keep house until the brood is fledged and flown. It knows nothing of the querulousness of life. It has a sort of serene-mindedness which enables it to rise superior to the trivialities and the serious troubles of the bird world.

The dooryard phœbe sets an example in deportment to its close neighbors, the quarrelsome catbirds and the scolding robins—an example which it is needless, perhaps, to say neither of these neighbors ever shows the slightest desire to follow.

This Penelope of birds has not been allowed to go unsung of the poets. With some of the human singers the domestic virtues have a holding charm. Lowell lamented that Ovid could not have heard the phœbe's call so that he might have hung "a legendary pæan about the memory of the bird."

How Birds Find Their Way Home

By John B. Watson

Naturalists and bird-lovers generally have interested themselves from time immemorial in the question as to whether birds have a special sense which enables them to find their way home after having been forced to leave it through accident or by the caprice of the scientist or the sportsman. The fact that birds do get back from long distances is beyond question, but whether the pathway over which they return must be familiar to them in all cases is the question which the scientist is trying to solve.

The average man who is interested in the doings of birds thinks there is little question that birds at least can return from long distances through a wholly unknown territory, and that consequently they must possess a special homing sense. The scientist, however, with his usual distaste for calling upon unknown and mysterious instincts, is not willing to admit that there is any need at present for supposing that birds have such a faculty. He would explain all the wonderful returns of birds by maintaining that they in all save exceptional cases were not carried out of a territory which was familiar to them. To explain the exceptional cases he holds that since the number of birds returning from very great distances is so small compared with the large number of birds released which do not return, the law of chance will account for the cases of successful return.

The term "distant orientation" is one now in common use to express the fact that birds, especially homing pigeons, do return to the nest or cote from long distances. The use of the term does not compel us to take sides on the question as to whether the homeward route is known or unknown to the birds.

What birds are known to find the way home from long distances—leaving aside for a moment the question of how any of them accomplish it? Several birds are able to accomplish the feat. The homing pigeon has been supposed to possess

this ability in the highest degree. No other species of bird has been studied with the same degree of care as has this one. It has been employed in war, in sport, and in many scientific experiments. The reason why this bird has been so largely used as a homer is due to the fact that it dwells happily under conditions of domestication. After having been reared in a certain spot, the pigeon seems desirous always of returning to the same spot as quickly as possible. If it has constructed a nest and has eggs or young, it seems still more anxious to return. Probably many other birds would make just as fit subjects for experiment if we could get them to live under conditions similar to those of the pigeon. All migrating birds, such as the robin, wild goose, bluebird, etc., certainly must possess the homing instinct, yet it is hard to make experiments upon them for the reason that such birds, if kept in captivity for a long time, have little or no desire to return to the scene of captivity after having been taken to a distance and put at liberty. The enormous man-o'-war bird has been used probably for centuries for carrying messages between certain oceanic tribes. From my knowledge of this bird I venture to guess that experiments in the future will show that it can eclipse all others in its homing powers. This bird is extremely strong, has an enormous wing surface, flies very high, and can thus take advantage of the higher and steadier air currents, and in addition can go for days without food. I have little doubt of this bird's ability to get back to its nest in the Bahamas from Greenland or from any other point, provided the pathway which the bird had to take were partly over the ocean and partly over the land, thus affording food on the one hand and sleeping-places on the other. Notwithstanding the large number of migrating birds and the amount of time naturalists have spent in studying their habits, our knowledge of the causes of migration and the way in which the birds accomplish it is strangely inexact. Even the multitude of observations which the United States government has made upon the migration of birds gives us but little insight into the hidden way in which distant orientation is effected.

Let us look for a moment a little more closely into the training and the homing records of the homing pigeon. How necessary is training to make a good flier? From how great a distance can he return over a land pathway? and from how great a distance over a water pathway? Most men who engage in the sport—and what we know of the homing pigeon comes largely from the sporting man—select their stock very carefully; that is, they take the young birds which come from parents that have made good long-distance records. Only a few of the birds even of this selected stock turn out to be long-distance fliers. The young birds are carefully reared, and when strong enough to fly they are carried to distances of one-half, one, two, three, four, thirty-five, fifty, seventy-five, one hundred miles successively and released. The distance is gradually increased until finally the bird seems strong enough and experienced enough to try the prize distance of one thousand miles. The more often a bird flies between any two points the more quickly can he make the trip, other conditions being equal. The enormous rapidity of fifty to ninety miles per hour which we so often hear of in the homing

pigeons is for distances which can be covered in a few hours. As soon as we take distances which cannot be covered in one day, the average rate of speed is very low—about two and a half days being necessary to cover a distance of six hundred and fifty miles. The rate of flight even for short distances depends upon a number of things, such as the brightness of the day, favorableness of winds and weather, and the health and hardiness of the bird. When the maximum distance of one thousand miles is called for, the average rate of flight is extremely low: from nine to fourteen days is a splendid record. It is not uncommon for the birds to take fifteen, sixteen, and twenty days for such a journey. They sometimes return from such a distance after months or even years. Only a few of the birds released one thousand miles from home ever get back, but the percentage of "returns" cannot be definitely stated. Pigeon-fanciers are so much interested in the few which do return that they rarely say much about the birds which fail.

Few records exist which are at all trustworthy of the distance from which birds can return over an ocean pathway. There is one authentic case on record where one pigeon was carried from Havre (France) to the Scilly Isles and there released. This bird found its way back. The distance is approximately two hundred and fifty miles.

How do we know that the pathway over which the bird returns is unknown? This is the crux of the whole matter. The homing pigeon is extremely keen-sighted. The very methods by which we train him to "home" make it possible for him to become familiar with an enormous territory. Simply because he cannot see his cote or even the town in which the cote is situated is no proof that he is not returning by the aid of visual landmarks. If the bird is five hundred miles from his home, and there is a mountain range between him and his home, it would serve the same purpose for him to perceive this mountain range and direct his flight toward it as if he could directly perceive his nest and young. With the methods of training homing pigeons which we have at present we can never be sure that the territory through which the bird directs his flight is ever wholly unknown to him. Furthermore, until we have more accurate records both of the number of birds which return and of those which do not, we can never be sure that the exceptional bird which does get home has not accomplished it by accidentally flying into a familiar territory.

It was this thought which led me to make a study of distant orientation in two species of tropical birds which are found upon Bird Key—a little deserted mound of sand about three hundred yards in diameter lying in the middle of the Gulf of Mexico. This key is a member of the Dry Tortugas group (sixty-five miles due west from Key West). The birds in question are the noddy and sooty terns, belonging to the gull family, and not differing much in general size from the homing pigeon. In the fall and winter months they are to be found distributed generally over the tropical waters of the Caribbean Sea. On the first day of May, almost to the day, about twenty-five to thirty thousand of them migrate to Bird Key, and remain there for the nesting season. Bird Key is thus the northern limit

of migration. A study of their habits shows that they do not go out over the water in their search for food for distances greater than fifteen to eighteen miles, consequently any distance north of Bird Key greater than this would take the birds into an unknown territory. Here if anything, then, we have material at hand for carrying out experiments upon distant orientation. We can send birds out over an ocean pathway or we can send them inland. My experiments have not been carried very far at the present time, but they have already progressed far enough to give some really astonishing results.

After the egg is laid, the male and female birds take turns at brooding, and one bird is always to be found at the nest. At this time the birds are bold and can be captured easily. After being captured they are marked individually with large streaks of different colored oil paints. These markings can be so varied that each bird sent out has a different marking. The nest is then tagged, showing the time of the bird's removal. A record is kept of the weather and the number of days it takes the bird to return. I began my experiments by sending them out in pairs to distances respectively of twenty, forty-five, sixty-six, and one hundred and eight miles, different birds being used in each test. In all cases the birds returned from these trips in good condition. The average rate of flight could not be determined accurately by reason of the fact that the birds stopped to feed upon the schools of small minnows which jump out over the surface of the water. These distances were all to the east and to the south of Bird Key. I then determined, since my time was short, to give the birds a severe trial by sending them almost due north. On the early morning of June 13, 1907, five birds were put into a large insect cage and given into the charge of Dr. H. E. Jordan, who was returning to New York. He carried the birds via the government tug to Key West. There food was purchased for them (small minnows). At three in the morning of Friday, the 14th, Doctor Jordan boarded the Mallory boat *Denver,* which was leaving Key West at that time for New York. On board the boat the birds (which were carried in the hold of the vessel) were both watered and fed. On Sunday, the 16th, at nine in the morning, the birds were released at latitude 35°, longitude 75° 10′ (approximately twelve miles east of Cape Hatteras). The wind was fair and fresh for several days after the birds were released. I kept their nests under constant observation, but had almost given up hope of their return, when, to my surprise, on June 21st, at half past eight in the morning, I found two of the marked birds upon their respective nests. The nest mates of the other three birds had taken new nest companions; consequently had the marked birds returned they would have been unable to obtain possession of the nest. A few days later I by chance observed one of the marked birds attempting to alight at its own nest. It was immediately driven away. Three of the five birds are thus known to have returned. I have little doubt that the other two birds also returned. The distance in a straight line from Hatteras to Bird Key is approximately eight hundred and fifty miles. The alongshore route is about one thousand and eighty-one miles. The latter is the route in all probability chosen by the birds, since by studying their

habits I found that they do not fly at night, nor swim nor rest upon the water, and yet are dependent upon the ocean for their food and water. This distance was covered in a little less than six days.

For comparison's sake I give here a record of the homing pigeon Hobo on his trip from Houston, Texas, to Milwaukee, a distance of one thousand miles. I am indebted to Mr. A. E. Wiedering, sometime race secretary of the Milwaukee district of National Federated Homing Pigeon Fanciers, for the record of this bird. He was one of Mr. Wiedering's prize birds.

Hobo was released at Houston on July 24th at noon, and reached Milwaukee on August 3d at a quarter past eight in the morning, taking nine days, twenty hours and fifteen minutes for the trip (very close to the world's record). The one other bird released with Hobo which made good time was Little Hen. Her record was fourteen days, one hour and nineteen minutes. These birds had been flying for five years, in large part over the territory lying between Houston and Milwaukee.

There can be no doubt that my birds were carried into a wholly unknown territory, and since they returned, the question as to how they did it is the one which it is hoped future experiment will answer. The generally accepted theory up to the present time has been that the birds return by means of visual landmarks, but here there are no familiar visual landmarks. It seems to me that the "visual landmark" theory of distant orientation is forever exploded by these tests. What we shall put in place of it is difficult to decide. Birds may have an extremely sensitive temperature sense, or a very fine sense of touch, which may aid them in detecting warm or cold, wet or dry, violent or gentle air currents, but such a supposition is doubly precarious for the reason that we do not at present know anything about the perfection of their sense of touch and of temperature; and, secondly, granted that they have such senses finely enough developed, are the air currents constant enough and distinctive enough to afford a basis for getting back from any point of the compass?

Shall we, then, assume a special homing sense and forthwith call our problem solved? This might satisfy the dilettant, but not the scientist. If the facts demand it, he is willing to assume a special sense, but the moment the assumption is made it becomes his duty to locate the sense organ responsible for it and to tell how the organ works, and what its relation is to the other sense organs. That such a special sense, if it exists, is intimately related to vision in some way is shown by the fact that birds, as a rule, do not fly at night and that blind birds cannot find the way home. This may be due to the fact that light is necessary for any kind of general bodily activity. Blind birds or birds kept in a photographic dark room are at first almost incapable of taking care of themselves. They behave much like birds whose cerebral hemispheres (the two largest portions of the brain) have been removed. The fact that birds are helpless in the dark is no proof that there is no special homing sense. All that we can say at present is that light would be as necessary for the operation of such a supposed sense as it is for

the other senses. Popular interest in distant orientation would be more or less satisfied if a special homing sense were to be brought in to explain the facts in the case, but the real work on the problem would then have only seriously begun for the scientist. It is probably too early yet to say that the case is made out for a special homing sense. The evidence, however, is too strong for us to deny that some sense other than vision is employed by birds in finding the way home.

—Harper's Magazine.

The Crow (*Corvus brachyrhynchos brachyrhynchos*)

By Edward B. Clark

"Buccaneer with blackest sails
Steering home by compass true."

Length: 19 inches.

Range: Breeds throughout the United States and most of Canada; winters generally in the United States.

Habits and economic status: The general habits of the crow are universally known. Its ability to commit such misdeeds as pulling corn and stealing eggs and fruit and to get away unscathed is little short of marvelous. Much of the crow's success in life is due to co-operation, and the social instinct of the species has its highest expression in the winter roosts, which are sometimes frequented by hundreds of thousands of crows. From these roosts daily flights of many miles are made in search of food. Injury to sprouting corn is the most frequent complaint against this species, but by coating the seed grain with coal tar most of this damage may be prevented. Losses of poultry and eggs may be averted by proper housing and the judicious use of wire netting. The insect food of the crow includes wireworms, cutworms, white grubs and grasshoppers, and during outbreaks of these insects the crow renders good service. The bird is also an efficient scavenger. But chiefly because of its destruction of beneficial wild birds and their eggs the crow must be classed as a criminal, and a reduction in its numbers in localities where it is seriously destructive is justifiable.

Through the four centuries since the white man entered his domain the black crow of America has waited vainly for some poet to sing his praise. The crow cannot sing for himself, though his conceit of everything but voice passes that of all the other fowls of the air. The crow, once upon a time, as the fable tells us, learned a lesson from the fox in this voice matter, and the music lesson, resulting in the loss of a choice morsel of cheese, has left its mark on the crow's memory until this hour.

The common crow of America holds every whit of interest, of trick, of manner and of character that is held by his first cousin, the raven, and yet the raven holds larger place in prose and poetry than all the other birds combined,

while the crow, *Corvus Americanus*, can count his tributes of prose and poetry upon his claws.

"There were three crows sat on a tree," with its few following lines descriptive of the bird's fondness for battening on horse flesh, represents about all that the muse has done for Corvus. They are lasting lines, however, and give promise of as long life as that of the bird which, if it equals the span of the raven's years, will carry Corvus to the days of our grandchildren's grandchildren.

"Black as a crow" has become a proverb of comparison. The man who ventures to say that the crow is not black probably will be set down at once as one who knows not the truth, but here is the statement flatly: The crow is not black. His plumage when the sun strikes it full and fair shines with tints of bronze and blue and purple. Light is needed to bring out brightness in all things, and the crow is not to be held responsible because the first man who saw him and dubbed him black met him on a dark day.

The crow has a price on his head. He has been called a thief since the day that his ancestor came out of the ark. The crow's character, like his feathers, is nothing as black as man has seen fit to paint it. When the farmer reaches for his gun because Corvus is at work in the field, supposedly pulling up the newly planted corn, the chances are more than even that the bird is doing nothing of the kind, but that he is attempting to save the corn by killing the cutworms.

It is true that the crow robs the nests of other birds; it is true, also, that on occasion he steals grain, but men who have made a thorough study of his food habits are convinced that the good that he does balances the evil.

When nature finds that the crow has multiplied to an extent that makes of him a menace, disease strikes the flock and the scale of life and death is readjusted. The Mother has no need of man's aid in her work, but man will continue to force it upon her until that day when his own loss presses home a lesson and he learns that wisdom is not all his own.

At Morn and at Eve

By Minnie Noel Long

Ringing and jubilant, rising and falling,
Sound the rich notes as the robins are calling,
Each to his mate, telling over the story
Of happiness, peace, and of Eden's first glory.

Hauntingly sweet, as the twilight is falling,
Sad Vesper-sparrow is mournfully calling,
Telling with infinite longing, the story
Of the loved Eden and all its lost glory.

The Ruby-Throated Hummingbird (*Archilochus colubris*)

By I. N. Mitchell

Length: About 3¾ inches. Needs no description, as it is the only hummer living in the eastern states.

Range: Breeds from southeastern Saskatchewan and central Quebec south to Gulf Coast, west to North Dakota, Nebraska, Kansas and central Texas; winters from middle Florida and Louisiana through southern Mexico and Central America to Panama.

Of the five hundred or more species of this strictly American family, the eastern United States is favored by the presence of only one, the ruby-throat, nor is this species as common as might be desired. Compared to the abundance of its kind in the far west it is rare indeed. As if afraid of being too prodigal of her gifts, Nature has denied the hummingbird song, and the harsh squeaks of these tiny sprites are far better adapted to making war than love. Truth is, the hummer has a sharp temper and not only engages in warfare with its own kind, but attacks any bird, however large, that ventures to dispute its territorial rights. These are not small, for in its own estimation it is literally "Lord of all it surveys." The male is an inconstant swain, and no sooner is the nest made—and in the making he takes no part—and the eggs laid than he departs, leaving the joys and cares of housekeeping to his erstwhile mate. While the nectar of flowers is eaten in large quantities a creature so vivacious as the hummer could hardly sustain life on diet so thin, and the bird adds to its bill of fare a liberal supply of minute insects and spiders of various sorts.

The ruby-throat introduces us to a very large family of very small birds found only in America, and mainly in tropical America. A few of the five hundred species stray beyond the tropics and appear in the United States.

No collection of birds is more gorgeous than a group of these brilliantly colored sprites. They make up to America for the absence of the pheasants and birds of paradise of the far East.

Our own dainty ruby-throat, the only hummer to venture east of Texas and the Rocky Mountains, is very modest in its coloring when compared with many of its Brazilian relatives; yet being the only one we have, we think it very fine indeed, and exhaust our supply of beauty adjectives whenever favored with a view of the flaming ruby gorget of the male or the tiny nest of his dainty mate. Fortunate is he who finds this smallest of all bird dwellings, and more so if he gets a peep at the two white, bean-sized eggs or the newly hatched young no larger than common bumblebees.

It is not the infrequency of the nest, but its small size and artful concealment, that makes it hard to find. It is saddled closely upon a limb and appears to be a part of it; it is neatly shingled over with lichens or bits of bark, thus completing its concealment.

RUBY-THROATED HUMMINGBIRD.
About Life-size.

It is said that humming birds, at the nesting season, can not resist cotton; that the building instinct compels them to take it to the nest, thereby offering to the watcher a means of trailing the bird to the nesting site. The scheme has not worked out in the writer's experience, but may be true nevertheless, and is worth trying by any who wish to study the skillful little builder at her work.

Does she use cobwebs to fasten the bits of lichen to her cup of down? Blanchan, Bendire and others say that she does. This only increases our admiration for her skill. The world has ever paid high and willing tribute to successful workers in gossamer threads.

At times there is a somber side to the gossamer story, for the master-weaver of the web sometimes secures the ruby-throat itself in his filmy toils.

"Sure enough," writes Bradford Torrey, "there hung the bird in a spiders' web attached to a rosebush, while the owner of the web, a big, yellow-and-brown, pot-bellied rascal, was turning its victim over and over, winding the web about it. Wings and legs were already fast, so all the bird could do was to cry for help. And help had come. The man at once killed the spider, and then, little by little, for it was an operation of no small delicacy, unwound the mesh in which the bird was entangled. The lovely creature lay still in his open hand till it had recovered its breath, and then flew away."

Watch our jeweled bit of birddom as he visits the clumps of columbine in June or the flaming salvia in September. He darts out of nowhere, heralded only by the whir of invisible wings. He poises, dips to a flower tube, runs his long bill to its depths, hangs fixed in space while he rifles nectary of its sweets and picks up tiny insects with his thread-like tongue. Now he backs away, rises and hovers as though choosing his course, and is off so abruptly as to leave only a visual memory of a ruby flash and a greenish streak.

We watch the aeroplane as it glides and dips and turns and soars and exclaim at the wonderful achievement of man in his conquest of the air. We watch the hummer as it visits the honeysuckle and realize how crude are man's attempts when measured against the master of the air.

Our hummers have a reputation for fearlessness and courage. They are much given to scrapping among themselves, and attack without hesitation any bird, regardless of size, that dares intrude upon the confines of their nest.

At dusk we often see the large gray hawk-moths making their early rounds of the flower beds. They dart and hover, and probe the flower tubes as deftly as the hummers themselves, but these six-legged cousins of the butterflies prefer the night; our ruby-throat is a lover of the sunshine.

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

The Passenger Pigeon (*Ectopistes migratorius*)

By W. Leon Dawson

Length: 15 to 17½ inches.

Range: Eastern North America from Hudson Bay southward, and west to the Great Plains; rare thence to Nevada and Washington. Now extinct.

No more marvelous tales have been handed down to us from remote past than those which our own fathers tell, and solemnly asseverate, concerning the former abundance of the Wild Pigeon during its migration and in its breeding haunts. During their passage the sun was darkened and the moon refused to give her light. The beating of their wings was like the voice of thunder, and their steady oncoming like the continuous roar of Niagara. Where they roosted great branches, and even trees two feet in diameter, were broken down beneath their weight, and where they nested a hundred square miles of timber groaned with the weight of their nests or lay buried in ordure.

At the beginning of the last century the species enjoyed a general distribution throughout the northern portions of the Eastern States, and was to be found scatteringly to the Pacific coast. The birds were, however, rather irregular in their habits, and the center of abundance within historic times was in the North Central States. Although very abundant in Ohio, they are best known from Kentucky, through the accounts of Wilson and Audubon, and in Michigan, where the birds had their last known stronghold, and where the last considerable flight was observed in 1888. In Kentucky they bred and occasionally wintered in such numbers that Wilson once computed a single flight at upwards of two billions. Since the pigeons appeared to the people of the day absolutely countless their destruction was carried forward by wholesale methods, and upon colossal scale. Men gathered them with nets and knocked them down with poles, or felled trees to secure the fat squabs. At Pentwater, Michigan, people lined the cliffs and beat them down with sticks and whips as they arrived spent with the passage of the lake, and they wielded their weapons until the ground was heaped with countless thousands slain. Powder and shot were deemed inadequate for the quest, although my grandfather in southern Michigan, in the late forties, once killed fifty-nine pigeons with a shotgun at a single discharge. The next day his boys, a lusty brood, and zealous for their father's honor, turned out and scoured the neighborhood until they found one more dead bird, and added it to the collection.

In order to show a little more clearly the immense destruction of the Passenger Pigeon in a single year, and at one roost only, I quote the following extract from an interesting article on the habits, methods of capture, and nesting of the Wild Pigeon, with an account of the Michigan nesting of 1878, by Prof. H. B. Roney in the Chicago Field:

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PASSENGER PIGEON.
(Ectopistes migratorius Linn).
½ Life-size.

"The nesting area, situated near Petoskey, covered something like 100,000 acres of land, and included not less than 150,000 acres within its limits, being in length about forty miles by three to ten in width. The number of dead birds sent by rail was estimated at 12,500 daily, or 1,500,000 for the summer, besides 80,352 live birds; an equal number was sent by water. We have," says the writer, "adding the thousands of dead and wounded ones not secured, and the myriads of squabs left dead in the nest, at the lowest possible estimate, a grand total of 1,000,000,000 pigeons sacrificed to Mammon during the nesting of 1878."

Even if the last estimate were a hundred times too large (as I believe it to be) it is evident that such wholesale slaughter could not go on forever. The extraordinary flights suddenly ceased during the eighties. Since that time what has become of the Passenger Pigeon? has been the puzzling question. There are those who believe that great roosts are now maintained in the northwest, beyond the reach of communication. Others fancy they may have abandoned the migrating habit and taken to staying in Central and South America. Others still believe that they have rather abandoned the gregarious habit, and are to be found only in isolated pairs or small groups well distributed throughout the north. It is known that the birds do breed by single pairs, to some extent at least; but it is altogether probable that the Passenger Pigeons are gone irretrievably after the manner of the Bison—lost in the maw of human greed.

The California Jay (*Aphelocoma californica*)

Length: 12 inches. Distinguished from other jays within its range by its decidedly whitish underparts and brown patch on the back.

Range: Resident in California, north to southern Washington, and south to southern Lower California.

Habits and economic status: This jay has the same general traits of character as the eastern blue jay. He is the same noisy, rollicking fellow, and occupies a corresponding position in bird society. Robbing the nests of smaller birds is a favorite pastime, and he is a persistent spy upon domestic fowls and well knows the meaning of the cackle of a hen. Not only does he steal eggs, but he kills young chicks. The insect food of this jay constitutes about one-tenth of its annual sustenance. The inclusion of grasshoppers and caterpillars makes this part of the bird's food in its favor. But the remainder of its animal diet includes altogether too large a proportion of beneficial birds and their eggs, and in this respect it appears to be worse than its eastern relative, the blue jay. While its vegetable food is composed largely of mast, at times its liking for cultivated fruit and grain makes it a most unwelcome visitor to the orchard and farm. In conclusion, it may be said that over much of its range this jay is too abundant for the best interests of agriculture and horticulture.

Bird Day

By Samuel Hamilton

Under no condition should the observance of Bird Day be omitted because of its vitalizing effect on the work of the school. The routine work of the school is likely to become dull and monotonous, and special Bird Day programs, like oases in the desert, are full of life and interest to the pupils. On such days birds in cages, vases of goldfish, pet squirrels, pictures of birds and animals, and flowers of all kinds, should be brought into the school. Let the pupils examine them, admire them, enjoy them, talk about them, and, if necessary, write about them. If notice is given in time, the pupils will be able to relate interesting incidents and stories about birds and animals, and the wide-awake, nature-loving teacher will have a supply of bird and animal lore that will arouse interest, contribute to the pleasure of the pupils, and displace the dull routine with the most vitalizing and helpful instruction. In this respect Bird Day offers a fine opportunity for bringing the spirit and the life of the great out-of-doors into the schoolroom to charm, inspire and instruct; and the work of every school demands that this opportunity be seized and used to advantage.

The proper observance of such days is essential to the life and character of the child. He learns to observe nature, to study nature, to love nature, to enter into its spirit, to appreciate its beauty and its charm, to cultivate its companionship, to enrich his own life with its treasures, and to add to his own pleasure and enjoyment. The pupil thus interested in birds will erect bird-boxes, arrange bird-baths and bird-restaurants, and in every way encourage the feathered beauties to live and nest near his home.

Last year a bronzed grackle (crow blackbird) frequented a certain yard. His rich, bronze satin-like plumage was a never-ending study and delight. He was a proud, self-respecting bird, and walked around over the lawn with dignity and majesty. He literally walked like the crow, for this richly dressed gentleman never hops, as is the habit of the robin and other birds which frequent our lawns. He was always very clean and tidy, and yet he was never seen to bathe, although other birds used the bath. He was intelligent, and would carry large pieces of bread thrown out for food to the bath and dip them in the water before proceeding to feast upon them.

The two bird-boxes made by the boys in the manual training departments were erected in the writer's back yard. Inside of a week two house wrens were building a nest in one of the boxes. Where they came from was a mystery, for wrens had not been observed there during the past two years. One evening one of the wrens was noticed trying to get a twig with a prong on it into the box through the door. It turned the twig in many ways, but still one end protruded. Another, and then another twig shared the same fate, and one was almost tempted to help the patient little toiler by cutting off the protruding ends. Then

it occurred to the fascinated observer that possibly the wren was trying to barricade the door of its home against the intrusion of sparrows and other birds; for, while the tiny owner could dart in and out with ease, the opening was now too small for larger birds to enter.

But this conclusion may not be correct, and whether the so-called barricading of the door was accidental or for a purpose is still an open question, and worthy of study. If the boys of Allegheny county during the coming year will erect 500 boxes for wrens, and observe what the birds do in building their nests in them, some light may be thrown on this subject. If only a few of the boxes have twigs protruding from the door, and partly closing it, the obstruction is probably accidental; but if a very large percentage of the boxes have the opening partly closed with the end of protruding twigs, and similar conditions are not found in doors of boxes occupied by larger birds, the partly closed door was probably intended to protect the home of the little tenant from his larger enemies.

In making this study the boys should observe that if the opening to the bird-box is small, slightly less than an inch in diameter, the necessity for partly closing it will not exist. Who will help to solve this interesting problem and show that this busy little builder, who is so active and so interested in his work, and yet finds time to pour out his soul in song, as an exultant expression of the pleasure he finds in life and work and in the building of the home he is making for his mate and his little ones—who will help to show whether the partial closing of the door to his home in the bird-box to which reference has been made is a matter of accident, or the result of an instinct against enemies that amounted almost to a purpose?

While a young man the writer was very fond of hunting, and no sport was enjoyed with keener delight than that of shooting partridges on the wing. But one season a nest was found back of the orchard with more than a dozen eggs in it. It was intensely interesting to walk past this nest at a distance and notice the patience with which the mother presided and waited for the day when the nest could be vacated. At last it was empty, and the patience turned into industry and care for young birds that at first could run, but could not fly. During the summer the flock was seen from time to time, as it rose and flew to safer quarters. In the fall the birds were plump and fat, ready for the hunter's skill and for his table. One morning early in December, after a light snow had fallen, the hunter thought of the partridges. He took a gun and went out to look for them. Presently their tracks were found in the back part of the corn field. After following the tracks for some distance, the bevy was seen under some bushes in a fence corner. The birds were grouped in a small semi-circle, with their heads outward. A single shot would bag the whole bevy, but it seemed like cold-blooded murder for the hunter to bombard the family that he had come to regard as his personal neighbors. He would give them the chance of the sportsman by tossing a stone into the bushes, and then try to pick off one or

two birds as they darted away. But this would break up the family life he had learned to admire and respect, and make him no less guilty of taking a mean advantage of a harmless neighbor that could not protect itself even in flight. The stone dropped at his feet, the gun returned to his shoulder, and he went to his home, never to shoot a bird from that day to this. This may seem like idle sentiment, but a season's study of that happy little family made it impossible for the hunter to kill one of its members.

Bird Day deserves a place on every school program, not only because of its vitalizing effect upon the school work, and because of its far-reaching effect upon the life and character of the pupil, but it also deserves a place because a study of birds is vital in conserving the bird life of a neighborhood. In the densely settled sections of this country the birds are rapidly disappearing. Some species are gone and others will follow if we do not extend to them our care and protection. They must have secluded places to nest, feed and bathe, and our pupils can do much to aid in this important work. The practice of the Boy Scouts in feeding birds during the cold months of the year is a most commendable one, and one that could be followed by the boys of every community, whether they are members of that organization or not. A concerted effort needs to be made toward creating a desire for the care and protection of bird life through the observance of Bird Day in the schools.

Birds Destroy Cotton-Boll Weevil

Of all the birds known as natural enemies of the cotton-boll weevil, orioles, swallows and nighthawks are the most important, according to the Biological Survey. Insect specialists of the bureau have made extensive investigations of the subject, which have developed that there are sixty kinds of birds that eat the weevil.

The nighthawk, or bullbat, catches the weevils on the wing in considerable numbers, especially during their migration. Unfortunately, the nighthawk is shot for sport or eaten for food in some sections of the South, but its value for food is infinitesimal as compared with the services it renders the cotton grower and other agriculturists, and every effort should be made to spread broadcast a knowledge of its usefulness as a weevil destroyer, with a view to its complete protection. The orioles, barn swallow, rough-wing swallow, bank swallow, cliff swallow and the martin are all persistent enemies of the boll weevil.

From the standpoint of the farmer and the cotton grower, these swallows are among the most useful birds. Especially designed by nature to capture insects in midair, their powers of flight and endurance are unexcelled, and in their own field they have no competitors. Their peculiar value to the cotton grower consists in the fact that, like the nighthawk, they capture boll weevils when flying over the fields, which no other birds do. Fly catchers snap up the

weevils near trees and shrubbery. Wrens hunt them out when concealed under bark or rubbish. Blackbirds catch them on the ground, as do the killdeer, titlark, meadow lark and others, while orioles hunt for them on the bolls. But it is the peculiar function of swallows to catch the weevils as they are making long flights, leaving the cotton fields in search of hiding places in which to winter or entering them to continue their work of devastation.

Martins are not at all fastidious about the outward appearance of their dwellings and a large gourd suspended from the top of a dead tree or a pole, or any kind of weather-tight box or barrel, however rude, when divided into compartments answers their needs as well as the most costly and ornamental house. The rooms should be about 4½ inches wide, 7 inches high and 8 inches deep, with entrance about 3 inches in diameter. They will not build close to the ground, having a wholesome fear of cats and other invaders. Hence the houses should be elevated from the ground not less than 15 feet. Drinking water is essential for martins and all other swallows and the presence of a small pond, lake or river greatly increases the chances for colonization.

Early Spring

By Henry D. Thoreau

How much more habitable a few birds make the fields! At the end of the winter, when the fields are bare and there is nothing to relieve the monotony of withered vegetation, our life seems reduced to its lowest terms. But let a bluebird come and warble over them, and what a change! The note of the first bluebird in the air answers to the purling rill of melted snow beneath. It is evidently soft and soothing and, as surely as the thermometer, indicates a higher temperature. It is the accent of the south wind, its vernacular. It is modulated by the south wind.

The song sparrow is more sprightly, mingling its notes with the rustling of the brush along the water sides, but it is at the same time more terrene than the bluebird. The first woodpecker (flicker) comes screaming into the empty house and throws open doors and windows wide, calling out each of them to let the neighbors know of its return. . . . When the blackbird gets to a *conqueree* he seems to be dreaming of the sprays that are to be and on which he will perch. The robin does not come singing, but utters a somewhat anxious or inquisitive *peep* at first. The song sparrow is immediately most at home of those I have named.

Each new year is a surprise to us. We find that we had virtually forgotten the note of each bird, and when we hear it again it is remembered like a dream, reminding us of a previous state of existence. How happens it that the associations it awakens are always pleasing, never saddening, reminiscences of our sanest hours? The voice of nature is always encouraging.

The Kingbird (*Tyrannus tyrannus*)

By John James Audubon

Length: About 8½ inches. The white lower surface and white-tipped tail distinguish this flycatcher.

Range: Breeds throughout the United States (except the southwestern part) and southern Canada; winters from Mexico to South America.

Habits and economic status: The kingbird is a pronounced enemy of hawks and crows, which it vigorously attacks at every opportunity, thereby affording efficient protection to near-by poultry yards and young chickens at large. It loves the open country and is especially fond of orchards and trees about farm buildings. No less than 85 per cent of its food consists of insects, mostly of a harmful nature. It eats the common rose chafer or rose bug, and more remarkable still, it devours blister beetles freely. The bird has been accused of eating honeybees to an injurious extent, but there is little ground for the accusation, as appears from the fact that examination of 634 stomachs showed only 61 bees in 22 stomachs. Of these 51 were useless drones. On the other hand, it devours robber flies, which catch and destroy honeybees. Grasshoppers and crickets, with a few bugs and some cutworms, and a few other insects, make up the rest of the animal food. The vegetable food consists of fruit and a few seeds. The kingbird deserves full protection.

The Tyrant Flycatcher, or as it is commonly named, the Field Martin or Kingbird, is one of the most interesting visitors to the United States, where it is to be found during spring and summer.

The kingbird arrives in Louisiana, from the south, about the middle of March. Many of them remain until the middle of September, but the greater number proceed gradually northward, and are dispersed over every portion of the United States. For a few days after its arrival the kingbird seems fatigued and doleful, and remains perfectly silent. But no sooner has it recovered its naturally lively spirits than its sharp, tremulous cry is heard over the fields and along the skirts of our woods. It seldom enters the forests, but is fond of orchards, large fields of clover, the neighborhood of rivers, and gardens close to houses.

The choice of a nesting place being settled, the birds procure small dry twigs from the ground, and rising to a horizontal branch, arrange them as the foundation of their cherished home. Flakes of cotton, wool, or tow, and other substances of a similar nature, are then placed in thick and regular layers, giving great bulk and consistence to the fabric, which is finally lined with fibrous roots and horsehair. The female then deposits her eggs, which are from four to six in number, broadly ovate, reddish white or blush color, irregularly spotted with brown.

No sooner has incubation commenced than the male evinces the most daring courage, and gallantly drives off every intruder. Perched on a twig not far from his beloved mate, his snow-white breast expands; the feathers of his head are raised and spread; the bright orange spot is laid open to the rays of the sun; he stands firm on his feet, and his vigilant eye glances over the wide field of vision around him. Should he spy a crow, a vulture, a martin, or an eagle in the neighborhood or at a distance, he spreads his wings to the air, and pressing toward the dangerous foe, approaches him, and commences his attack with fury. He mounts above the enemy, sounds the charge, and repeatedly plunging upon the very back of his more powerful antagonist, essays to secure a hold. In this manner, harassing his less active foe with continued blows of his bill, he follows him probably for a mile, when, satisfied that he has done his duty, he gives his wings their usual quivering motion and returns exulting and elated to his nest, trilling his notes all the while.

Few hawks will venture to approach the farmyard while the kingbird is near. Even the cat in a great measure remains at home; and, should she appear, the little warrior, fearless as the boldest eagle, plunges toward her with such rapid and violent motions, and so perplexes her with attempts to peck on all sides, that grimalkin, ashamed of herself, returns discomfited to the house.

The many eggs which he saves from the plundering crow, the many chickens that are reared under his protection, safe from the clutches of the prowling hawks, the vast number of insects which he devours, are benefits conferred by him, more than sufficient to balance the few raspberries and figs which he eats, and should insure for him the favor and protection of man.

The kingbird is often seen passing on the wing over a field of clover, diving down to the very blossoms, reascending in graceful undulations, snapping his bill, and securing various sorts of insects, now and then varying his mode of chase in curious zigzag lines, shooting to the right and left, up and down, as if the object which he is pursuing were maneuvering for the purpose of eluding him.

About the month of August this species becomes comparatively mute, and resorts to the old abandoned fields and meadows. There, perched on a fence or a tall mullein stalk, he glances his eye in various directions, watching the passing insects, after which he darts with a more direct motion than in spring. Having secured one, he returns to the same or another stalk, beats the insect, and then swallows it. He frequently flies high over the large rivers and lakes, sailing and dashing about in pursuit of insects. Again, gliding down toward the water, he drinks in the manner of various species of swallow. When the weather is very warm he plunges repeatedly into the water, alights after each plunge on the low branch of a tree close by, shakes off the water and plumes himself, when perceiving some individuals of his tribe passing high overhead he ascends to overtake them, and bidding adieu to the country, proceeds toward the South.

Bird Neighbors

By Lyda May Briggs

Now is the very best time of year for their human friends to express some return interest in the bird neighbors which have been doing so much for mankind.

A feast of cracked nuts, suet, sunflower seed, fruits and grains spread daily at some community center easily accessible to all the bird folks, but protected from their enemies, would be especially appreciated by the feathered residents, now that food is scarce and hard to obtain, even by the most industrious workers. Some of the friendliest of the little folks will come to a window-sill festal board where you may observe their pleasure in your treat.

Without rude intrusion or rough investigation to see if they are comfortable in whatever homes they have found, you might provide some neighborhood shelters where all the feathered habitants of woods and fields would be safe and welcome.

And then proceed to get acquainted with the little folks themselves. If you care about such things you will find out in "Who Is Who, in Bird Land," that many of your unassuming little neighbors have a pedigree of which any one might be proud.

Highest in point of development is the *sialia sialis,* one of the earliest comers of the most exclusive of the blue-bloods. Their ancestors have never been accused of stealing fruits or preying upon crops of any kind. These bluebirds subsist entirely upon a diet of wild fruits and insect enemies of man.

You may have been a little suspicious about the night hawks who go abroad at hours when honest folks should be in bed. They are great sportsmen and such expert aeronauts that no winged insect is safe from them. They contribute greatly to the healthfulness of the section where they live by disposing in a most effective and hygienic manner of several species of mosquitoes, among them the anopheles, the transmitter of malaria.

Mrs. American Barn Owl is quite content with her homely name, satisfying her artistic nature with a harmonious costume of buff, overlaid with grayish, spotted with white and dotted with black. She is the radical leader of all progressive movements among her sisters, refuses to make a nest and goes out at night unaccompanied. She maintains her independent economic status in the civic plan of the bird republic by ridding the community of meadow-mice, rats, beetles, shrews, gophers and other undesirable settlers in the fields.

Not anything you read or hear about these folks will be half so interesting or convincing as what you may find out for yourself by respectful observation. Especially, if you will look for good in both permanent and migrating neighbors.

Even the common crows, the blackest of them all, who have had their pictures

put in the rogues' gallery more than once, are great co-operators. They are shrewd and crafty folk, not easily outwitted and interesting because of their individualistic tendencies and variable temperaments. It is true they do not like to follow plans nor pick up corn laid down for them by mere man, preferring to get at the root and kernel of the material themselves, but all of this is not for pure mischief or love of stealing, of which these birds have so often been accused and for which they have been condemned to death. They go after and capture the wireworms, cutworms, white grubs, grasshoppers and other parasitic hangers on which render no useful service in return for the food they steal and destroy.

The Wren Family

By Harriet Ives

The Wrens are a family of three;
Marsh Wren, and House Wren, Winter Wren—see?
They're wee and winsome, all dressed in brown,
And daintier birds are seldom found.

The Winter Wren is extremely shy,
Its voice a strong melodious cry.
From those who know, I've often heard
'Tis quite as small as a humming-bird.

The Marsh Wren rests where the wet swamps gleam,
Her music low as a bubbling stream,
A nest like cocoanut round it weaves,
Yet hole at the top for entrance leaves.

More friendly yet is the small House Wren,
Who builds near homes or abodes of men.
Busy and hustling, cheery and strong,
It sings to its brood a rare sweet song.

These home-loving birds say unto you
That work with love is happiness true.
This much I will tell you, much more then
You may very well learn from the wee brown wren.

The Common Tern (*Sterna hirundo*)

By Gerard Alan Abbott

Length: 13 to 16 inches.

Range: Greater part of the northern hemisphere and Africa. In North America, chiefly east of the Plains.

The pearl-gray breast and belly distinguish the adult of this tern from its relatives. The outer web of the outer tail feathers is darker than the inner web; the reverse is true of Forster's Tern, its nearest ally.

Range: Breeds from Great Slave Lake, central Keewatin and southern Quebec, south to southwestern Saskatchewan, northern North Dakota, southern Wisconsin, northern Ohio and North Carolina; winters from Florida to Brazil.

Our common tern is, alas, common no longer. The Atlantic coast is peculiarly fitted to be the home of the terns by reason of the extensive shallows and the great number of sandy islands on which terns and gulls used to breed in absolute safety. At the bidding of fashion, however, thousands of these beautiful creatures were slaughtered till the sand was red with their blood, and island colonies that used to number thousands were exterminated. No excuse serves to palliate the crime of the wholesale murder of these graceful sea swallows, as they are aptly termed, which used to make our shores so attractive by their presence. But the tide seems to have turned, partly at least. The Government has set aside islands as breeding resorts and places of refuge, and, through the activity of Audubon societies and of individual workers, a certain measure of safety seems now assured to these persecuted birds. It may even prove possible, by the bird sanctuary plan, to increase their numbers again and make them a familiar sight along our deserted shores. Could the sentiment of the women of the United States be united for their protection, all doubt as to the future of these beautiful creatures would be removed, but so long as the arbiter of Fashion decrees feathers on hats so long will the eternal vigilance of their friends be needed to assure the safety of the small remnant of this species and its kindred.

The Common Tern, often called Wilson's tern, sea swallow, red shank, summer gull and mackerel, is often confused with arctic tern and Forster's tern. This beautiful little sea swallow was first reported by Wilson, one of our earliest ornithologists. Formerly abundant, this bird is now threatened with extinction unless protected from plumage and egg hunters. These terns perform extensive migrations, passing the winter months on the coasts of South America, often far below the equator. In summer they may be found breeding on the islands of the Great Lakes in company with herring gulls and caspian terns.

The birds are as agile on the wing as our barn swallow, and capture many flying insects. They also feed upon marine life, but refrain from playing the role of scavenger, leaving the gulls to devour any decaying animal matter.

Hundreds of terns may be found nesting together, depositing their three

eggs in a carelessly constructed nest of dry grass on the pebbly beach or rocky projections just above high water mark. Quite a commotion prevails when the naturalist intrudes upon their breeding grounds; the birds rise like a cloud and fly about in majestic circles, screaming persistently until the trespasser leaves.

Early in June three eggs are laid, varying greatly in shape and color, the background is light green, buffy or drab, spotted and blotched with various shades of brown and lilac. The young are able to care for themselves as soon as hatched.

White-Throated Sparrow (*Zonotrichia albicollis*)

Length: About 6¾ inches. The white throat and yellow before the eye are its distinguishing colors.

Range: Over most of eastern North America. Breeds in much of Canada south to southern Montana, central Minnesota, central Wisconsin, and in the mountains of northern Pennsylvania, New York and Massachusetts; winters south of the Ohio.

This is one of the bird lovers' favorites, as well it may be. Its beautifully variegated plumage, its jaunty ways, its familiarity and its sweet and plaintive whistle, all combine to commend the bird to our interest. In the fall it comes to us in large flocks associated with other species, especially juncos and various other sparrows. The "peabody bird" is singularly prodigal of its sweet song, and the young white-throats begin to try their voices in the fall as if practicing for the more exacting demands of spring. When a number join in the fall chorus the result is singularly sweet and inspiring. Many a camper in the north woods, as he lies in his blanket under the stars, pays tribute to the sweet voices of this songster, as it is borne on the midnight air to his ears from some leafy retreat.

The food habits of this sparrow give it a place among the farmers' friends. It is a great destroyer of weed seed, and is especially fond of those of ragweed and bindweed. In the cotton belt, where many white-throats winter, it includes among its insect food the boll weevil.

Spring

By Elizabeth E. Elliott

King Winter's reign is broken,
  We've naught from him to fear;
By nature's many tokens,
  We know that spring is here.
The snowflakes all departing,
  Like fairy folk unseen,
Leave snowdrops, pale, upstarting,
  Earth carpeted with green.

The crocus droop their petals,
The tulips nod their heads,
The pink arbutus nestles
In soft pine-needle beds.
The bluebird gay is lilting,
Songs from the apple-tree,
His brown mate's heart he's melting
With spring-time melody.

The bursting roadside flowers,
The cowslips by the brook,
The grape-vines in their bowers,
The violet in its nook,
The willow's fuzzy catkins,
The brook that prattles clear,
All earth's fragrant, growing things,
Proclaim that spring is here.

The Least Bittern (*Ixobrychus exilis*)

By Gerard Alan Abbott

Length: 12 to 14 inches.

Range: Temperate North America north to British Provinces, and south to the West Indies and Brazil.

This beautiful bird is of a retiring disposition, though not averse to living in a noisy environment, provided it is unmolested in its home among the tall grasses and rushes of marshes. Several authors speak of the least bittern as a "silent bird," although the writer has frequently seen and heard it utter a peculiar "squeak," especially if suddenly approached. It loves to lurk in the reedy borders of boggy ponds and marshy lakesides where gallinules and rails abound. An interesting habit of this bird is that of perching on an upright reed where, with its neck extended, it remains motionless, closely resembling in color and form a bunch of dead reeds, in order to escape detection. While pushing my boat among the rushes during a rainstorm I once saw a least bittern roosting in a clump of vegetation, with its head drawn between its shoulders, oblivious to its surroundings. I gently touched it when "Rock, rock:" it seemed to call, and in its sudden efforts to escape lost its equilibrium and fell into the water.

Its nest of grasses, etc., is placed among reeds or in a small bush, three to six bluish white eggs are laid, and often in a straight row. This awkward bird's food consists of slugs, frogs, tadpoles, beetles and their kin.

The Chipping Sparrow (*Spizella passerina*)

Length: About 5¼ inches. Distinguished by the chestnut crown, black line through eye, and black bill.

Range: Breeds throughout the United States, south to Nicaragua, and north to southern Canada; winters in the southern United States and southward.

Habits and economic status: The chipping sparrow is very friendly and domestic, and often builds its nest in gardens and orchards or in the shrubbery close to dwellings. Its gentle and confiding ways endear it to all bird lovers. It is one of the most insectivorous of all the sparrows. Its diet consists of about 42 per cent of insects and spiders and 58 per cent of vegetable matter. The animal food consists largely of caterpillars, of which it feeds a great many to its young. Besides these, it eats beetles, including many weevils, of which one stomach contained 30. It also eats ants, wasps, and bugs. Among the latter are plant lice and black olive scales. The vegetable food is practically all weed seed. A nest with four young of this species was watched at different hours on four days. In the seven hours of observation 119 feedings were noted, or an average of 17 feedings per hour, or 4¼ feedings per hour to each nestling. This would give for a day of 14 hours at least 238 insects eaten by the brood.

Birds

By Ralph Waldo Emerson

Darlings of children and of bard,
Perfect kinds by vice unmarred,
All of worth and beauty set,
Gems in Nature's cabinet;
These the fables she esteems,
Realty most like to dreams.
Welcome back, you little nations,
Far traveled in the south plantations;
Bring your music and rhythmic flight,
Your colors for our eyes' delight;
Freely nestle in our roof,
Weave your chamber weatherproof;
And your enchanting manners bring,
And your autumnal gathering.
Exchange in conclave general
Greetings kind to each and all,
Conscious each of duty done,
And unstained as the sun.

The Songsters of the Skokie

By Edward B. Clark

North of the city of Chicago, and a mile inland from the shore of Lake Michigan, lie the stretches of the Skokie swamp. This unreclaimed marshland is of great extent, and in places it has a heavy fringe of scrub-oak, thick brush and tangled brier. The bluffs of the lake shore rise vertically to the height of one hundred feet. A table-land extends for some distance westward, and then slopes gently down to the edge of the sluggish stream which stretches its length along through the heart of the swamp. Still farther west the land is low and well cultivated. Standing upon the table-land at the east one looks far off to a heavy line of timber which skirts the Desplaines river and marks the limit of vision. By a sort of an optical illusion the woods of the Desplaines and the adjacent land seem to stand much higher than the country which intervenes. The whole effect of the view is that of a valley, and I know of no other place in Illinois where such an adequate idea may be formed of the character of the landscapes which have made some of the Eastern valleys famous.

There is a wealth of bird life in the region of the Skokie. The diversified nature of the country makes possible the finding of many varieties of the feathered kind. I have tramped the Skokie at all seasons and always with profit. The roads that lead from the lake westward through swamp and meadow are in the springtime musical with the singing of birds. One particular road I have in mind because of the many friends that I have made along its pleasant way. It is rarely used, and at its beginning in the town of Highland Park it is but little more than a tree-shadowed lane. The orioles build in the swaying elm-boughs that droop above the fences, and many robins place their mud houses in the maples along the beginning of the way.

A tragedy is perhaps not an auspicious thing with which to begin a day's outing. The bird-student, however, must harden himself to endure the sight of the tragic, or else it were better to put the field-glass in its case and forego the study. There is perhaps something of the savage still left in us, and I am free to confess that tragedies are not altogether uninteresting things. I am likewise free to confess that I have a sort of a "sneaking admiration" for the hawk family. They are freeboters and murderers, but there is something in the lives of these birds that is typical of the wildness of the woods and the freedom of the fields. There is a charm about their very boldness, and that landscape lacks something which does not have occasionally the living interest which is added by a hawk beating the covers to startle its cowering quarry into flight.

One May morning, before the sun was showing above the bluff, I started westward along this favorite Skokie road. Just beyond the elms and the maples at the road's beginning lie some open cultivated fields with a barn and outbuild-

ings at their western border. One of the great barns was the home of scores of domestic pigeons, which fed the greater part of the day in the fields. I afterward learned that the birds played havoc with the newly planted seeds. A detached flock of the pigeons was foraging in the first field not more than twenty yards from the fence. I stood leaning on the topmost rail and watched the birds for a few minutes. They paid no attention to me, but suddenly with a whir they rose and went in headlong flight toward the barn. A shadow swept by me. I looked up, and not thirty feet above a hawk was flying by like an arrow. I was to witness a bit of falconry. The pursuer gained on the pigeons, and just before they had reached the farm-house the hawk struck the last scurrying bird and bore it to earth. There is generally a shotgun at hand for use when a hawk dares to approach a farm house. I fully expected to hear a report, and to have the privilege, if it may be counted one, of looking at a dead bird of prey, but no report came. I afterward found out that no one but myself saw the tragedy, and that had the act been seen it is doubtful if there would have been any shotgun interference. A farm hand said that the pigeons had pulled up all the peas and had eaten much more than their share of the planted corn, and that a few pigeons less would be no loss. A few days later the farmer took a hand at pigeon killing himself, and saved his crops by sacrificing his birds. I never knew what species of hawk it was that had a pigeon breakfast so early that morning. It was one of the smaller kinds, and with that knowledge I was forced to be content.

In the Skokie marsh there are two distinct sloughs. Locally this word is pronounced "slews." In the middle of each there is a thread of open water, which in the early spring is a stream of some magnitude. The sloughs are the homes of many red-winged blackbirds. In the last two or three years, however, the blackbirds have decreased greatly in numbers, though I am at a loss to find a reason. The lush grasses and the flags offer as secure a retreat as before, and civilization has as yet encroached but little upon the red-wing's retreat. This blackbird occasionally gives his friends a surprise. I found his nest one spring day in a damp spot within forty feet of a house in the town of Lake Forest. The Skokie, where his brothers dwelt, was a mile away. A much-traveled street passed within twenty feet of his home, and children played daily under the trees almost within touch of the nest.

A red-wing took to a treetop as I crossed the bridge over the first slough on that morning's trip. I was still thinking of the hawk and pigeon, and was paying but little heed to the swamp resident, notwithstanding the fact that he was saying, "Look-at-me, look-at-me, look-at-me," as he swung to and fro on his slender perch. He soon forced my attention, however, by taking off in full flight after a crow. The red-wing literally rode on the crow's back. I have seen the kingbird perform this feat, but did not know that the red-wing had the spirit for such deeds. It is a mooted question whether or not the life of the crow has in it more evil than good. I was once a stanch champion of the crow's cause, but I have been wavering of late in my allegiance. To my mind the most convincing evidence against

him is the unanimity with which all the smaller birds hate him. He must be a nest robber, or else why the consternation whenever Corvus appears in a nesting neighborhood?

I left the blackbird behind before he had given his parting peck to the crow. There is a high, dry bit of meadow-land just beyond the swamp, and there I found Dickcissel. Dick has a yellow shirt-front and wears a black button in its center. Some one, I have forgotten who, found much of dignity in Dick, and claimed that unquestionably his right name was Richard Cecil. Richard, however, does not take kindly to the name, and from mullen-stalk, or tree, all day long in the May month he proclaims his proper name in a strident tone, "Dickcissel, Dickcissel, Dickcissel." The books call Dick the black-throated bunting. Formerly the bird was common on the Atlantic coast; now it is rarely found east of the Alleghany Mountains. As far as my own observations go, I cannot say that I have found it an abundant bird in the Middle West. Dick is essentially a bird of the fields, and yet he surprised me one day by appearing in a tree in a Chicago street, and there giving voice to his name as insistently as though his native meadow stretches lay below.

Two dilapidated barns stand near an old orchard across the road from Dickcissel's field. Many years ago the apple trees shaded a small house, but that is gone, and a season or two more at the most will see the last of the barns. Then what will become of the swallows who have made the old gray buildings their summer abiding place for years? Trespassers must be few in the old tumble-down structures, for the barn swallows place their nests upon the rafters within easy reach of the ground and seem utterly fearless of danger. Ordinarily, the barn swallows put their mud and feathered homes far up under the ridge-pole, but in these old barns, where they have dwelt so many years in peace, the birds rear their young not more than six feet above Mother Earth. On the occasion of my first visit to this barn swallow resort, I was accompanied by a big Newfoundland dog. I had seen the swallows pass in and out the open doorway, and I jumped the fence to get a glimpse of their housekeeping. The dog, Jack, jumped with me. No sooner had Jack landed on the other side than the swallows swooped down on him. They grazed his head in passing, and I was ready to declare that they tweaked his ears. To me they paid no attention, but directed their wrath at the poor four-footed creature, who could not have injured them or their young had he tried. Jack did not like the treatment he received. It seemed to cow him. Here was an enemy with which he could not combat on anything like equal terms. Finally he put his tail between his legs, jumped the fence again, and slunk down the road, the swallows darting down on him again and again during his retreat. They finally left him, and Jack took to his haunches some fifty yards away and awaited my return. I made several journeys with Jack along that same country road before the season waned, but never again could I get him close to the scene of the swallows' attack.

It was in a meadow near the weather-beaten barns that a bird-loving friend

of mine found an almost pure white bobolink, happily mated and as full of joyous song as though Nature had not mixed her colors in painting him. Robert was white, barring a few black streaks on his breast. I made his acquaintance a little later in the season, and found that he and his wife had a field all to themselves. Across the road there were scores of bobolinks, but it was evident that they had made an outcast of their brother because of his peculiar plumage. It has been said that albino birds are not able to secure mates. If that be the rule, this bobolink's case was an exception, for he had a wife who seemed to find nothing wrong with the attire of her lord. I have often wished that I could have seen the albino at the period when the bobolinks doff their summer garb and don the sober clothing of the fall. I wondered if after the molting Bob's new crop of feathers might not have been normal. The speculation ran still further, and I wondered if the coming of the next spring's season might not find him in the regulation suit of yellow, white and black.

There is an old stumpy pasture at the end of the Skokie road. With the friend who had found the albino bobolink I was passing this pasture one day, when a sparrow alarm-note quickly and sharply uttered attracted our attention. My companion discovered the source of the alarm in a moment. A little gray bird was perched on the top of a stump, and uttering the most dismal cries that I think I ever heard come from a bird throat. Soon another bird joined it, and for every cry that the first one uttered the other went it one better, or, as I thought it, one worse. Both birds took flight and came close to us, flying just above our heads and keeping up their lamenting, for their tone was sorrow-stricken if anything. When our surprise at the birds' actions had abated a little we had sense enough to realize that we were dealing with strangers. The birds were unquestionably sparrows, but of a kind neither of us had met before. As they hovered over our heads they showed soft gray breasts with a single jet-black spot in the center. The sides of the crown were chestnut, and the tail feathers were tipped with white. While flying both birds spread their tails like fans, and formed a striking picture. Finally they seemed to feel that they had made much ado about nothing, and one of them took to a fence-post close at hand. The other soon dropped to the ground at the foot of a stump within ten feet of us, and there fed two young birds, which apparently had just emerged from the shell. The birds were lark sparrows, and to my mind they are the handsomest of the sparrow tribe.

The day following the discovery of the nest I took some friends to see the nestlings and their pretty parents. The mother bird was brooding the young when we reached the place. I stood directly over her, one foot on either side of the nest. She did not move, but she looked up at me with an eye bright with fear. I sank to my knees. Mother love held her chained to the nest. I put my hand down, and with my forefinger gently stroked her back. She stood it for some seconds, and then scuttled away, seeking to lead me from her treasure by pretending to be crippled. I felt guilty at bringing so much terror to that little

homestead. I bird I think soon gained heart, for as we reached the road we saw her carrying food to the young. Eight days from the afternoon that the young were hatched they were out of the nest. Their growth it struck me was unprecedentedly rapid.

I found the lark sparrows breeding in the same pasture the following year, and it was not until then that I heard the male's full song. On this occasion my companion was a musician, and one acquainted with the whole range of bird notes. She pronounced the song to be superior in quality to that of any other of the sparrow tribe. There was a treat that spring afternoon for eye and ear. There was a blending of color and song which it does not often fall to man's lot to enjoy. In the heart of a small tree, as yet destitute of foliage, sat a flaming scarlet tanager, while forming a frame about him were seven gorgeous goldfinches. Below the tree the lark sparrow sang its sweet solo.

I have found the American bittern along the Skokie stretches during the nesting-season. That the bird rears its young there I have no doubt. The race of the bittern in some places, I fear, is nearly run. The jacksnipe shooters who plod the marshes in the late spring shoot down ruthlessly every bittern that rises lazily in front of them. The bird is harmless and adds something of life to the landscape, but it must needs fall victim to that love of killing simply for killing's sake which seems to dwell in the hearts of many so-called sportsmen.

One spring morning I saw a bittern pitch in the swamp grasses where a bit of the woodland had encroached upon the marsh. I marked the spot where the bird had lighted and walking toward it flushed it from its retreat. It flapped its way lazily over the marsh to a pasture which was dotted with stumps. There was absolutely no cover there for the bird. I went to the place and searched the ground thoroughly through a pair of strong glasses, but never a feather did I see. I knew that I could not have failed to see the bittern had it flown away, for barring the stumps, the place was as open as a lawn. Finally a small stump came into the field of my glass. Stump? No; it was not a stump at all, but the bittern itself posing as a bit of dead wood to deceive the intruder. The bird was not more than fifteen yards away. Its body was perpendicular, its neck and head were drawn well down into the shoulders, and the beak was pointing upward, forming a prolongation of the line of the back. The bird in appearance was the counterpart of every one of a dozen of the smaller stumps within a stone's toss of where I stood. I sat down for the sole purpose of testing the bittern's patience. I watched it steadily for twenty minutes, and during all that time it moved not so much as a muscle. It seemed, moreover, as if it had control of its feathers, for the passing breeze which stirred the swamp grass beyond failed to ruffle its plumage. Finally I became half ashamed of keeping the bird under such a strain, and rising, I walked toward it slowly. I was allowed to come within a few feet before it moved. Then, after taking four comically dignified steps, the bittern flew far down the stream which makes its way through the heart of the swamp-land.

Birds That Hunt

By Henri Coupin

The bird of prey called the Pygargus sea eagle waits till his victim comes within range. Audubon has picturesquely sketched him. "Behold," says he, "just at the bank of a great river the eagle, perched upright on the last branch of the highest tree. His eye, glittering with a somber fire, sweeps over a vast stretch. He listens, and his subtle ear is open to every distant sound. From time to time he casts a glance downward to the earth for fear lest even the light step of the fawn may escape him. His female is perched on the opposite bank, and if all remains tranquil and silent she admonishes him, by a cry, still to be patient. At the well-known signal the male partly opens his immense wings, bends his body slightly downward, and answers her with another cry like a burst of maniac laughter. Then he resumes his upright position and again all is silent. Ducks of all sorts, teals, scoters, and others pass before him in swift flocks and descend the river, but the eagle does not deign to notice them; they are not worthy of his attention. Suddenly like the hoarse note of a clarion the voice of the swan resounds, still distant, but coming nearer. A piercing cry comes across the river from the female, not less active, not less alert than her mate. He shakes all his body violently, and by several shakes of his head, aided by the action of the muscles of the skin, he in an instant arranges his plumage. Now the white voyager is in sight. His long snowy neck is stretched forward; his eyes are on the alert, vigilant as those of his enemies. His great wings seem to support the weight of his body with difficulty, though they beat the air incessantly. He seems so wearied in his movements that his legs are even stretched out under his tail to aid his flight. At the instant when the swan is about to pass the somber pair the male, fully prepared for the chase, darts down uttering a formidable cry. The swan hears it, and it sounds more terrible to his ears than the report of the murderous gun. This is the moment to appreciate the power which the eagle puts forth. He darts through the air like a falling star, and swift as light swoops on his trembling victim, who in the agony of despair tries by various evolutions to escape from the embrace of his cruel talons. He pretends death, makes feints, and would even plunge into the current. But the eagle prevents him; he has known too long that by this stratagem his prey could escape, and he forces him to remain on the wing by trying to strike him from beneath."

The beautiful bird that is known to all as the bee eater proceeds like those hunters who, on the shores of the Mediterranean, watch for game on its return from Africa. He posts himself near a nest of wasps or bees and snaps up these little stiletto bearers as they come out or return home.

The Golden Pheasant (*Thaumalea picta*)

By Gerard Alan Abbott

Length: Twenty-eight inches.

This beautiful bird is a native of China, as are most of the pheasants. It is being bred with partial success in various places in the United States; for years it has graced city parks. The introduction of these birds into Washington and Oregon has been successful. Great flocks of them are seen in the fields and at the edges of the woods. They have been protected by law until they are so numerous that a limited open season for hunting is now allowed.

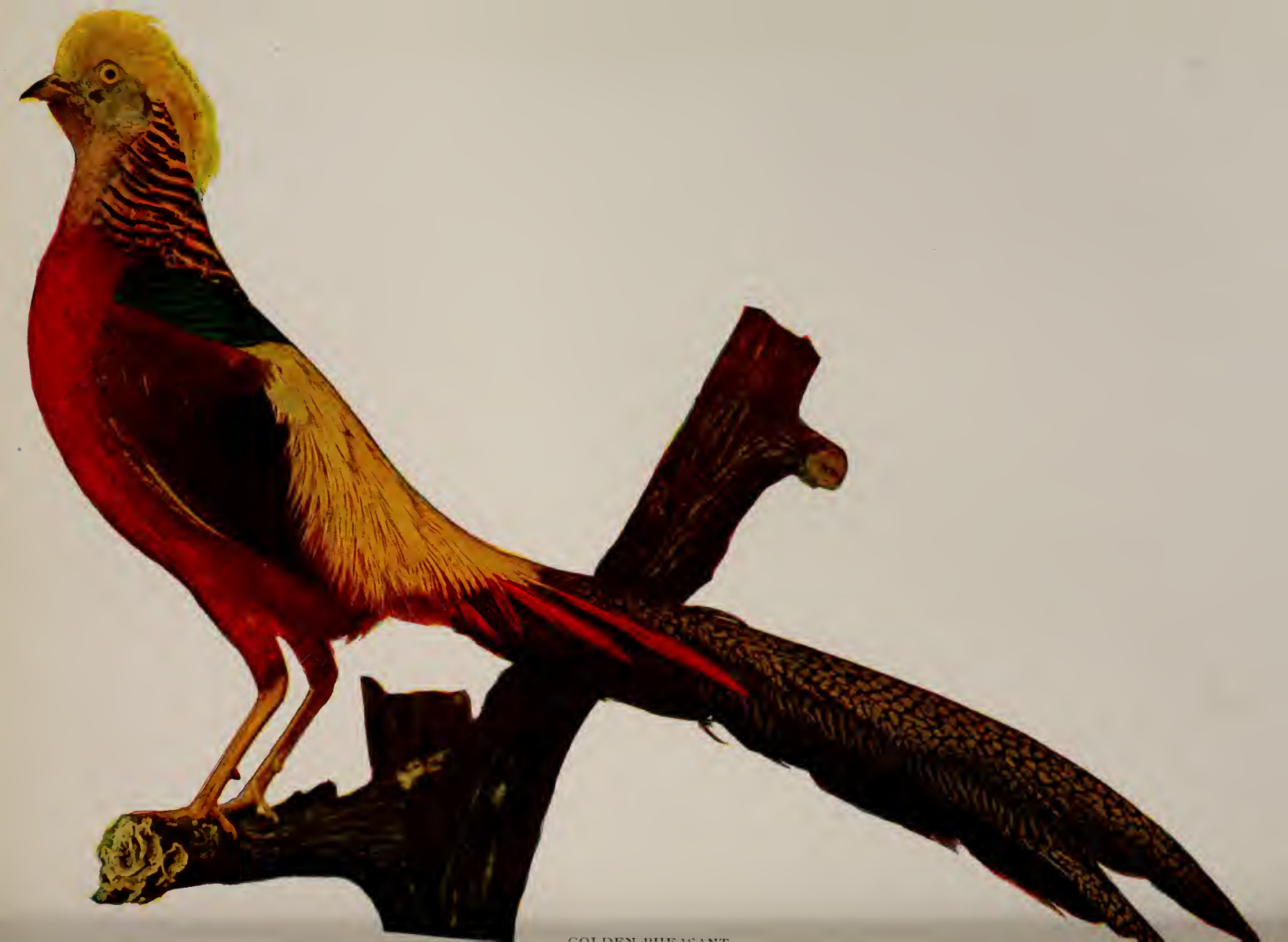
In various other states these fine birds have been introduced with varying success. In Illinois, Missouri and various places in New York and the New England States enterprising citizens have placed colonies of them. If they are kept within an enclosure they become used to the locality, they seem to remain and increase in number, if not, they often scatter and are killed by hunters who mistake them for tropical birds.

The flesh, as in the case of other pheasants, is fine eating, but the beauty is such that one is reluctant to kill them for food. The bright artificial fish baits are usually made from the tips of the bright colored feathers.

In view of the strong and hardy nature of this bird, there should be little difficulty in introducing it in any well-wooded farming region east of the Mississippi, and south of the fortieth parallel.

This pheasant, often called Chinese Pheasant, has rich, varied colors. The crest is amber-colored, the rump is golden yellow, and the under parts are scarlet.

The value of pheasants to the agriculturist is scarcely sufficiently appreciated; the birds destroy enormous numbers of injurious insects—upwards of twelve hundred wireworms have been taken out of the crop of a pheasant; if this number were consumed at a single meal, the total destroyed must be almost incredible. There is no doubt that insects are preferred to grain, one pheasant shot at the close of the shooting season had in its crop seven hundred twenty-six wireworms, one acorn, one snail, nine berries and three grains of wheat. Mr. F. Bond states that he took out of the crop of a pheasant four hundred and forty grubs of the crane fly or daddy longlegs; these larvæ are exceedingly destructive to the roots of the grass on lawns and pastures. As another instance of their insectivorous character may be mentioned the complaint of Waterton that they had extirpated the grasshoppers from Walton Park. They also occasionally eat molluscous animals. Mr. John Bishop, of Llandovery, records that he killed a pheasant on the coast of Islay whose crop was filled with the colored snails abounding on the bents or grass stems on the coast.



GOLDEN PHEASANT

The Thrush

By Mary Burt Messer

The briers and leaves and the underbrush
Are in league with the Thrush.
They are full of subtle and quick suspicion;
And when I am trying to find admission
Into the thicket, they reach to stay me,
And all the vines and the thorns delay me;
And when I am creeping along, along,
Softly, lest I should break the song,
The vines will flutter
With words of fear,
And the leaves will utter,
"Anear—anear!"
And the Thrush will stop,
And suddenly drop
Into the dusk of the underbrush.
Then I will listen, and in the hush
The ear perceives
A step in the leaves;
And I look below
In the shady room,
And his brown's aglow
In the leafy gloom;
And I catch his eye,
So warily shy,
And then—we are almost friends—and then
There are the chattering leaves again,
Foolish, timorous leaves that cry,
"Have a care for the folk that pry!"

Wisconsin Woodpeckers' Convention

By Mrs. Angie Kumlien Main

A few weeks before this convention was held the following notice appeared in the noted dailies, weeklies, and monthlies; it was seen in "The Daily Telegraph and Telephone Poles," in "The Dead Limb Weekly," and in "The Old Hollow *please?* Certainly. *You de have a queer tongue. It looks like a barbed spear.*

N. B. A convention of all the woodpeckers of Wisconsin will be held in the "Big Tamarack Swamp" the last day of March. Each species must send a delegate if they wish to be recognized as a woodpecker of Wisconsin. Each delegate will be expected to come by wing.

The purpose of this convention is to determine just who's who in woodpeckerdom of Wisconsin. (*Signed*) *The Bird Student.*

These notices caused a great stir among the woodpecker folk. Each and every woodpecker was anxious to represent his family, but after a great deal of discussion the members were finally chosen and on the morning of the convention all the delegates were in their respective places.

A great blue Heron who lived in the swamp and who was noted for his letter writing in the sand was asked to act as secretary for this fine assembly. The following is an exact account of the conversation between the Bird Student and the different delegates.

The Bird Student took the president's chair, which was an old swamp oak stump and began the day's proceedings.

In answering the roll will you please alight on this fallen log while you answer my questions.

Mr. Redhead? Present. *You could have attended this meeting had it been held in midwinter, could you not?* Yes, your honor. My family have greatly modified their habits during the past twenty-five years. Now a great many of us remain here all winter. We are well satisfied with Wisconsin and dislike to leave even in the cold weather for the south. *Do the boys with firearms bother your family very much?* Yes, a great deal. Our conspicuous markings render us a sure mark for the gunners. *That is too bad, for I understand that you are a useful bird. I have heard that you have a very curious tongue. May I see it please?* Certainly. *You do have a queer tongue. It looks like a barbed spear.* It is a great aid in excavating my home and in procuring my food. *You are good to look at and are useful, but before I leave you, will you tell me whether a certain* statement is true that I've heard about you? *Is it so, then—that you sometimes rob other birds' nests?* Why, I—I never dreamed you would ask me that. I, well yes, I'm ashamed to say I have been guilty, but not very often. *I'm sorry to hear it. It is an unexcusable, disgraceful habit. Seeing that this is your only fault I will excuse you for past offenses and hope for a better report. That is all. You may go now.* Yes, your honor.

Mr. Downey? Here I am. *Well, you are not very large. Just how large are you?* Six inches. *About the size of an English sparrow. You do not resemble the English Sparrow in any other way, do you?* I hope not. *What can you say for the usefulness of your family?* We are constantly ridding the trees of the coddling moth, wood boring beetles, their larvae, and several bark beetles and weevils. I pierce the bark when I have to, then with my barbed tongue I drag forth my prey. *Are there many of your people?* Yes, we have the distinction of being the smallest woodpecker known, but we make up in numbers what we lack in size. *That is well spoken. You remain here the year round, do you not?* Yes, we do. *Before excusing you I want to give you a little advice. I want you to mend your manners in the treatment of your little wife. The reports of your treatment of her are not to your credit.* I'm not always abusive, though. Only in the winter time. Then when it is cold I want to live alone. *I know that there is not room in the nest for two, but you need not beat her. You are excused.*

Mr. Hairy Woodpecker? Y-Yes, please, I'm here. *You need not be afraid of me. I won't harm you. Where do you belong in this great woodpecker family?* Please, your honor, I'm first cousin to the Downy. I'm larger and have no black bars on my white outer tail feathers. That is about all the difference. Our habits and food are much the same. *You do not seem to be so much in evidence as the Downy.* No, your honor, there are not so many of us and we prefer the woods to the orchards and the open. *I should like to ask you, did Northern Hairy come down with you?* No. We did our best to find one, but we haven't heard nor seen one for over fifteen years. Before 1875 they used to visit the tamarack swamps every winter. They are larger than we and their white is a more hoary white. *Thank you. If you ever see one tell him that I am desirous of his acquaintance. That will do.*

Mr. Yellow-bellied Sapsucker? P-p-present. *What makes you so out of breath?* Excuse me, but I just came back from my southern home today. This is the time I nearly always return. *How long will you stay with us?* Until the last of September. Possibly until the middle of October. *I notice that you have more red on you than the woodpeckers that have answered so far.* Yes, besides my crown I have a red chin and throat. *You have yellow also.* Yes, that is why I'm named the Yellow-bellied Sapsucker. *Do you really suck the sap from all the holes that you put in the trees?* Oh my, no! A great many people think that I am constantly sucking sap. Of course I drink some, but my main purpose is to get the sap to flowing; the sap attracts insects. The insects get into the holes to collect the sap, then I go around and collect the insects. *I understand that you kill a great many trees by girdling them with sap holes.* Pardon me, but that happens very seldom. *Please remember this, Mr. Yellow-bellied Sapsucker, not to completely girdle the tree so as to shut off the sap that passes through the cambium layer, and do not touch the very young trees.*

Mr. Arctic Three-toed Woodpecker? Present. *I'm glad that you are here because you are not well known all over the state. What have you to say of your*

people? If you please, sir, we are common in the pine regions of the state during the late fall and winter. Most of my people have left for the far north. I'm going as soon as this meeting is over. Before the heavy timber was all cut off we used to go as far south as Fort Atkinson, Jefferson County. We feed largely upon wood-boring insects and their larvæ. We have three toes instead of four, two in front and one behind. Nearly all woodpeckers have some red on them but we do not. We are black above and white below. The top of our heads have a square yellow patch. Our two outer tail feathers are white. We have a narrow white patch under our eyes. We are nine and one-half inchs long. We nest in hollow trees and our eggs are white. *That is very good. Can you give me any information concerning the American Three-toed?* Just a little. They very rarely visit Wisconsin and then only in the winter. They are readily distinguished from my family by the conspicuous white bars on their backs; otherwise they look very much like us. *Thank you. You may be excused.*

Mr. Northern Pileated? Present. *Will you please turn around so I may look at you? Such a beautiful scarlet crown and crest; that narrow red patch from your bill back makes you look as though you had a mustache. You are the largest woodpecker in the state, are you not?* Yes. There is only one other in the United States that is larger and that is the ivory-billed woodpecker. I am a little over seventeen inches long. *You haven't as much white on you as most woodpeckers.* No, you see we have white streaks on the sides of our necks and a white wing patch. *What is your note? Repeat it for me, please.* Cow-cow-cow, and when two of us meet we say wichew. *Is your mate marked as you are?* No. She has no red crown and mustache. Her forehead is blackish. *Where do you stay mostly?* In the heavy timber. I've heard the oldest woodpeckers tell that they remembered years and years ago of living in southern Wisconsin in the "Big Bark River Woods" in Jefferson County and all along "Koshkonong Creek" but that was before the heavy timber was cut off. The deer hunters up north and the people living in the timber regions call us "Woodcock" or "log-cock." We like best to live in the unsettled part of the state. *I appreciate your coming down very much. You are excused.*

Mr. Red-bellied Woodpecker? Present. *Good for you! I was afraid that you would not get here. I understand that there are not many of your family in this state.* No, we are not common anywhere in the state. We prefer heavy bottom land timber. We are resident members, though, wherever we occur in the state. We like to place our nests in large dead trees that overhang the water. We like to build high. *The whole top and back of your head is red, isn't it?* Yes, and from our red bellies we get our name. Our back and wings are black barred with white. We are just a trifle smaller than the Red-heads. *I understand you have no bad habits, though, as the Red-heads have.* Thank you, we try to do right. *What do you live on?* Besides the regular woodpecker fare we eat a great many ants and beetles from the ground. We like fruit and acorns from the trees. *May your tribe increase. You are excused.*

Mr. Northern Flicker? Mr. Northern Flicker? Haven't they returned yet? Mr. Northern Flicker? Oh! excuse me, I didn't realize that you were calling me. I expected to hear, High-hole, Yellow-Hammer, Wake up, Yarup, or some other of the thirty or more nicknames that cling to me. I remember hearing my mother tell me, when I was little, that my right name was Northern Flicker, but I hear it so seldom I did not know to whom you were speaking at first.

I see you have a black mustache, black patch on breast, and are barred on top and speckled underneath with black. You have the tell-tale woodpecker red patch on nape of neck. Please allow me to lift my wings so you may see the underside. *What beauties! Golden Yellow! No wonder you are called Golden Winged Woodpecker. When did you return from the South?* A few days ago. *How long will you stay?* Until about the middle of October. *I understand that you are a very polite bird.* Please, your honor, we do bow a great deal. *What do you eat?* Our favorite food is ants. We pick nearly all of our food up from the ground. *How do you pick up your ants?* I thrust my long sharp bill into an ant hill. The ants rush out. Then I thrust out my long tongue, which looks something like an angle worm and is coated with sticky saliva, and lick up the ants by the dozen. I also eat beetles, grasshoppers, crickets, and caterpillars. I also eat some weed and grass seed. *Do you do any damage?* Well, we sometimes have to bore into cottages and barns for a nest, if trees are not around, but if you people would put up suitable bird boxes we would gladly use them. *Thank you, we will remember this fact and provide you with boxes. You may go.*

Attention all. This meeting has been very gratifying to me. Now just once more before we leave, let me name over the list of Wisconsin woodpeckers in the following order, the common first and rare last. Downy, Redhead, Northern Flicker, Yellow-bellied Sapsucker, Arctic Three-toed, Hairy, Northern Pileated, Red-bellied, American Three-toed and Northern Hairy. Ten in all. Six plentiful and the other four rare. That is a good showing.

Before you leave for your homes I want you all to help yourselves to a good dinner. I realized that I could not prepare a meal to your taste, so I picked this place where I thought you all might find food to your liking. I thank you all kindly for your courtesy in coming here and your giving me the information of your families. In return I'll try to interest the boys and girls in you, and know that they will do all in their power for your protection. I wish you all good morning.

NOTE: The above can be used as an exercise in which each bird is represented by a pupil.

The Peacock (*Pavo cristatus*)

By Gerard Alan Abbott

Length: 33 inches, with tail 70 inches.
Range: Native of India; introduced in many countries.
Common name: Peafowl.

> With pendant train and rustling wings,
> Aloft the gorgeous peacock springs;
> And he, the bird of hundred dyes,
> Whose plumes the dames of Ava prize.
>
> —Bishop Heber.

A remarkable bird of the grouse family. Alexander the Great is credited with having brought the common peafowl from India. In southeastern Asia the peafowl is yet a game bird, and is hunted like our wild turkey. The male or peacock is famous for a gorgeous train. The upper or covert feathers of the tail are frequently four feet in length. When the peacock struts, gobbler fashion, these feathers are erected and spread in a fan-like circle with a most dazzling effect of brilliant green and gold. The tail itself is chestnut and remains in an ordinary position. The neck and breast are colored with a peculiarly rich "peacock" blue. The head carries a crest of about twenty-four upright plumes. The total length of the bird from the point of its tail to the end of its train is about six feet. The body proper is only about two feet in length. The peahen is smaller and is modestly colored. The peafowl is now domesticated thoroughly both in the Old World and the New. Among the Greeks and Romans it was dedicated to Hera or Juno. In literature it is represented as the type of vain glory. Its flesh, like that of pheasants and grouse generally, is excellent for table use. Its voice, like that of the guineafowl, is exceedingly harsh, as though nature begrudged a sweet voice and brilliant plumage to the same bird.

The peacock is a gorgeous bird. It prefers wooded mountains and jungles, roosting in trees and making the nest on the ground. Often considered the handsomest and proudest of all birds, the Greeks and Romans called it the "Bird of Juno." When the male is in full plumage and spreads his magnificent, fan-shaped tail it is a most dazzling spectacle. Both sexes are alike at first but the male, in three years, gradually acquires the splendid plumage for which it is noted. While it has been domesticated in many countries for centuries, it still continues rather wary. In spite of its beauty and delicious flesh, it is not a favorite domestic fowl for the reason that it is destructive to gardens, has a loud, harsh cry, and has a proud unpleasant disposition.

How the Woodpecker Knows

By William J. Long

How does he know where to dig his hole,
The woodpecker there on the elm tree bole?
How does he know what kind of a limb
To use for a drum, and to burrow in?
How does he find where the young grubs grow—
I'd like to know?

The woodpecker flew to a maple limb,
And drummed a tattoo that was fun for him,
"No breakfast here! It's too hard for that,"
He said, as down on his tail he sat,
"Just listen to this: rrrr rat-tat-tat."

Away to the pear tree, out of sight,
With a cheery call and a jumping flight,
He hopped around till he found a stub,
"Ah, here's the place to look for grub.
'Tis moist and dead—rrrr rub-dub-dub."

To a branch of the apple, Downy hied,
And hung by his toes to the under side,
"'Twill be sunny here in this hollow trunk;
It's dry and soft, with a heart of punk,
Just the place for a nest—rrrr runk-tunk-tunk."

"I see," said the boy. "Just a tap or two,
Then listen as any bright boy might do,
You can tell ripe melons, and garden stuff
In the very same way—it's easy enough."

The White-Breasted Nuthatch (*Sitta carolinensis*)

By W. Leon Dawson

Length: 6 inches. White below, above gray, with a black head.

Range: Resident in the United States, southern Canada, and Mexico.

Habits and economic status: This bird might readily be mistaken by a careless observer for a small woodpecker, but its note, an oft-repeated *yank,* is very unwoodpecker-like, and, unlike either woodpeckers or creepers, it climbs downward as easily as upward and seems to set the laws of gravity at defiance. The name was suggested by the habit of wedging nuts, especially beechnuts, in the crevices of bark so as to break them open by blows from the sharp, strong bill. The nuthatch gets its living from the trunks and branches of trees, over which it creeps from daylight to dark. Insects and spiders constitute a little more than 50 per cent of its food. The largest items of these are beetles, moths, and caterpillars, with ants and wasps. The animal food is all in the bird's favor except a few ladybird beetles. More than half of the vegetable food consists of mast, i. e., acorns and other nuts or large seeds. One-tenth of the food is grain, mostly waste corn. The nuthatch does no injury, so far as known, and much good.

Who-ew-o-o-o—o-o-o-o-o-o goes the screech owl in broad daylight. There is an instant hush in the dull gray woods—a hush followed by an excited murmur of inquiry among the scattered members of a winter bird troop. If you happen to be the screech owl, seated motionless at the base of some larger tree and half recessed in its spreading roots, perhaps the first intimation you will have that the search party is on your trail will be the click, click, click, of tiny claws on the tree-hole above your head, followed by a quank of interrogation, almost comical for its mixture of baffled anxiety and dawning suspicion of the truth. He is an inquisitive fellow, this nuthatch; for, you see, prying is his business; but he is brave as well. The chances are that he will venture down within a foot or two of your face before he flutters off with a loud outcry of alarm. When excited, as when regarding a suspicious object, he has an odd fashion of rapidly right-and-left facing on a horizontal bough, as though to try both eyes on you and lose no time in between.

Nuthatch is the acknowledged acrobat of the woods—not that he acts for display; it is all business with him. A tree is a complete gymnasium in itself, and this bird is master of it all. Top side, bottom side, inside, outside—this bird is there, fearless, confident; in fact, he rather prefers traveling head downwards, especially on the main trunk route. He pries under bark-scales and lichens, peers into crevices and explores cavities in his search for tiny insects, larvæ and insects' eggs—especially the latter. The value of the service which this bird and his close associates perform for the horticulturist is simply incalcuable. There should be as heavy a penalty imposed upon one who wantonly killed a nuthatch

WHITE-BREASTED NUTHATCH.
Life-size

or a chickadee, as upon one who entered an enclosure and cut down an orchard or a shade tree.

The nuthatch has a variety of notes, all distinguished by a peculiar nasal quality. When hunting with the troop, he gives an occasional softly resonant tut or tuttut, as if to remind his fellows that all's well. The halloo note is more decided, tin, pronounced à la Francais. By means of this note and by using it in combination, they seem to be able to carry on quite an animated conversation, calling across from tree to tree. During the mating season and often at other times they have an even more decided and distinctive note, quonk, quonk, quonk, or ho-onk, ho-onk, in moderate pitch and with deliberation. Their song, if such they may be said to have, consists of a rapid succession of simple syllables, tew, tew, tew, tew, tew, which are musical, vibrant and far-sounding, a sort of trumpeting, out of all proportion to the size of the bird.

The nest of the nuthatch is placed in a cavity carefully chiselled out and usually at a great height in an elm tree or perhaps an oak. Both sexes share the labor of excavation, and when the cavity is somewhat deepened one bird removes the chips while the other delves. Like all the hole-nesting species of this family, but unlike the woodpeckers, the nuthatches provide for their home an abundant lining of moss, fur, feathers and the like. This precaution is justified from the fact that they are early nesters—complete sets of eggs being found no later than the second week in April.

The male is a devoted husband and father, feeding the female incessantly during incubation and with her sharing in the care of the large family long after many birds have forgotten their young. The young birds early learn to creep up to the mouth of the nesting hole to receive food when their turn comes; and they are said to crawl about the parental tree for some days before they attempt flight.

English Wild Birds for British Columbia

Some 450 wild birds have just been despatched from Euston, England, for British Columbia. They consist of sky larks, robins, goldies, tits, and linnets, and they will, in the phrase on the notice attached to the special vans in which they were conveyed to Liverpool, "be set free to furnish their adopted country with British stock and melody." For several weeks past the birds have been kept in aviaries at Leadenhall market and Bermondsey, and it took two men seven hours to catch them and put them in cages on the night before their transit. The Dominion Express Company, who have arranged the journey, have provided for special accommodation on the steamer and also in the train across Canada, and as soon as the birds have reached the end of their long journey they will be released. It is intended to send out over 1,000 next spring, so that the English farmer who has emigrated west will see the English robin perching on his fence and hear the larks singing overhead as in the fields at home.

The Sora (*Porzana carolina*)

By W. Leon Dawson

Synonyms: Carolina Rail; Sora Rail; Soree.

Length: 8½ inches.

Range: Temperate North America, chiefly northward, but less commonly on the Pacific Coast.

If a correspondent writes me of a "curious brown bird" which he "shot yesterday in a swamp," or "picked up this morning under the telegraph wires;" and if he accompanies the letter with a spool-box about a half an inch in thickness (O. N. T. preferred) under convoy of two two-cent stamps, I confidently expect to find a Sora Rail. Yes, there it is, lying on its side; because that is the way a Rail fits most easily into a shallow box. "As thin as a Rail" does not refer to the Lincoln variety of split trees, but to this bird and his congeners. The birds are bilaterally compressed in order to enable them to slip readily between the close-set stalks of vegetation. And this they do with almost incredible rapidity, and without leaving a wake of motion by which their course may be traced.

Like the King Rail, the Sora rises to a dog; or if caught feeding inshore some little ways from his watery fastnesses, he flits over the tops of the reeds, drops down suddenly, and loses himself immediately in the maze. It is idle to follow him when alarmed, for he will not rise again save under exceptional circumstances. Immense numbers of these birds are slaughtered yearly, especially along the Atlantic Coast. They have this at least to recommend them,—that they are easy practice for juvenile hunters. They afford less meat, however, than so many English sparrows, and qualms of conscience make poor sauce.

Though rightly counted shy, the Sora possesses one trait which brings it into frequent notice—curiosity. Often when I have been lying in a boat waiting for ducks among the aquatic plants, some little distance off shore and removed from the usual haunts of the Sora, I have heard sundry *keks* half apprehensive, half quizzical, followed by the splashing of light feet as a troop of the little Rails worked their way out and surrounded me, under pretense, indeed, of searching for food, but being all too plainly prompted by inquisitiveness. Dr. Howard Jones tells of similar experiences: "I have had them come up to me and peck my gum boots, and play with the gun barrel as a bantam rooster does when teased."

A slight platform of rushes or a shallow basket of woven cat-tail leaves and grasses serves for a nest. A site is chosen anywhere in the swamp, but usually in a rather open situation. Sometimes a tussock of grass is used, and the growing blades curl over to conceal this anchored ark of bulrushes. The Sora is a little more prolific than her cousin the Virginia, a dozen eggs being commonly found and fourteen and fifteen not infrequently. In the latter case the eggs are apt to be in two layers. The ochraceous cast of the ground color is

unmistakable, and the spots are both more numerous and of a duller brown than those of *R. virginianus*.

Nothing could be at once more interesting and more comical than the appearance of a young Sora just out of the shell. He is, to begin with, a ball of down as black as jet, and he has a most ridiculous tuft of orange chin whiskers. Add to this a bright red protuberance at the base of the upper mandible and an air of defiance, and you have a very clown. And such precocity! I once came upon a nestful in a secluded spot at the critical time. Hearing my distant footsteps, most of the brood had taken to their new-found heels, leaving two luckless wights in ovo. At my approach one more prison door flew open. The absurd fluff-ball rolled out, shook itself, grasped the situation, promptly tumbled over the side of the nest, and started to swim across a six-foot pool to safety.

Speaking of the protuberance at the base of the upper mandible, one cannot help wondering whether this is not a reminiscence (in embryo, or as good) of some ancestor who possessed a red frontal shield like that of the Florida Gallinule of today. We know that the Rails and Gallinules are closely related, but has this tie of relationship been noted before?

The Killdeer (*Oxyechus vociferus*)

Length, 10 inches. Distinguished by its piercing and oft-repeated cry—*kildee*.

Range: Breeds throughout the United States and most of Canada; winters from central United States to South America.

Habits and economic status: The killdeer is one of the best known of the shorebird family. It often visits the farmyard and commonly nests in pastures or cornfields. It is rather suspicious, however, and on being approached takes flight with loud cries. It is noisy and restless, but fortunately most of its activities result in benefit to man. The food is of the same general nature as that of the upland plover, but is more varied. The killdeer feeds upon beetles, grasshoppers, caterpillars, ants, bugs, caddis flies, dragonflies, centipedes, spiders, ticks, oyster worms, earthworms, snails, crabs, and other crustacea. Among the beetles consumed are such pests as the alfalfa weevil, cotton-boll weevil, clover-root weevil, clover-leaf weevil, pine weevil, billbugs, white grubs, wireworms, and leaf beetles. The bird also devours cotton worms, cotton cutworms, horse-flies, mosquitoes, cattle ticks and crawfish. One stomach contained hundreds of larvæ of the saltmarsh mosquito, one of the most troublesome species. The killdeer preys extensively upon insects that are annoying to man and injurious to his stock and crops, and this should be enough to remove it from the list of game birds and insure its protection.

The Great Blue Heron (*Ardea herodias*)

By W. W. Woollen

Length: Forty-eight inches.

Range: North America from the Arctic regions, southward to the West Indies and northern South America.

The family Ardeidæ is composed of the bitterns and herons, and has in it about seventy-five species, members of which are found in all parts of the world, but most frequently in the torrid and temperate zones. The family is divided into two sub-families, namely: (1) Botaurinæ, composed of the bitterns, and, (2) Ardeinæ, composed of the herons. Of the herons there are nine species in the Middle West, and of these the Great Blue Heron is, perhaps, the most distinguished member.

In his Key to North American Birds, Mr. Elliott Coues says: "It is in this family that powder-down tracts reach their highest development; and although these peculiar feathers occur in some other birds, there appears to be then only a single pair; so that the presence of two or more pairs is probably diagnostic of the family. In the genus Ardea and its immediate allies there are three pairs, the normal number; one on the lower back over the hips, one on the lower belly under the hips, and one on the breast along the track of the formula." The powder-down feathers referred to in the foregoing quotation are feathers which are remarkable for continuing to grow indefinitely, and with this there is a constant breaking off of the ends of the barbs. In the illustration they are readily seen over the hips and in front of the breast. Mr. Coues says their use is not known, but Mr. Baskett says that "it has been ascertained that in herons at least these spots are phosphorescent at night, and that fish are thereby lured within easy reach."

The great blue heron, commonly called the blue crane, is about four feet long from the tip of the bill to the end of the tail and has a wing extent of about six feet. Its bill is from four to six inches long and of a horn color; iris of the eye, yellow; center of crown and throat, white; sides of crown black, this color meeting on the back of the head where the feathers are lengthened and form an occipital crest; neck, pale greenish-brown; feathers of the lower foreneck narrow and much lengthened, sometimes with black streaks; back, wing coverts and tail slaty gray; bend of wing, chestnut rufous; tail, very short and even; black patch and white feathers on the side of the breast; breast and belly streaked with black and white; tibia long, upper half feathered and of rufous color, lower half bare and yellowish; tarsus about eight inches long and black; feet, black; from tip of front toe to tip of hind toe, eight inches; hind toe is on a level with the others; claws moderate, curved and acute with the inner edge of the middle one pectinated. Formerly it was believed that the middle toe was pectinated for the purpose of enabling the bird to seize fish with its feet, but it is now understood that this

GREAT BLUE HERON.
⅛ Life-size.

comb-like arrangement is for the purpose of removing from the bill the sticky down which adheres to it after cleaning its plumage; the claw is passed from the tip of the bill to the base on each side, and any feathers, slime or fish, or adhering dirt is thus removed. The sexes are alike in appearance, except that the male is the largest.

The range of this heron extends from the Columbia Valley and Venezuela north to Hudson's Bay and Sitka. They are practically gregarious and are altricial. Generally they nest in the tops of trees in swamps or other places near the water and in communities known as heronries. Audubon says that once they have taken possession of a breeding place suited to their taste, they will return to it annually, and repair the old nests until circumstances force them to abandon it. The nests are large and irregularly formed of sticks and lined with smaller twigs. Their structure sometimes is so slight that they tumble to pieces before the young are fit to fly. The eggs, generally four to a clutch, are of an oblong form, larger than those of the domestic hen, and of a light-greenish blue, without any spots.

Professor W. O. Hendlee, in a very interesting account of a heronry in Rush County, Indiana, says: "Incubation lasts about six weeks, and it is well into summer before the young are able to leave the nest. It is a busy time in the heronry, you may guess, when the young are hatched. They feed on fish. Their principal feeding time is in the afternoon. They place themselves in the shade of a tree by the water, or a drift, or among the reeds and water plants, and patiently wait for their prey, which they seize or impale with their long sharp bills." They breed but once in a season, the young are hatched without plumes; these develop gradually with maturity. The young remain on the trees until they are as heavy as the old birds and become extremely fat before they are able to fly. After the breeding season is over the communities break up and they wander about singly or in small flocks, and, as Maurice Thompson says:

"Where the water-grass grows ever green
On damp cool flats by gentle stream,
Still as a ghost and sad mien,
With half-closed eye the heron dreams."

Parkhurst says: "The herons are all alike in the sadly reminiscent, melancholy air that characterizes them in all their attitudes. The heron is the impersonation of gloom, silence and solitude. Loneliness can only be expressed by sentiment life. A deeper sense of desolation is aroused by seeing a water-fowl coursing its solitary flight above the sea, than in the grandest vision of the boundless deep, unrelieved by even the least appearance of vitality." The flight of the heron is slow and solemn, but grand and stately. Quite frequently I have seen them making their way up and down Fall Creek at Buzzard's Roost and across the country to White River, and vice versa. This occurs generally when the days are cloudy. Occasionally their flight is attended with their quite indescribable piercing squawks and cries, and then, according to Indian lore, it is

going to rain. In flight the neck is bent backwards against the shoulders, and their long legs are stretched out behind them, stiff and immovable. At Buzzard's Roost a favorite place for them to alight is on the topmost limbs of a large sycamore tree on the bank of Fall Creek in front of the cottage, and the color of their bodies being much like the blue-gray color of the limbs of the tree, makes it somewhat difficult to see them. Occasionally I have tracked them in the sand on the banks of the stream. Long may they keep coming there, is the wish of the owner of the place. They add a distinctive and interesting feature to its landscape.

The principal part of the food of this heron, as already stated, consists largely of fish. He is also fond of crawfish, frogs, snakes and eels. Wilson says: "He is also an excellent mouser, and of great service to our meadows in destroying the short-tailed or meadow mouse, so injurious to the banks. He also feeds eagerly on grasshoppers, various winged insects, particularly dragon flies, which he is very expert at sticking, and also eats the seeds of that species of nymphæ usually called splatter dock, so abundant along our fresh water ponds and rivers." As has already been said, he captures his food with his long and sharp bill. He also uses his bill in defending himself against his enemies. My friend Dr. O. S. Coffin tells me that in his practice he has had two patients, each of whom had lost an eye by an attack of herons which had been disabled by them while they were hunting. These were instances where the hunted in some measure got even with those who hunted them. Perhaps if there were more such instances, there would be less reckless killing of these useful and beautiful birds.

It is interesting to watch them taking their food. One of the most beautiful bird scenes that I have ever witnessed was that of five large white herons, *ardea egretta,* thus engaged in Fall Creek. The water was clear, the day bright, and the images of the birds were beautifully reflected in the water. They became alarmed at my presence, took flight and flew up the stream, and as they flew, their bodies continued to be reflected in the water, as beautifully as if the surface of the water had been a mirror.

The great blue heron can hardly be called a most useful bird, nor has he any music to commend him, but he may be commended for what he does not do; he is an innocent and harmless creature, if left alone in his wild haunts. It is his great, though simple, beauty that makes him valuable. The Japanese more than any other people have appreciated this fact, and have availed themselves of it in their decorative paintings. In an exhibition of Japanese art which it was my privilege to attend I was impressed with the beauty of their bird drawings and paintings, and especially with their beautiful soft blue and grayish tints.

The Purple Martin (*Progne subis*)

Length, about 8 inches.

Range: Breeds throughout the United States and southern Canada, south to central Mexico; winters in South America.

Habits and economic status: This is the largest as it is one of the most beautiful of the swallow tribe. It formerly built its nests in cavities of trees, as it still does in wild districts, but learning that man was a friend it soon adopted domestic habits. Its presence about the farm can often be secured by erecting houses suitable for nesting sites and protecting them from usurpation by the English sparrow, and every effort should be made to increase the number of colonies of this very useful bird. The boxes should be at a reasonable height, say 15 feet from the ground, and made inaccessible to cats. A colony of these birds on a farm makes great inroads upon the insect population, as the birds not only themselves feed upon insects but rear their young upon the same diet. Fifty years ago in New England it was not uncommon to see colonies of 50 pairs of martins, but most of them have now vanished for no apparent reason except that the martin houses have decayed and have not been renewed. More than three-fourths of this bird's food consists of wasps, bugs, and beetles, their importance being in the order given. The beetles include several species of harmful weevils, as the clover-leaf weevils and the nut weevils. Besides these are many crane flies, moths, May flies, and dragonflies.

Behold the Birds!

By Charles Edward Jefferson

It was just like Jesus to say this. He was always calling attention to the sights and sounds of the natural world. He reveled in God's out-of-doors. He never wearied of reading the pages of the book of nature. Nature was to him a bible, and in it he read the character and ways of God. "Look at the sunshine and the shower," he said one day. They illustrated for him a truth which men are all the time in danger of forgetting. One day when some birds were fluttering above his head, he said to the people who were listening to him: "Look at the birds!" He did not ask them to look at them out of scientific curiosity. He was not specially interested in their anatomy or their plumage. He saw in them a medium of revelation. He found in them a religious message. He used them as a means of moving the heart nearer to God. I wish I might open your eyes and ears and hearts a little wider to the wonder and mystery of the bird world, so that you might cry out with a fresh rapture: "O Lord, our Lord, how excellent is thy name in all the earth!"

What a mystery a bird is! Tennyson has said in one of the best of his short poems that if he knew a little flower completely, in all its essences and relationships, he would know both man and God. But a bird is a greater mys-

tery than a flower. It has higher potencies and wider possibilities. Little, timid, quivering, fluttering, scary thing, what is it but a ball of mystery wrapped in feathers? How singular that a thing like this should come out of the earth. How remarkable that out of the primeval protoplasm such a creature should be developed. How amazing that a bird should come out of the star stuff! At first, say the scientists, there was nothing but a vast mass of fiery mist. Large pieces flow off and became stars, small pieces flew off and became planets, tiny bits flew off and became birds. In the huge ball of fire mist, then, the seeds of bird life must have been hidden, and out of the mist there flew, in the fulness of time, a little creature with wings in whose heart a spark of the primeval fire is still burning. Birds are the hottest of all creatures. They have a blood temperature which would, if we had it, quickly burn us up. They are older than we, nearer to the primeval fire.

How could a bird come out of the fire mist? Only because it was first in the heart of God. From eternity the bird idea was in the divine mind. One day God said: "Let us make birds," and they were made. He said that before he said: "Let us make man." We sometimes, in our lordly way, look upon them as intruders, saucy upstarts, but they were here long before the first man was created. The ancient Greeks used to think that birds are the oldest of all created things. Before the sun and winds, before mankind, and even before the gods, they were. It was because they were supposed to possess primal powers and to reach back into antemundane times, that soothsayers in many lands watched their flight, and tried to find out from them the will of God.

Why do you suppose God created birds? The common answer is that God created them for man. They are inferior creatures and they were created for our uses. This explanation is pleasing to our vanity, but it is hardly satisfactory. If birds were made solely for man, then why did they exist millions of years before man was created? Why did they fly and sing through uncounted ages when there was no human eye to see their movements and no human ear to catch their song? And why, even to the present hour, does God fill thickets and jungles and mighty forests with thousands of the most beautiful of all his winged creatures, far removed from all human habitations, if birds are made primarily for man? Why are they permitted to flash their gorgeous plumage in the sun where no man beholds them, and to pour their melodies on the air where no human heart is gladdened by them, if they were created simply for the joy of man?

A better answer, it seems to me, is that God created birds for himself. He created them because he wanted them, because he knew he would like them, because he was certain they would fill up the measure of his joy. He shares them with man, but he never ceases to enjoy them himself. He likes them. He is fond of their movements. He admires their plumage and he enjoys their song. Lincoln used to say that God must like the common people, because he makes so many of them. If this be sound reasoning, then God must be ex-

ceedingly fond of birds. There are more kinds of birds than there are kinds of fishes, and serpents, and animals combined. The largest of all the kingdoms of sentient life is the kingdom of the birds. I do not wonder that the Man of Galilee cried with delight: "Look at the birds!" God is saying that all the time, if we only had ears to hear. He keeps his eyes on them through all the days. Not one of them can fall without his notice. Jesus was sure that if men would only look at them, they would come to know better the wisdom and the goodness of God.

If God, then, be fond of birds, is it not strange that humanity should be so indifferent to them? There are bird lovers in every community, but their number is nowhere large. Mankind may be said to be, on the whole, hostile to birds. Even in Christian countries it is necessary to organize societies for the express purpose of protecting birds and saving them from extermination. Even though men are not hostile to them, they are often indifferent to them. They seldom look at them. They take no delight in them. They ignore them as creatures uninteresting and not worth attention.

This indifference is surprising when we remember that birds are easily seen and are always inviting us to look at them. Unlike fishes and serpents, they are not hidden from our eyes, but place themselves in the sunlight so that we can see what they are. Unlike many other creatures, they are beautiful both in form and in movement and often in color. The coloring of birds is one of the miracles of creation. In some of them the colors are splendid, in others they are gorgeous, in others they are positively dazzling. When you want to see delicate shadings, and exquisite gradations of color, and artistic designs which cannot be matched in the factories or studios of men, go to the breast or the wing of a bird. There are more colors in the plumage of birds than are displayed in the foliage of a landscape on a bright summer afternoon, more varieties of rich and vivid hues than the ocean shows when it breaks into spray and the sunbeams and foam are intermingled, more than the sky can hold even when the dawn is breaking or when the sun is dying in the west. This color in the plumage of birds is the Lord's doing, and it ought to be marvelous in our eyes. Feathers do not come together in such a way as to form an exquisite pattern with not a line unbroken, and with every matching of color absolutely perfect, without the patient attention of a superintending mind. A bird is proof that the Almighty is an artist, but many of us are too stupid to open our eyes and look.

But even though we are indifferent to them, they forgive us, and remain our steadfast friends. They come even into the city. They settle in the trees in all our parks. They are not at all aristocratic. They frequent the parks in those quarters of the city where only poor people live. They visit prosaic back yards. No matter how poor or mean the tenant, they will visit a back yard if only a tree or bush be there. A woman in a Western city counted fifty-seven

kinds of birds which visited her back yard in a single year. It is a shame that we should ignore them when they are so beautiful, so companionable, and so friendly.

The purpose, then, of this sermon is to persuade you to make a place in your life for the birds. Look at them! Listen to them! Think now and then about them. Read what you can about them. This is a religious privilege. It is one of the means of grace. God makes the birds. He gives them their ways and nature. He sends them to you. He has something to say to you through them. If you ignore them you lose a part of his message.

This sermon is specially for boys. Many boys do not appreciate a bird. They stone one every time they get a chance. This is because they do not think. A stone may break a bird's wing. A bird with one wing broken cannot use the other wing, and so it is left with no wings at all. A bird without wings is like a boy without hands or feet or eyes. It is helpless, pitiable, ruined. There is nothing left for it but death. If a boy only realized the tragedy of a broken wing, he never again would throw a stone.

This sermon is specially for girls. Girls are often cruel because they do not stop to think. To make their hat look beautiful, they are willing that the milliner shall place on it the body of a bird that is dead. If thousands of girls want birds on their hats, then thousands of birds must be killed. Boys and men must be trained to kill them, and the killing may become so furious and merciless as to blot out a beautiful species of birds altogether. Some of the loveliest specimens of all the birds which the good God has created for the beautifying of the earth have become well-nigh extinct simply through the thoughtlessness and vanity of girls.

This sermon is specially for grown men and women. Many of us are not so happy as we ought to be. We would be happier than we are if our interests were only wider and more varied. We are not enthusiastic over a sufficiently large number of things. If we could only increase the circle of things in which our mind and heart find delight, we should add to our joy and possibly increase the number of our days. We get old too soon. Old age comes on us as soon as we lose interest in the world around us. Nobody gets old who succeeds in keeping up a living interest in a large number of fascinating subjects. It may be that some of us are losing interest in the things that once appealed to us. They have become commonplace and dull. They stimulate and cheer us no more. Why then, not begin to look at the birds? Go out into the bird kingdom and keep a record of the things you see and learn. It is impossible to grow old so long as we take genuine delight in the birds.

Birds are different from all our other friends in that a wider gulf divides us. Birds are man's companions the wide world over, and yet what a vast chasm yawns between a bird and a man! The chasm is wider and deeper than that which lies between a man and his horse, or a man and his dog. Animals come close to us. They like to be petted, handled, caressed. A bird resents all

this. A bird wants to be let alone. An animal can talk to us, not in articulate speech but in ways which we can interpret. But a bird cannot speak at all. We cannot guess what is going on in its mind. We cannot imagine what its heart feels. We cannot even look into its eye. A bird looks at us, but never into us. There is no commerce between the eye of a man and the eye of a bird. And yet for all this, a bird is a companion, a comrade, a friend. An interesting pastime would be collecting the testimony of great men and women as to what birds have done for them. Martin Luther in an hour of gloom was heartened by one of them. Thomas Carlyle in a lonely journey was cheered by a company of them. Dan Crawford in Central Africa felt himself at home when he suddenly heard the friendly tapping of a woodpecker on a tree immediately behind him. Matthew Arnold wrote one of his sweetest poems on the death of a pet bird.

It is an interesting fact that the most unusual poem which America has produced has for its title the name of a bird, "The Raven," and that the weirdest, most unforgetable poem ever written by an Englishman, "The Rime of the Ancient Mariner," tells the tragedy of the death of a bird.

The poets of Israel caught fresh lessons for the soul from the habits and nature of birds. When they noticed how the parent bird breaks up the nest, compelling the young birds to fly, they saw an illustration of the method of God in dealing with immortal souls. When he desires men to forsake their easy and comfortable positions, and to soar aloft, testing untried powers of their nature, he breaks up the conditions in which they have been living and forces them upon hazardous and novel adventures. The tenderness and solicitude and faithfulness of the mother bird made a profound impression on the poets of Palestine. The downy softness and warm tenderness and gentle strength of the protecting wings were hints and revelations, so the Hebrew poets thought, of the innermost heart of the Eternal. There was at least one poet who dared to image God himself in the form of a bird.

He shall cover thee with his feathers,
Under his wings shalt thou trust.

Look, then, at the birds! If you look at them you may come to love them. When you come to love them, you will have added to the stature of your life. What we love, we live. Our life is measured by our love.

He prayeth well who loveth well
Both man and bird and beast.
He prayeth best who loveth best
All things both great and small.
For the dear God who loveth us,
He made us and loveth all.

—*Woman's Home Companion.*

The Hermit Thrush (*Hylocichla guttata pallasi*)

By Joseph Grinnell

Length: 6½ to 7½ inches.

Range: Eastern United States to the Rocky Mountains including Mexico and Alaska.

> Thrush, thrush, have mercy on thy little bill;
> I play to please myself, albeit ill;
> And yet—though how it comes to pass I cannot tell—
> My singing pleases all the world as well.
>
> MONTGOMERY.

Hermit that it is, this little thrush is known and loved in nearly all of North America. True, there are several of its relatives about in fields and woods, which are taken for the hermit by those who have not compared the different birds; the plain, deep olive-brown above, with dotted creamy vest, being a popular dress with the thrushes.

The hermit answers to several names, suiting the location in which it is found. In low parts of the South it is known as the swamp-robin. You meet it in the damp, shady places where it is always twilight, in the fascinating grounds of the snails and water-beetles.

It likes such clammy, silent neighbors, with their retiring habits and proper manners, for the reason that it is able to turn them to some account at meal-time, which, as is the case with most birds, is all the time, or any time. (It is said to resemble in habits and notes the English song-thrush, which is known to spend most of its time at certain periods of the year hunting snails, which it has learned to dress for eating by slapping them against a stone. It will choose a stone of the proper shape, to which it carries its snails as often as it has good luck in the hunt, leaving little heaps of shell by the stone to mark its picnic-ground.)

Family affairs bring little labor to a pair of hermits, for they have not far to go in search of nesting materials. They take what is close at hand, little dry twigs, lichens, and last year's leaves crumbled and moist, which soon lose their dampness and adhere together in a thick mass.

But few have found it, this nest of the hermit, hidden under the bushes where it is always shadowed, and where the fledglings may help themselves to rambling insects without so much as stepping out of the door. They are supposed to take advantage of this nearness to food by remaining about the nest later than most birds; or if they run, returning on foot of course, having tardy use of their wings, but learning to stretch their legs instead. And well may they learn to "stretch their legs," as they will come to their fortunes by "footing it" mostly, when they are not migrating on the wing.

Like the thrashers, the hermit must scratch for a living when berries are not

HERMIT THRUSH.
⅞ Life-size

ripe. By listening one may hear the bird at its work, and by slipping quietly in the dusk of the early morning to the lowlands, or the thick woods, and standing stock-still for a while, even see it. But nearly always it is under cover on the edge of thickets, where the leafmold is unstirred and richest. And always by its own self is the hermit, as if it loves nature better than the company of its fellows, listening now and then for underground or overhead sounds, and dwelling on the beauty of the leaf skeletons it overturns like a botanist.

Lace-work and dainty insertion in delicate threads does Madam Hermit find in her resorts—fabric so marvelous and fascinating she could admire it forever; cast-off finery of such insects as outgrow their clothes, grasshopper nymphs, and whole baskets full of locusts' eggs hidden in half-decayed logs, and making a nourishing breakfast, "rare done" and delicious. She delights in the haunts of the praying-mantis at egg-laying season, surprising the wonderful insect in her devotions, who scarcely has time to turn her head on her foe before she disappears from sight.

It is well for her thus to disappear suddenly, for she is spared witnessing the fate of her newly laid eggs just above her on the twig, their silken wrapper being no obstruction in the way of Madam Hermit finishing her meal on them.

These habits of the hermit-thrush mark the dwarf-hermit in southern California. We see it in the orange-groves after irrigation or during a wet winter. Plenty of mulching in the orchards invites the dwarf (where it is a hermit like its relative), and we find it scratching away in the litter, overturning frail little toadstool huts and umbrellas, and exchanging greetings with its neighbor, the varied thrush, under the next tree.

Here in the cañons, where the brooks turn right side up for one brief season in the long, dry year, we see the little olive-brown bird with its speckled breast. Its sight and hearing are keen, so that it detects the whereabouts of the stoneflies, lingering among the moist rocks until they come out for a drink or a bath, when—that is the last of them.

The dwarf brown beauty, which, of course, must have victuals by hook or crook, never breaking a single law in either case, loves the watery haunts of the dragon-flies.

It passes by the pupa-skin drying on its leaf-stalk just as it was outgrown, with perchance a glance at the reflection in the water; but the cunning bird neglects not to take in the pupa itself, making its own breakfast on undeveloped mosquitoes in the water's edge.

All winter long about our home lives the dwarf hermit, eating crumbs at the garden table and looking for belated raspberries on the ever-green canes. Early, before the sun is up, the bird runs along under our windows, where the myrtle covers the tracks of night insects, and rings its tinkling notes. These resemble the familiar bell-notes that belong to the woodthrush, cousin of the hermit and the dwarf hermit.

Not so numerous as its relatives, the wood-thrush is seen only in Eastern

North America. It nests in trees or bushes, packing wet, decaying leaves and wood fiber into a paste, which dries and resembles the mud nest of the robin. It, too, gets its food in the litter of leaves and wet places, choosing fens and cranberry bogs in the pastures. All the thrushes delight in berries, and any berry-patch, wild or cultivated, is the bird's own patch of ground.

The sadder the day the sweeter the song of the woodthrush. Nature-lovers who stroll into the thickest of the woods of a cloudy day on purpose to make the acquaintance of the thrush will find

"The heart unlocks its springs
Wheresoe'er he singeth."

The notes of all the thrushes are singularly sweet, and may be recognized by their low, tinkling, bell-like tones.

At the funeral of Cock Robin, who did not survive his wedding-day in the legend, it was the thrush who sang a psalm, and he was well qualified, "as he sat in a bush," if such a thing were possible, no doubt bringing tears to his feathered audience.

The "throstle with his note so true" in the garden of Bottom, the fairy in "Midsummer Night's Dream," was the thrush of Shakespeare's own country. No fairy's garden is complete without this sweet singer described so truly by Emily Tolman.

"In the deep, solemn wood, at dawn I hear
A voice serene and pure, now far, now near,
Singing sweetly, singing slowly,
Holy oh, holy, holy;
Again at evening hush, now near, now far—
Oh, tell me, are thou voice of bird or star?
Sounding sweetly, sounding slowly,
Holy; oh, holy, holy."

The Ring Necked Pheasant (*Phasianus torquatus*)

By I. N. Mitchell

Length: 30 or more inches of which 16 is tail.

Range: China, introduced in Oregon and several other states.

Like the domestic fowl, which it closely resembles in its internal structure and its habits, the pheasant is an omnivorous feeder; grain, herbage, roots, berries and other small fruits, insects, acorns, beech mast, are alike acceptable to it. Naumann gives the following detailed description of its dietary on the continent: "Its food consists of grain, seeds, fruits and berries, with green herbs, insects, and worms, varying with the time of year. Ants, and particularly their larvæ, are a favorite food, the latter forming the chief support of the young. It also eats many green weeds, the tender shoots of grass, cabbage, young clover, wild cress,

pimpernel, young peas, etc., etc. Of berries: the wild mezereum, wild strawberries, currants, elderberries, blackberries, mistletoe and hawthorn.

The successful introduction of this splendid game bird really marks a new era in the history of sport, and its advent should be hailed with delight by all true sportsmen. Quick on the wing, prolific, hardy, sapid, this handsome pheasant is admirably adapted to take the place of those larger native birds, the wild turkey, the prairie chicken, the ruffed grouse, which are no longer available to us.

The ethics of the situation is perfectly clear. When this country was a howling wilderness it was right and proper that the pioneers should help themselves freely to the abundant game to satisfy their wants and to gratify their desire for sport. That they went too far in some instances is clear to us as it was not to them. It is perhaps inevitable that some of the larger species of birds, unconfined, should have succumbed, as did the deer and the bear among the mammals. The necessary conditions of civilization, apart from the use of gunpowder, were no longer quite tolerable to some of them. Up to a certain point anybody might shoot the wild pigeon and the turkey and welcome. They were bound to go sooner or later.

But the situation has entirely changed. The country is no longer a wilderness, nor its citizens dependent on the conquests of the chase for sustenance. With the decline of the culinary claim a new value has been discovered for the wild things, especially for the birds, viz., the esthetic value. The birds no longer belong to those who seek food; they no longer belong to those who seek life for the sake of taking it in artistic ways; they belong rather to the four millions of people in this state who are awaking to a sense of the varied charm of the living bird. We should no longer regard the wood ducks, for example, as creatures to be killed (pitiful remnant that there is left!) but as beautiful objects of a fascinated interest—birds to study, to understand, to appreciate, to foster. A gunner might kill them all in a day, but he has no moral right to do so (whatever the law may say about open seasons); they belong now to those who have a higher use for them.

But what about legitimate sport? It must confine itself to legitimate objects. Those species which are now verging upon extinction, or which are not capable of maintaining their present numerical status without absolute protection, are no longer legitimate objects. Such objects do exist, and the bobwhite is typical of these. But we have evidently reached that stage when the demand for game must be artificially supplied. This can best be done by the introduction of certain hardy species of demonstrated value, such as the Mogolian pheasant. This may lead to the extensive use of private preserves under competent management. It is not fair for Farmr A. to pasture grouse which Lawyer B. may shoot without expense, nor is it fair to forbid Lawyer B. and his friends to shoot their own birds on their own grounds whenever they like, within the dictates of humanity.

In short, the time is upon us when those who want to shoot (and it's royal fun!) must furnish their own game.

The Upland Plover (*Bartramia longicauda*)

By Lynds Jones

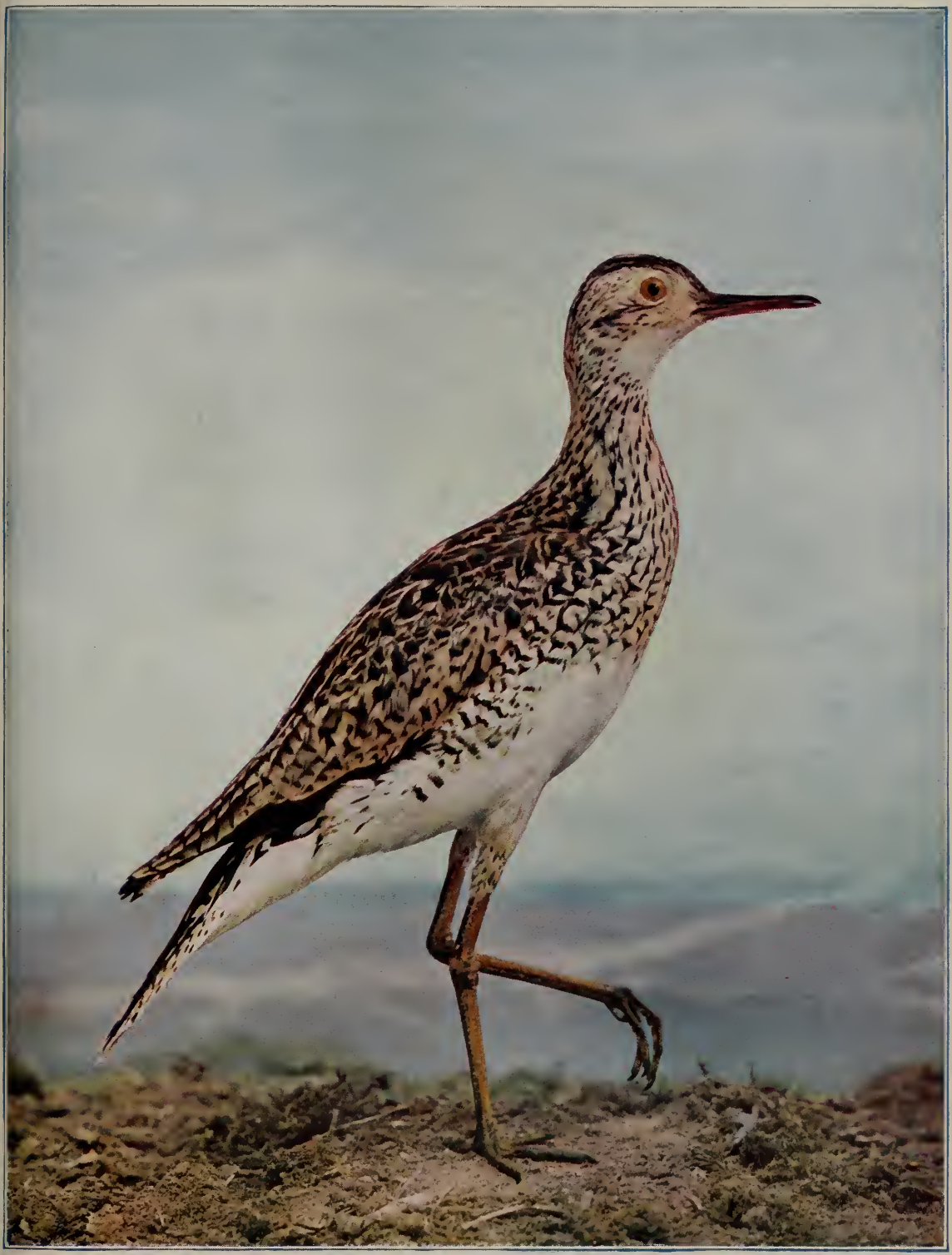
Length, 12 inches. The only plainly colored shorebird which occurs east of the plains and inhabits exclusively dry fields and hillsides.

Range: Breeds from Oregon, Utah, Oklahoma, Indiana, and Virginia, north to Alaska; winters in South America.

Habits and economic status: This, the most terrestrial of our waders, is shy and wary, but it has the one weakness of not fearing men on horseback or in a vehicle. One of these methods of approach, therefore, is nearly always used by the sportsman, and, since the bird is highly prized as a table delicacy, it has been hunted to the verge of extermination. As the upland plover is strictly beneficial, it should no longer be classed as a game bird and allowed to be shot. Ninety-seven per cent of the food of this species consists of animal forms, chiefly of injurious and neutral species. The vegetable food is mainly weed seeds. Almost half of the total subsistence is made up of grasshoppers, crickets, and weevils. Among the weevils eaten are the cotton-boll weevil, greater and lesser clover-leaf weevils, cowpea weevils, and billbugs. This bird devours also leaf beetles, wireworms, white grubs, army worms, cotton worms, cotton cutworms, sawfly larvæ, horseflies, and cattle ticks. In brief, it injures no crop, but consumes a host of the worst enemies of agriculture.

Each bird has its own place in the mind of the bird student or bird lover. This place may be made by the first sight of the bird, by some constant characteristic of carriage, voice, or environment, or by a deep impression made possible by one's own mental attitude at the time. To me Bartramia is the most ethereal, the most spirit-like of all birds, not excepting the owls and Whippoorwill. Our first intimation of his presence in spring is either the long-drawn whistle or the rolling call, from whence you know not. The first impulse is to glance quickly upward into the clear blue. Next you scan the horizon, the fields, the fences, all to no purpose. The cry seems to be all-pervading—coming from everywhere. I never hear it but I involuntarily stop with a feeling akin to uncanniness. Where is the bird! Another call gives the direction, and you stand staring into the southern sky until in the distance, far up, a quivering speck appears, approaches, passes onward, anon scattering broadcast the rolling whistle, without an added tremor of the wings. The bird seems a monster—at least the size of a large hawk—but the long, slender neck, small head, and almost no tail, are unmistakable. I have often wondered if the birds ever use their wings as other birds do. I have never seen more than the slight quivering, or the motionless soaring. The slight movement of the long wings certainly adds to the ethereal appearance of the bird, which seems to float free in the air, usually with a slow forward motion.

The rolling cry is not unlike the rolling call of a tree-toad, but of a different quality and calibre, which makes it unmistakable. The whistle is partly double, the first part passing upward nearly half an octave, terminating abruptly there,



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BARTRAMIAN SANDPIPER.
(Bartramia longicauda).
⅔ Life-size.

the second part beginning where the first began and rapidly swelling through nearly or quite an octave, then gradually falling again and decreasing in volume to the close, several tones above the beginning. The first part of the whistle is usually rattling or trilled, and sometimes the trill is carried to the end, but oftener it becomes a clear whistle before the culmination, and continues clear to the end. *Tre-e-e-e-e-e-e-e-e, tre-e-e-e-e-e-e-e-e-e-e-e-e-e-p;* or *tr-r-r-r-e-e-e-e-e-e-e-e-p.* Often the whistled part is never reached, but the call stops as if interrupted by some threatened danger.

In northern Ohio the birds make their nests in the midst of a pasture or meadow, often without more than a few stray grass blades lining the slight depression in the ground. In more rolling regions the nest seems to be placed preferably on a hilltop, or on a side-hill; but in any region an open field is essential to the welfare of the eggs and young.

In the autumn the birds select some side-hill, apparently no better than any of a dozen or more in the region, where they pass the night, or gather to visit during the day. They seem to be very much attached to that especial side-hill, and will have no other, even at the risk of life.

Probably the bird is better known throughout the state as the Upland Plover, or Meadow Plover or Sandpiper, or the Whistling Plover. While it is a true sandpiper in structure, its habits resemble the plover group. It gleans rather than probes the mud for food, eating grass seeds and weed vegetation. It is not wary, generally, but is too confiding. One may approach within a dozen yards of the birds, and even when they finally take wing they are more than likely to fly directly over you.

Birds in Southern Hoosier Hills

By Edward B. Clark

The Lost River of Indiana is well named. It flows along its noisy course for many miles, and then suddenly disappears into the bowels of the earth. At a point more than a mile from where the stream gets lost it reappears, and thence to its mouth its way is "clear and above ground." The river flows for some distance through a natural bowl. A rain of a few hours' duration causes an overflow of its banks, and the bowl becomes a lake. A heavy thunderstorm occurred during the night following my first day's trip afield in the Lost River country. The morning showed the haunts of the redbirds and juncoes well under water. There was not a cloud in the sky, but the little valley through which we had tramped the day before was flooded from hill to hill. The highlands offered the only conditions that seemed likely to prove satisfactory to birds and bird lovers.

I found a companion for the second day's outing in a young Indianapolis physician who had sought southern Indiana "for the healing of the waters."

Apparently he had sought it to good effect. Two weeks before he had been carried into the hotel, too weak to walk, and today he was willing to undertake a tramp of ten miles over the hills. Some one told us of a sugar bush that was to be found in the back country. This information was an added inducement to the doctor who confessed a weakness for maple sap.

Before we struck out for the higher hills we came across a group of men and boys at the edge of a pond. A mud hen, which had dropped in during the night for food and rest, was paddling about the water, and acting as a target for the revolvers of half a dozen of the men. The bullets spattered on the surface all about the bird, but it lacked the wisdom to take flight. It swam about in a circle in a half-bewildered way and simply invited death. I asked the men to stop shooting, but I speedily found that humanitarian pleas are of little avail when addressed to a man with a gun. I threw a stone the size of my fist in the direction of the bird, hoping that the splash would frighten it to flight, but the stone had no more effect than the shots. We left the men still popping away, and that evening on our return I heard a big fellow boasting to the group gathered round the open fire in the hotel office that he had killed the bird at the fifteenth shot. Mud hens are notoriously stupid, and they pay the penalty of their stupidity every time a pot-hunter gets into one of their retreats.

I saw my first bluebird of the year that morning in the Hoosier hills. The bluebirds must have wonderful recruiting powers; it was only seven years before that their ranks were so thinned by the attacks of the cold that it was thought the muster roll never again would be full. This spring of 1901 was the first time that I had seen anything like a satisfying number of these sweet-voiced birds since they fell victims to that wintry blast which penetrated far into the southland. It is said now that there are more bluebirds than ever, but this saying is doubtless due to faulty memories on the part of the observers. One bluebird that we came across was gravely inspecting the carcass of a crow which some one had hung on the thorns of an Osage orange hedge. The crow had been killed and put there as a lesson to his marauding brothers, but I couldn't believe that the lesson had sunk very deep into the crow mind, for on a tree less than fifty yards from the body of the deceased, three crows were sitting and sunning themselves unconcernedly.

Before the morning was spent I had found out why it is that heavy windstorms fail to break the eggs in birds' nests that are hung on frail branches which sway and snap with every blast. The roads were in such condition that they were impassable for wagons, and many people passed us on horseback. If memory serves, every one of the horsemen carried a basket of eggs slung over his right arm. The horses floundered through mud holes, and made their stumbling ways up and down hills where the roadway was covered with stumps and stones washed out from the embankments by the heavy rain. The rider in every instance made the basket with its precious burden conform to the sway-

ing motion of the horse, and never an egg did I see broken. One rider told us that he depended largely on the egg crop for a living and that he couldn't afford to smash any. He further volunteered the information that he thought he could fall down hill with his horse "and never crack a shell."

Our way led us through a little hamlet. At the crossing of two roads there was a tavern with a huge tree standing in front of its door. There were six bronzed grackles holding a "windy congress" in the branches. A redbird occupied a perch at the very top of a small tree which stood at the gate of a cottage next the inn. Four boys were playing about the gate, and though the bird was calling loudly, the youngsters paid no heed. I thought it promised well for the future of the race of redbirds when a songster of such brilliancy could sit and sing unmolested just above the heads of four boys who were passing through the sling-shot and bird-nesting age. Thinking it barely possible that the boys, intent on play, had not noticed the bird, I purposely called their attention to it and asked them what it was. They were not backward in expressing surprise at my supposed ignorance, and the answer to my question was, "Don't you know a redbird, mister?" Then they told me there were lots of redbirds around, and that they could whistle "bully." It is more than likely that the very commonness of certain birds of brilliant plumage saves them from destruction. It is to the unaccustomed that human attention is most sharply attracted. In the East in many places the red-headed woodpecker has been practically exterminated. He never was as common a bird there as he is today with us in the Middle Western country. His rarity and beauty invited destruction, and it came. In the prairie towns and villages the red-headed woodpecker is as common as the robin, and despite his beauty, the small boy passes him by with barely a thought.

The red-headed woodpecker came into my mind while we stood at the gate talking to the little Hoosier lads; and following came a thought that not one of these birds had we seen, though I had understood from a friend who had visited the locality before that the red-headed woodpeckers were abundant. When we had left the little village behind us we accepted standing room in a grain wagon, offered by a boy who was driving home from the railroad station. I asked him about the red-headed woodpeckers. He said that generally they were the commonest birds that they had, but that the fall before they had all disappeared, and that he had not seen one all through the winter nor thus far in the spring. I asked him how he accounted for their disappearance, and he answered that the birds left because the beechnut crop was a failure. "The red-heads," he said, "like beechnuts better than any other food. They live on them all winter. Last fall, for some reason, there wasn't a beechnut in the country, and the birds all cleared out."

The lad's explanation was undoubtedly the true one. He said that he had studied something about the birds in school, and that there wasn't as much shooting going on now as there used to be. When he discovered that we were

bird enthusiasts and were out on an opera-glass hunt, he entered into the spirit of the occasion and gave us much information. He was in a receptive mood as well, and I hope that he gained knowledge enough to pay him for what he imparted.

A high-pitched voice, calling "Peter, Peter, Peter," came from some trees on the hillside. The boy stopped his horses.

"I've seen and heard that bird ever since I was born," he said; "I call him Peter, because that's what he calls himself, but what the bird is I don't know; tell me."

By this time I had the bird in the field of my glass, and I told the boy driver its name, though this was my first glimpse in life of "Peter." The discovery of a bird new to the observer makes a red-letter field-day. "Peter" was the tufted titmouse, first cousin to the chickadee. "Tufty" is common enough in the southern Indiana latitude, and is occasionally seen as far north as Chicago, though it had never been my fortune to meet him. Soon more of the titmice came into sight. There was a troop numbering nearly a score. They are active little creatures, and of a jolly temperament. For a week I had ample opportunity to study "Tufty" and his ways; and with all due regard for our little friend, the black-cap chickadee, who does his best to save our Northern winters from dreariness, I confess that I think Cousin Peter is of the more interesting habit.

A woodpecker note that was new made me ask our driver to stop once more. An orange-pated bird scuttled around the trunk of a tree. Here was another discovery. It was the red-bellied woodpecker, common enough in this locality, but hitherto a stranger to the visiting observers. This woodpecker has been getting himself much disliked in recent years. It is not at all an uncommon bird in Florida, and there the orange growers say that it attacks and ruins the fruit. Bird lovers, the country over, are hoping that it will be proved that the bird selects only the unsound oranges for probing. Since it has been fairly well established that the kingbird, which was supposed to be a great destroyer of honey bees, eats only the worthless drones, the red-bellied woodpecker's friends hope that a parallel excuse may be found for its conduct.

We drove under a tree whose branches roofed the road. It was filled with red-winged blackbirds. They were all males, and as they shifted uneasily from twig to twig, they showed to advantage their shoulder-knots of scarlet and gold. It was a noisy flock, but in the spring every bird-note has in it something of softness. Our driver host told us that the redwings were abundant in spring and fall, but that they did not nest anywhere in the vicinity. This statement struck me as being curious, for on every side were places which seemed to be ideal for the purposes of blackbird housekeeping. Beyond the blackbird tree we saw our first meadowlark. He was full of the joy of living, and was trying his best to tell the listening world about it from the top of a fence-post. We drove past the bird without causing him to leave his perch. I have

known the meadowlark since boyhood, but never before had been so near the living bird, except on the rare occasions when I had flushed it from its nest with my trespassing footsteps. A little farther on we found a flock of goldfinches. As doubtless every one knows, the male goldfinch changes his resplendent coat of yellow and black for one of dun in the fall of the year. He takes off this habit some time in the spring, and puts on his summer livery once more. Three of the goldfinches we saw on that March morning were in the transition stage. With them, undressing and dressing must be the matter of a month or so. Familiar as my companion and I were with the goldfinch in both his hot and cold weather attire, neither of us had ever before seen him while he was changing his clothes. As a matter of fact, I did not recognize the bird until the little flock took wing and began the familiar weaving flight across the field. I have seen the goldfinch in northern Illinois as late as April 1st still wearing his full winter costume.

As my friend the doctor and I were bound for a sugar camp, which was supposed to lie at the left of the road we were traveling, the time was approaching when we should have to leave the wagon and take to the fields. In the few minutes which passed before parting with our boy driver he took occasion to tell us that he had liked birds and flowers ever since he could remember. Then he named a number of his favorites. That boy had a keen insight, and knew Nature thoroughly and sympathetically. When we said good by, I casually asked his name.

"Love," he said.

Surely there is something in a name after all.

My companion and I trudged our way over the hills toward the west. A mile ahead we saw a house with a grove back of it. "There, surely," we thought, "we shall find the sugar camp." We made the mile, and were told that we had another one to go. We tramped fully two good city miles, and found we were "not there yet." A man in a field was opening a shock of corn, an operation that was being watched with great solicitude by a dozen crows sitting on a fence a hundred yards beyond. We asked him about the sugar-bush, and were told that it wouldn't do us any good to go there, because it had been a poor season for sap and no trees had been tapped. This was a disappointment to the doctor, who had set his mind on sugar. It had its compensation, however, for our steps were turned aside into what proved to be better bird fields. We started the crows from their roosting place on the fence, and they flapped away across a stumpy pasture, cawing their disapproval of our intrusion. Far away above and beyond a little patch of woods we saw a moving speck in the sky. The glasses showed us that it was a soaring bird. I put it down at once for a great hawk. In a moment I was ready to admit myself stupid, for my companion, keener eyed than I, said, "Turkey buzzard."

Buzzards are common enough, as I afterward found, in southern Indiana, and it was curious that we had not seen them before. In a few minutes two

more buzzards appeared, and before long the three were circling directly over our heads. From the moment that they had come into view I had not seen a single stroke of the wing. The birds simply rode on the air. There was something majestic in their soaring flight. If the turkey buzzard were as interesting a creature at close range as he is at a distance, there are few birds whose acquaintance would be better worth cultivating.

After a while I saw one of the buzzards leisurely flap his wings, and then launch out once more upon his sailing flight. As a matter of experiment I singled the bird out with my eye from his fellows, took out my watch, and sat down on a stump. Twenty minutes passed before that buzzard found it necessary to gain new soaring power from another wing-stroke. One of the birds dropped down to a point within thirty yards of us just as we were passing a farm yard. The yard was full of chickens, and while the ordinary hen is always ready to give a cluck of fear when a bird as harmless as a pigeon passes over, these fowls paid no attention whatever to the big bird whose shadow was thrown over them. The chickens' ancestors doubtless had learned the harmless character of the buzzard, and the knowledge was one of the hereditary properties of these particular barn yard fowls.

With a courage born of hunger the doctor and I rapped at the door of a farm house and asked if we might have some dinner. The answer was a hearty, "Yes, and welcome, if you'll wait until we can cook it."

We were not only willing to wait, but were glad of a chance to rest. We took station on the porch, in front of which stood a tree that was full of woodpecker holes. This farm house was twelve miles from a railroad station, and the nearest neighbor was three-quarters of a mile away, yet here in this isolated spot were the English sparrows in scores. This pest is thought to be city-loving, but here it was perfectly at home miles away from its supposedly favorite haunts. Every woodpecker's hole in the tree had a pair of sparrows in it, and each pair was busy building a nest. When I thought what those holes would mean as home sites for the bluebirds that we had passed on our way, I was ready to eject the Britishers without notice. A farm hand told me that the sparrows had been about the place for three years. He said that the bluebirds disappeared the year that the foreigners arrived.

The recollection of that southern Indiana farm house dlinner is with me yet. We ate in a long, narrow room, which had at one end a huge, old-fashioned fireplace with twelve great cordwood sticks crackling and blazing away in its ample interior. Although the sun was warm, there was a chill in the air that made the fire grateful. I had not seen the equal of that fireplace blaze since early childhood in the far away East. Our hostess gave us to eat of everything that a farm produces. It was a dinner bountiful beyond precedent.. It was a perfect delight to us when we were asked whether we would have coffee or sassafras tea. Of course we took sassafras tea.

When Sir Oriole Comes

By Annie Johnson Flint

When the oriole has come,
Then I know that summer's here;
He's no Spartan, to endure
Frost-nipped toes with smiling cheer.
Long ago the waiting Spring
Sent her mystic summons forth,
And in haste, with clanging cries,
Rose the wild geese, faring north.
Robin came when March winds keen
Ruffled all his feathers bright,
And the flicker's harsh "Ha! ha!"
Mocked old Winter's tardy flight.
Bluebird followed, goldfiinch too.
Then the summer yellowbird,
Acolyte at Summer's shrine;
All day long his chant was heard.

So at last the stage was set
For the court of Queen of May;
Prince of all her cavaliers,
Came Sir Oriole, blithe and gay.
Watch him preen his scarlet coat
In the blossoming cherry tree,
Breathing in the fragrance soft;
O, a sybarite is he!
Does he know—the dainty elf—
How he glorifies the scene,
Like a flaming jewel set
In the white and pearly green?
Did he choose the place with care?
Little bunch of vanity!
Crooning, plaintive, all the while,
Such a wooing melody,
Such a tender, witching call
For his loitering mate to come,
Slim and sleek in satin gown,
Quaker beauty, shyly dumb.
Now, a blazing shaft of light,
See him flash athwart the bloom!
O, I know the summer's here,
For the oriole has come.

The Mallard (*Anas platyrhynchos*)

By Herman C. De Groat

Length: 20 to 24 inches.

Range: Breeds from Pribilof Islands, northwestern Alaska, northern Mackenzie, central Keewatin, and Greenland south to Lower California, southern New Mexico, southern Kansas, central Missouri and southern Indiana; winters from Aleutian Islands, central Alaska, central Montana, Nebraska, southern Wisconsin, northern Indiana, Ohio, Maryland, south to Mexico, the Lesser Antilles, and Panama.

This fine duck is monopolized by no one country nor even continent, but includes in its range both hemispheres. Its size, abundance, and excellent flavor make it perhaps the most important of its family, and its value to mankind is still further enhanced by the fact that it lends itself so readily to domestication that many of our domestic varieties are derived from it. Before the settlement of the West the ponds and sloughs swarmed with mallards, which nested there by thousands, and in fall and winter, as migrants and winter residents, covered the water courses to the south. Today there is a very different story to tell. Many of the mallards' old breeding grounds are now farms, and the bird is now represented by a few hundreds where once there were myriads. The mallard is one of our most omnivorous ducks, and nothing in the way of mast, grain, or small animal life comes amiss. In the far West it has the habit, shared to the same extent by no other duck, of resorting to the stubble for waste grain, and the epicure need ask for nothing more delicious than a fat corn- or wheat-fed mallard. The domestication of this duck is easy, and the owners of estates with suitable ponds can render good service in the cause of wild-fowl preservation by raising mallards for liberation.

Male: Head and neck glossy green; a white ring around the neck; breast, chestnut; belly, dull white streaked with gray lines; back, brown; wings, gray with purple bars; upper tail feathers black and the lowest ones recurved; bill, greenish-yellow and feet orange.

Female: Wings like male; belly, yellowish mixed with greyish-brown; other plumage dark brown with some buff. Length, twenty-four inches.

Nest, usually on the ground near a stream or lake, made of grass and leaves, and if in the far north, lined with down. Eggs, six to ten, greenish-white, 2.30 by 1.60 inches.

The Mallards are the wild species from which our domestic ducks were derived. They are common in the Northern Hemisphere of both the Old and the New World. In America they winter in the southern states and southward and nest mainly in Canada.

They migrate slowly in flocks in early spring and late fall, often stopping for days by the way. They travel by night, and nest and feed in lakes and

MALLARD DUCK

streams by day. While floating on the water, they frequently sleep with their heads under their wings, always, however, leaving one or more of their number on the watch for an enemy. They are very shy and take to the wing on the first alarm. Before alighting again, they wheel several times about the place selected to make sure no danger awaits them.

These ducks are killed in large numbers for food. They feed mostly at dawn and dusk, eating grain, mollusks and the roots of plants. Various methods are used to get near them. Often decoys made of wood and painted to resemble ducks are placed in the water to induce the flocks to alight. Hidden nearby on the shore or in his boat the hunter is ready to shoot when the ducks, deceived by the decoys, stop to rest.

After incubation begins the male deserts his mate and leaves her to hatch and raise the young alone while he leisurely wanders about with other drakes. When the female leaves her nest to obtain food, she carefully covers her eggs both to hide them and keep them warm.

Ducks can swim almost as soon as they are out of the shell. After a day or two the mother takes the brood to the nearest water and does not return again with them to the nest. They spend the day with her in the water seeking food, and at night she gathers them under her wings on the nearest land. Like chickens and goslings, young ducks are covered with fine down for several weeks before their feathers appear. All kinds of ducks, young and old, enjoy diving. Much of their food is found under water and, therefore, they frequently have to stand on their heads while they are getting it. The Mallards utter the familiar quack of the tame ducks.

Domestic ducks are raised in large numbers on farms and in poultry yards both for their feathers and for table use. Like geese, they may be picked several times during the warm weather as their feathers quickly grow again. Their flesh is much prized for food. During the spring months they are fairly good layers but their eggs do not sell well in the markets. These birds are so fond of water that they should have an abundant supply of it. If ponds and streams are not conveniently near, artificial pools should be provided for them.

Shall America's Songsters Be Slaughtered?

By Garrett P. Serviss

The fight of the Audubon societies to preserve our American song birds from destruction is something that all lovers of the natural attractions of this country ought to aid. We boast of several of the greatest songsters in the world, and every Summer they are being shot down without mercy, so that their music becomes fainter and less frequent in the woods and fields. It is robbing the nation to take the lives of these melody-makers!

Three or four of the finest of the American singers belong to the wonderful thrush family, which comprises most of the leading musicians of the bird world. Unfortunately they are regarded by certain persons as "good eating," and that is made an excuse for their slaughter. They include the wood thrush, the brown thrush, or, more properly, brown thrasher; the hermit thrush and the veery, or tawny thrush.

The brown thrasher, which is really a wren, though it looks like a thrush, has been called the mocking bird of the North. It is of a reddish color on the back, with a cream-white breast, marked with arrow-shaped streaks or spots. It loves the neighborhood of inhabited houses, and is very fond of perching and singing in orchards and among shade trees. It has a very merry note, and begins singing at break of day. When it sings it likes to get on the topmost bough, where, unluckily, it makes a good mark for boys' rifles. It is noted for the variety and liveliness of its song.

The wood thrush is a marvel. Neither the nightingale nor the mocking bird can surpass it in the richness, beauty and spiritual melody of its song. It has but one possible superior, the hermit thrush, and but one equally gifted rival, the veery. It is about as large as a robin redbreast, and it is sometimes called the wood robin. Its strongly spotted vest, however, distinguishes it at once from a robin.

The splendor of its song surpasses description. It is the Jenny Lind of birds. George William Curtis said of Jenny Lind: "Romantic singing, picturesque, mournful, weird, could go no further." E. H. Forbush has said of the wood thrush: "Its tones seem like a vocal expression of the mystery of the universe, clothed in a melody so pure and ethereal that the soul, still bound to its earthly tenement, can neither imitate nor describe it.

When I was a boy a wood thrush sang at sundown and during the twilight in a grove of trees across a field from my father's house, and to wait for and listen to the marvelous song of that bird as the Summer night approached was one of the most delightful experiences that I can remember. It awoke a feeling of wonder. It was so unearthly sweet, clear, ringing and melodious that it awed me as if I had heard an angel!

The hermit thrush justifies its name by its life; it lives, retired, and loves the twilight hours of morning and evening in the shades or dark woods and of

thickets and swamps. It is the monk of the bird world and a singer of hymns and anthems. Said Frank Bolles, one of the most eloquent celebrants of the beauties of American outdoor life: "When the hermit thrush sings I feel as if the pine forest had been transformed into a cathedral."

And, again, describing his meeting with one of these birds by the lake at the foot of Mount Chocorua, he says: "Then there came from the midst of the dark pines nearest the shore a voice, and it seemed to me that no other voice in all that wild New Hampshire valley could have come so near expressing the praise, hope and beauty of that spot as the song which came softly out from the shadows.

"Those who from childhood have known the song of the hermit thrush, and had it woven into the very fibers of their hearts will know how I was thrilled by that voice. Others have spoken of the 'grandeur' of the hermit's song and of its power to express 'serene religious beatitude.'

The veery, or tawny thrush, is a small, cinnamon-brown bird, which some persons regard as the sweetest singer of all. It is shy, like the hermit thrush, and keeps to the woodlands, and often prefers marshy places. The power of its music over the human spirit could not be better expressed than in Henry Van Dyke's poem, where, after having proclaimed the veery's superiority to the Italian nightingale, the Scottish laverock and the English blackbird, he concludes with these lines:

"But far away, and far away, the tawny thrush is singing;
New England's woods at close of day with that clear chant are ringing;
And when my light of life is low, and heart and flesh are weary,
I fain would hear before I go the wood notes of the veery."

An Autumn Day

By Millie Noel Long

'Twas a calm day in Autumn, I went for a ramble,
A day of soft brilliance and slow-waving tree,
Of mystical stillness, of wondrous, hid meanings,
Of restful, sweet peace and of freedom for me.

'Twas a rare day in Autumn, of sweet-smelling breezes,
Which bent the long-stemmed, bright-hued flowers so low,
They seemed to be bowing to me as I passed them
And dancing a minuet, stately and slow.

'Twas a spring day in Autumn, one that was belated,
But brought with it all the spring's half-subdued glee,—
I felt it and knew it—the prairie larks proved it
By the wonderful story they chanted to me.

The Yellow-Billed Cuckoo (*Coccyzus americanus*)

By T. Gilbert Pearson

Length: 12¼ inches.

Range: Eastern and central United States from southern Canada to northern Florida and Louisiana.

One cloudy autumn afternoon while strolling along a woodland path I heard a weird mournful voice plaintively calling for many minutes. The sound seemed to come from a cluster of trees across the glen nearby. After a little time I came up to the sorrowing creature and found it seated on the drooping bough of an old gnarled oak. It was a Yellow-billed Cuckoo.

Some of our birds had already departed for their winter visit to the tropics, but the Cuckoo still tarried in the haunts of its summer home. It seemed to feel the solitude of the autumn forest, and although its voice is seldom heard at this time of year, it was now chanting its plaintive cry as if its heart was breaking at the thought that summer was over. It was sitting crosswise on the limb and was motionless except for a slight upward impulse of the body each time it called.

As it did not see me at first, there was good opportunity to notice its appearance. It was about the size of a Robin, but was more slender; its long tail was over half the entire length of the bird. Its legs were short, and its small feet grasped the limb on which it sat, with two toes extending outward in front and two behind. The bird's back and wings were olive brown, and its underparts were dull whitish. The outer tail feathers were black with white tips. Its bill, which appeared to be nearly an inch long, was black above and yellow beneath.

Soon the bird detected the presence of an intruder. For a few moments it eyed me, as the Cuckoo will often do, in a dazed kind of way, all the time slowly raising and lowering its long tail, then swiftly it flew and vanished through the foliage. It could not have gone very far, for as I continued along the path, from the distance there came to my ears the faint murmuring "cow, cow, cow" of the sad, mysterious bird.

The Cuckoo always leads a mournful, secluded life. If we chance to see it at any time while it is with us, from May to October, it will most probably be observed silently slipping from the cover of one tree or thicket to that of another, generally alone, and frequently uttering the harsh guttural note from which it has long since acquired the name "Rain Crow." I never have understood why it should be called a Crow, however. Certainly it does not resemble the Crows in our country either in voice, appearance or manner of life.

The Cuckoo is often heard calling on cloudy days, or just before rains, and for this reason it is usually accredited with the power of foretelling the coming shower. It cannot sing; but it has some notes peculiarly its own which, once heard, are not easily forgotten. "Tut-tut, tut-tut," it seems to say "cl-uck—cl-uck, cow, cow, cow."

YELLOW-BILLED CUCKOO.

In Europe there is also a bird called the Cuckoo. It is larger than our bird by that name and, besides, is a very pretty singer. It is not shy; so a great many people are acquainted with its habits. It was well known when the Bible was written and you can find its name in the list of animals which the Children of Israel were forbidden to eat. Shakespeare, in one of his plays, tells us about the Cuckoo's young. Some of the English poets speak of its singing.

Of all the tales told of the English birds, the one relating to the nesting habits of the Cuckoo must reflect the least credit on the accused.

In the spring when nesting time for birds arrives, it does not build a nest for itself, but quietly steals away and deposits its eggs secretly in the nests of other birds. There the eggs are incubated and the young are reared by the foster parents. While the Cuckoo thus saves itself the labor of building a nest and the anxiety of caring for the young, it has gained an unpleasant notoriety, possessed by few other birds. In this country the black Cowbird has the same habit.

Our Yellow-billed Cuckoo has learned the art of nest building but poorly, the cradle in which the young are reared being little more than a mere platform of twigs. Indeed, so thin and frail a structure is it that the eggs can often be counted through the nest from beneath. It is usually placed on some sheltering limb or among thick vines in hedge rows, along streams and in orchards or groves. The eggs are nearly an inch and a quarter long and are about three-fourths as wide. They vary from two to four in number and their color is greenish blue. Many birds lay their eggs, one each day, with great regularity until the full number has been reached. The Cuckoo, however, often allows a few days to pass after she begins setting on some of the eggs before the others are deposited. Thus there are sometimes found a young bird, an incubated egg and a freshly laid egg, all in the same nest.

Among the branches of our fruit trees we may sometimes see large webs which have been made by the tent-caterpillars. An invading host seems to have come and pitched its tents among the boughs on all sides. These caterpillars are quite destructive to trees, and the Cuckoos do us a great favor by coming often to raid the encampment. They pull the little hairy intruders out of their tents by hundreds and eat them. So many are eaten by these birds their stomachs are often found to be thickly coated with a layer of caterpillar hairs. Cuckoos also eat grasshoppers and different kinds of flies.

In some parts of the United States, especially in the South, the surface of the country is quite level and the soil is of sand. There are found here large tracts of pine woodland, sometimes with no other kinds of trees growing near. In these pine forests the Cuckoos are seldom seen; and in such regions, if we wish to find them, we must search by the lakes and along the streams where other kinds of trees are growing, or else among the shade trees of the town.

The Bureau of Biological Survey of the United States Department of Agriculture has for many years been studying the feeding habits of wild birds with

the object of determining their relationship to mankind. Dr. F. E. L. Beal of this Bureau in his paper reporting on the relation of Cuckoos to agriculture says:

"The insect food of Cuckoos consists of beetles, grasshoppers, cicadas, bugs, ants, wasps, flies, caterpillars and spiders, of which grasshoppers and caterpillars constitute more than three-fourths. In 129 stomachs examined, 2,771 caterpillars were found, or an average of 21 in each. In May and June, when tent-caterpillars are defoliating fruit trees, these insects constitute half of the Cuckoo's food. One stomach was so full that the bird had evidently devoured the whole tent colony, as there were several hundred in the stomach. This diet of hairy caterpillars has a curious effect on the birds' stomachs, the lining of which is often pierced by so many hairs as to be completely furred, the membrane itself being almost entirely concealed. It seems hardly possible to overestimate the value of the Cuckoo's work. All caterpillars are harmful, many of them are pests, and any of them are likely to become so. The common tent-caterpillar formerly fed on the wild cherry, but has now turned its attention principally to apple trees, sometimes completely defoliating them."

How to Attract Birds

By Joseph H. Dodson

I began my work for native birds when I was still a boy. It has been 20 years since I built my first little bird house and experienced a keen thrill of pleasure when a young pair of wrens came to this house and made their home in my garden. During those first years there were many disappointments and many experiments. I discovered to my surprise that birds are very particular about their houses and that you can win them to you only by satisfying all their little whims and prejudices. After a while you will find that these little whims and prejudices of the birds are in reality generally based upon very good reasons. For example, they are particular about the size of the opening. I discovered that this is largely due to their fear of cats or larger birds. The number of holes in the house is another point on which the birds have very decided ideas. I found that this in reality is a matter of ventilation and that what the birds desire is a house well ventilated but so arranged that there shall be no strong draft over the nest. In other words, the birds are a great deal wiser than we are.

It really took me five years to discover what I consider the ideal house for wrens, the ideal house for martins, and the ideal house for bluebirds, for at the same time I was learning how to place the houses and how to give further service to the birds by arranging sheltered feeding shelves, food stations, and bird baths.

Here are a few general rules which should be observed when you make or set out a bird house:

First.—All bird houses should be at least a little weatherworn, for all birds look with suspicion upon newness and abhor fresh paint. Yet the house should

be well painted so it will last, for after being once occupied the occupants will return to it every year and they will expect the same house, and if anything should happen to the house or if it were substituted by a new one you would most surely lose your birds.

Second.—The house should be so placed that there will be as little danger as possible from that great enemy of all birds—the domestic cat. The best protection against these bird fiends, as I call them, is a wire guard placed around the tree, pole, or under the selected nesting site.

Third.—The openings in the houses should be of the following dimensions:

Martin houses, 2x2 inches or 2x2½ inches.

Wren houses, $\frac{15}{16}$ of an inch.

Bluebird houses, 1½ inches.

Flicker houses, 2¾ inches.

Tree Swallow houses, 1½ inches.

Great Crested Flycatcher, 1½ inches.

Chickadee and Nuthatch, 1 inch.

Fourth.—Provide, if possible, one bird bath in a sheltered place, preferably in some spot where you can have the great pleasure of watching the birds bathe and at the same time protect them from the danger of cats.

Fifth.—Proper height for houses: The purple martins, which live in great families running from 20 to 100, desire a house not less than 16 feet in the air. It may be higher, but must not be lower. I have a house for martins which has 26 rooms and stands on a pole 16 feet high. There are more than 100 martins in this house every summer and the same birds come back to me year after year. I know this because I band a great many of them. The proper height for the wren house, which should be hung from a tree or projection from some building, is about 10 to 12 feet. The proper height for a bluebird house, which should be placed on a pole, is 12 to 16 feet.

In choosing the kind of house you are going to put out you should consider first the birds which usually come to your neighborhood every year. Wrens, bluebirds, and purple martins are generally found in most neighborhoods and these birds are very easily won to suitable houses. Robins can be attracted by a sort of shelter shelf, in which to build their nests. Chickadees, flickers and tree swallows may all be attracted by the houses particularly adapted to their needs. The purple martin usually arrives in the central states about the end of April. Martins, as you know, travel and live in great flocks, sometimes as many as five hundred birds living in one house. This is one of the most sociable and delightful American birds, because you can win so many of them to live together. The experience of a Chicago bird lover is interesting and typical of many others in attracting purple martins. He was pressed for time and put one of my martin houses, recently purchased, upon the roof of a shed, intending to place the house upon a pole later on. That evening he returned to his house through an April storm of rain and sleet and was astonished to behold a flock

of martins sitting on the telephone wires, apparently attracted by the new house which still lay upon the shed.

Several passing teamsters noted the pitiable condition of the freezing birds and offered to help raise the house for them. Tools were quickly brought and in a few minutes the united efforts of the kindly workmen had swung into place the heavy pole with its handsome bird house on top. While the last screw was being put into place, the birds, seeming to know that the house was for them, darted eagerly into the dripping shelter. They were quite fearless of the men on the roof of the shed and their twitterings of contentment could be distinctly heard. The house has been inhabited every year since.

I make all my bird houses of wood because I have found in long experience that the birds prefer this material. I have, however, made some wren houses from tin cans and they have been particularly successful, although they are apt to get too hot in the summertime and should always be hung in semi-shade. I have also made a number of houses from long-necked gourds. These houses are better than the tin ones, but neither kind is as good as those well made of seasoned wood. I use oak and clear white pine with cypress shingles, and on most of my houses provide a copper top for durability as well as for beauty.

The martin and bluebird houses, as I have explained, should be erected on a pole, although I have won bluebirds by a hanging house as well as by one on a pole.

Probably most of us are drawn to the good work of protecting native birds because there is such a keen pleasure in watching the life of these birds. At the same time it is well that we should understand how important this protection of the birds is to our future welfare. For a good many years after I began my work for the birds I did not really appreciate how important a factor these birds are in protecting the fruit and grains of this country. I now know by the work of scientific authorities that the destructive work of insects in the United States alone costs the country more than $800,000,000 every year. The scientists say that the codling moth bites $12,000,000 a year right out of our apple crop alone, and this little insect would take several times as big a bite but for the fact that we spend $8,000,000 a year in spraying this one particular pest. Remembering these big figures and the fact that they come from men who know, we will have to look upon the native birds of America as great benefactors and necessary aids. The year-book of the department of agriculture states positively that "by far the most effecive aids to man in controlling the codling moth are our native birds."

Scientists say that if the natural increase of the gypsy moth were unchecked it would result in the complete defoliation of all the trees in this country inside of eight years. The birds are our natural protectors, and by ignorance and thoughtlessness we have allowed a great many of them to be driven away from our gardens. We have not given them the encouragement and protection their usefulness deserves. The birds not only bring beauty, charm, and cheer into our

lives—they protect the very food upon which we live. It is then every man's duty to do something to help these delightful little friends of mankind.

Don't imagine because you live in the city or busy town that you cannot win native birds around your home. There are birds near you and you will be surprised how readily they discover an attractive house so placed that they can with safety take it as their own and while I myself live in a suburb of Chicago, I am really in the city, as my home is just over the line and as many as 1,500 autos an hour pass my house at certain hours of the day. I have only one acre of ground, yet I have 54 bird houses, numerous shelters, food devices, baths, etc., in this garden and have from 300 to 500 native birds living on my property all the time every summer. I have from 50 to 75 birds who stay with me all the year around. Birds do not freeze, as many people suppose—they suffer and die from hunger. If they could get something to eat they would stand any cold in the winter, as their little hearts beat just twice as fast as ours. By providing them with shelter and food devices I am enabled to keep them with me the year around.

There is another most important matter with reference to attracting birds—that is, the planting of the right kind of trees and shrubs. One can just as well plant species which will furnish a continuous supply of food. They are just as hardy and really more beautiful than other shrubs, as they have a double beauty —first the bloom, and then the berry, which the birds eat and thrive on.

In addition to the great host of cultivated fruits, trees, shrubs, and plants, which are found more or less in every residential back yard, we have the native wild forms of the same, which are largely used in landscape work, because of their ornamental berries. Our present study is not for pleasing effects to the eye of man, but what attracts and feeds the birds.

We naturally are first reminded of the wild crab and plum and the two forms of wild cherry trees with the numerous family of bush-cherry like the choke-berry, sand cherry, and the American and European bird cherry. The great variety of thorn have representatives in many sizes of fruit and different periods of blooming, but they all flag the birds when in fruit.

The mulberry trees fruit first and are always located by the birds, who hold daily receptions in their branches while the fruit lasts. The American and European juneberry, which is called shad-berry in the East, as it blooms when the shad run in the Delaware River, is a tree with berries high out of the reach of those in search of blueberries, to which it is quite similar in appearance and taste.

The brilliant festoons of all the barberries are an easy mark for the birds. No one loves to see the red, black, or white currants carried off by the winged visitors, but do not begrudge them at any rate the ornamental forms of the currant, such as the Golden Flowering, Gordon's Red Flowering and the Wild Black, whose fruit, though not equal to the cultivated, easily appease the birds' not over fastidious taste.

The high bush cranberry and for that matter all that family known as the viburnums, such as the arrow-wood, nanny-berry, wayfaring tree, and the glossy leaved, all run a lunch counter for the birds in the fall.

We have pretty well covered the lines suggested by the edible fruits, but we have still the stately hackberry tree and vines like the bittersweet, woodbine, and even poison ivy, from which the druggist makes a remedy for rheumatism for man. A few matrimony vines must naturally be associated with every lover's nook, and all single flowering roses, like the Sweet Brier and Rugosas, produce very showy red or black "hips."

The Indians fancied the strawberry tree and called it the "Wahoo," and the Japanese form is considered the most valuable shrub grown. The oleaster or wild olive, with its silver foliage and attractive fruit, is also in demand. The buffalo berry and sea buckthorn are closely allied to the olive.

Any elderberry that does not get robbed of its flowers to make tea of, will later be found loaded with berries, and there are also those with cut leaves, and a golden leaved variety.

Many shrubs are prized for their growing well in the shade. For instance, the dogwoods, honeysuckles, and the buckthorns, all of which have a numerous family varying in color of flower and fruit and time of blooming. When a bird hedge is wanted, there are three forms of privet, the Amur, growing like a candle-flame, the Ibota, which spreads more, and still the Prostrate, which is three times as wide as high.

Among the so-called trimmers in shrubbery bushes of low habit which are used in large quantities in the foreground of shrubbery belts, the snowberry, wolfberry, and the coralberry or Indian currant are largely used.

For a pleasing autumn effect the highly colored sumach, both smooth and staghorn, with their cut-leaved forms, are used, but their fruit is very palatable to the songsters.

Shall we close our list by referring to the "Devil's Walking Stick," Aralia Spinosa, which carries on high a mass of flowers which later become very ornamental in berry? Its spiny stem gives cause for its name.

Because of the prodigal supply during the summer, providentially many berries like the cranberry and the barberries are persistent and hang on and become a base of supply for the birds who remain over most of the winter.

The above list gives only the favorite varieties of the birds that are hardy in our northern states and are not expensive or difficult to get from any reliable nurseryman.

One of the most important things to remember in winning birds is that they must be given protection against their enemies—first, the domestic cat; second, the English sparrow.

The truths that I have to tell will hurt many of you who care for cats. Let me, then, begin by saying that I once loved cats myself; and understand that I do not advocate the wholesale destruction of cats. I believe that cats should be licensed and that their owners should be made responsible for their comfort and

safe keeping; there is no humanity in allowing great numbers of deserted stray cats to wander about, half starved, half wild, hunters of birds.

Cats destroy millions of native birds in this country every year. Well known authorities agree that cats kill more birds than are killed by all other animals combined. Native birds are absolutely necessary to us as destroyers of insect life. A yellow throated warbler will consume 10,000 tree lice in one day; a scarlet tanager has been watched closely and seen to devour gypsy moths at the rate of 35 a minute for 18 minutes at a time. I found 2,000 mosquitoes and many house flies, beetles, and other insects in the stomach of one purple martin which was killed on my place. Men who have given their lives to the study of this subject claim that we could not live if it were not for the birds—the insects would destroy vegetation. Insects now cost this country—by their destruction of fruit and grains—between $400,000,000 and $800,000,000 a year.

And cats are allowed to prey upon our greatest defenders—native birds. Our sentimental blindness favoring the cat is in reality multiplying insect life beyond the power of our calculation. By sparing the cat we are murdering millions of birds every year and giving life to hordes of insects.

It is bad to lose your birds by the secret hunting trips of your own cat. It is even worse, as many of us have discovered, to lose birds by the energy of our neighbor's cats.

Birds and cats cannot live together. The birds are frightened by the mere presence of a cat. They prefer to have their houses placed far away from the home or haunt of a cat. And even if the birds do come to live at a place where a cat is kept, those birds are in constant danger of death.

If only you will give the birds a chance—have them about you one summer —I know you will gladly let the cat go, and will never regret it. I have used, and have let my friends use, a cat trap.

This trap is baited and set back in the shrubbery out of sight and no one is the wiser for it, and no hard feelings from my neighbors, who have been notified to keep their cats out of my grounds or take the consequences. These bird fiends which I caught—more than a score altogether—I have buried under my rose bushes, grape vines, and fruit trees, and such beautiful roses and luscious fruits, their equal cannot be found anywhere in this neighborhood.

I was forced to do this by the cats which came secretly hunting my birds. Imagine my feelings when on some bright morning of early summer I hear a great twittering among my wrens, and looking closely about, discover feathers, a few drops of blood, and the footprints of a cat! I am not cruel. I have lived among my birds too long for that. But I could not be true to them if I did not protect them from the stealthy hunter—well fed from my neighbor's table—the cat that kills for the inborn lust of killing.

If you really love birds you will not let the cats get them—either your own cat or those from other houses.

Probably if you have a cat and if you love birds, too, you are like many people I know—you think I must be exaggerating the evils ways of Pussy. I chal-

lenge you to watch the cat and the birds. Leave the cat where birds are near and—*secretly*—watch him. It may cost the life of a bird, but it is better that you should know the truth. And after you have watched a cat's deliberate cruelty in killing a bird you will not be so fond of the cat.

There are a few cats—very few—which do not hunt birds. Most of these are foreign species—Angoras, for example—or city cats which, after several generations of closely confined lives, have lost the instinct to kill birds. I am thoroughly confident that a little country life revives this instinct.

Now regarding the English sparrow; he is noisy, dirty, filthy, and quarrelsome, and fights every one of our song birds. Twenty sparrows came against my first three martins, and if it had not been for my assistance, and the arrangement of my house, I certainly would have lost them. It is a fact that the sparrow will carry lice from one chicken yard to another, and chicken lice live and grow fat on the sparrow. The sparrow will pick up a feather in the yard to aid in building its nest and as many as 180 chicken lice have been found on one feather.

The Michigan University has, after a long and thorough investigation, decided that the sparrow carries hog cholera from one farm to another.

Our government not only classes the sparrow as a pest, but issues a pamphlet entitled, *The English Sparrow as a Pest and How to Destroy It.*

Help wipe out these pests, the English sparrow and the alley cat, and provide our feathered friends with proper shelter, food and water and you will have about your home a delightful chorus of bluebirds, wrens, purple martins, flycatchers, tree swallows, chickadees, nuthatches, and all the other native song birds.

The Pine Grosbeak (*Pinicola enucleator leucura*)

By W. Leon Dawson

Length: 8½ inches.

Range: Northeastern and central North America.

Food: Mostly seeds from small growth pines and weed seeds.

Another of our rarer winter birds, whose occasional visits serve only to stimulate a desire on our part for a closer acquaintance, is the Pine Grosbeak. It is almost exclusively a bird of the deep pine forests, so it is not to be wondered at that it so seldom ventures into our state. While found more commonly in Pennsylvania and regularly in New England, it breeds only from the northern portions of the latter region northward. Like many another woodland recluse, the Pine Grosbeak often appears dazed when it encounters civilization and may not infrequently be taken with butterfly nets or even with the hand. It is on record that the markets of Boston were abundantly supplied one winter with

PINE GROSBEAK.
(Pinicola enucleator.)
⅔ Life-size.

these birds. It was, of course, in early days (1835), when the Puritan stomach was less influenced by sentimental consideration. Or it was, perhaps, before a higher use had been found for them, namely, to decorate ladies' bonnets.

Although such a timid recluse, with little of the savoir faire of the world, the Pine Grosbeak is a born poet and dispenses sweetest music to his neighbors in the Laurentian wilds. The song is described as "clear, sweet and flowing, like that of the Purple Finch," but stronger, of course, as becomes the larger size.

The food habits of this species are as yet imperfectly known. They are known at least to eat small fruit of all sorts with avidity, and specimens obtained in the far northwest were found to have fared exclusively upon poplar buds. When with us mountain ash trees are sure to be visited, and cedar berries, when obtainable, are very welcome.

It is noteworthy also that the southward moving flocks of winter are composed almost exclusively of young males and sombre-colored females, while the older males remain for the most part in their northern homes.

The Magpie (*Pica pica hudsonia*)

Length, from about 18 to 21 inches. The black head and body and the white belly, white wing patches, and long tail are distinguishing features. The yellow-billed magpie is smaller with a yellow bill.

Range: A characteristic western species. Breeds from Aleutian Islands and Alaska, central Alberta, southern Saskatchewan and Winnipeg Lake south to northern Arizona and New Mexico, and from the Cascades and Sierra to western North Dakota and western Texas; resident.

There are two species of magpies, the yellow-billed being confined to California, where it is very local. In general the habits of the two are similar. "Maggie," as this bird is familiarly known in the west, possesses dual traits. He is beautiful of plumage and adds much to the interest of the landscape as he flies from field to field, his long tail extending behind like a rudder.

Of eminently sociable disposition, this bird is rarely seen alone. He prefers flocks of family size to 50 and upwards. In more ways than one the magpie is like the crow and his sagacity has developed along much the same lines. In most localities he is suspicious and wary, as he has good cause to be, for he is not a favorite with either farmer or ranchman. He is eminently carnivorous, a carrion feeder by preference, an insect eater by necessity, and he performs good service in the latter role. He eats also many wild fruits and berries, but he is an incorrigible thief and well he knows his way to the poultry yard. No sound is sweeter in "Maggie's" ears than the cackle of the exultant hen that has just laid an egg, and the hen house must be well protected that keeps him from his plunder. Perhaps his worst trait, however, is his fondness for the eggs and nestlings of small birds.

The White-Throated Sparrow (*Zonotrichia albicollis*)

By Edward B. Clark

Length: 6¾ inches.

Range: North America, east of the Rocky Mountains.

One of the handsomest of our sparrows.

In the shelter of the country thickets and of the city park bushes in late April and early May the white-throated sparrows are found. Then they drop down at sunrise from their night journeyings to rest, to glean the seeds and perhaps to sing.

The Spring Whitethroat is bound for his northern summer home in the land of the balsam forests. If he consents to sing while exercising his stop-over privilege, the song carries us to the camping ground under the trees that shadow the spring-fed streams, and thought comes of the coolness and the clarity of far northern summer days.

The Whitethroat on his summer journeyings passes unnoticed of the people, but he deserves the attention which he doesn't get. He dresses soberly in ash gray, white and brown, with a crown of black divided in its center by a narrow strip of white. The bird gets its name from its snow-white square throat patch.

The Whitethroat has small place in literature, but he has found his way into the heart of the woodsman, and with that, probably, the bird is content, for he makes the woodsman his close companion during the months of his stay in the wilderness.

The books have attempted to reproduce the song of the Whitethroat in words, and the books have failed. In one place we read that the sweet and at times almost ecstatic song of the bird is but an effort to repeat "Old Sam Peabody, Peabody, Peabody," and in another place we read that the Whitethroat is advising the farmer thus: "Sow wheat, Peeverly, Peeverly, Peeverly." This reduction of the song to words brings it down to absurdity. Neither the fame of the philanthropist Peabody nor the industry of the farmer Peeverly can justify the coupling of their names with the pure music of this white-throated bird of the wilderness.

The notes have in them something of the song of the stream and something of the whisper of the trees. They are clear and true at all times. The song may lack the spiritual quality of the notes of the bird's wilderness companion, the hermit thrush, but it is a happier song, as the Whitethroat seemingly is happier than its shy hermit friend.

Some day one of the poets will wander into the wilderness and will hear the Whitethroat sing, and then if the song doesn't move responsive song the poet is no true singer. The Whitethroat is a confiding bird. It will come to the entrance of the camper's hut and tell him in song of the wife and the household on the ground, or in the low brush where the raspberries grow in the clearing. He

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

will pick up the crumbs which fall from the camper's table, and before he will eat as many as one of them he will see to it that the wife on the nest in the clearing has a satisfying share. As affection is the keynote of the Whitethroat's song, so it is the keynote of his manner. Small wonder that the woodsmen love him, and more wonder is it that the poets have not sought him out.

Migrating Birds

By Elizabeth E. Elliott

The autumn leaves are falling
The summer blooms are dead.
Migrating birds are trilling,
And winging over head,
Far to the sunny southland
From northern winds and snows,
Hast'ning, where on beach and strand,
The year long flower grows.

The blue birds' flash of azure,
The black birds glint of night.
Our northern ruby treasure,
The tanager's in flight.
The honey seeking hummer,
The cat bird, with its call.
The birds we've loved in summer,
Are leaving with the fall.

Fussy, scolding Jenny Wren
Has led her brood away,
Shy veery within the glen
Is silent now all day.
Our birds, of song the rarest,
Have flown to southern lea,
And left our northern forest,
The blue jay and to me.

The Mourning Dove (*Zenaidura macroura carolinensis*)

By William Dutcher

Length: 12 inches.

Range: Temperate North America, from southern Maine, southern Canada and British Columbia south to Panama and the West Indies.

"Oh! that I had wings like a dove! for then would I fly away and be at rest."
—*David*

Mourning Dove. Adult male—Upper parts olive grayish brown; forehead, a soft, delicate wine-colored pink; crown, bluish slate; chin, whitish; sides of the neck with bright pink and ruby iridescence; black spot under each ear; black spots on some of the wing coverts; ends of primaries, showing when wing is folded, brownish black; feathers of tail markedly graduated, central ones in color like back, the outer ones slaty gray, then banded with black and broadly tipped with ashy and white; breast, wine-colored pink changing into cream-buff on belly; on sides under wings, bright bluish; feet, lake-red, in life; bill, black, averaging a trifle over ½ inch in length. Adult female—A trifle smaller than the male; much more grayish and brownish; lacks pinkish breast; iridescence on sides of neck much restricted and sometimes lacking. Young—Like the female, but lacking the iridescence on neck and the black spots under the ears. The feathers of upper parts tipped with grayish white.

Note—The only other bird that the Mourning Dove can be confounded with is the Passenger or Wild Pigeon, now extinct. The latter, however, is a much larger bird and does not have the black spots under the ears. This distinguishing mark is a sure means of identification of the dove.

Is there a farmer in the country who, after a hard day's work with hoe or cultivator, has not wished that some other means could be devised to prevent the rapid growth of noxious weeds, and at the same time emancipate him from the sweating brow, the blistered hands and the aching back?

There is one means of weed destroying that has been entirely overlooked by the agriculturists, probably because they never seriously considered the food habits of the dove.

Recent investigations made by the Biological Survey, U. S. Department of Agriculture, of the food of the dove, prove this bird to be of incalculable value. The examination of the contents of 237 stomachs of the dove shows over 99 per cent of its food consists wholly of vegetable matter in the shape of seeds; less than 1 per cent being animal food. Wheat, oats, rye, corn, barley and buckwheat were found in 150 of the stomachs, and constituted 32 per cent of the total food. However, three-fourths of this amount was waste grain picked up in the fields after the harvesting was over. Of the various grains eaten, wheat is the favorite, and is almost the only one taken when it is in good condition, and most of this was eaten in the months of July and August.

MOURNING DOVE.

Its nest is usually a frail platform of twigs, if placed in a bush or tree, but in many instances the eggs are laid on the ground, especially in the treeless west. Unusual nesting sites are frequently selected, such as the abandoned nests of other species of birds, tops of stumps, rocks, sheds, etc.

Eggs—Pure white, and moderately glossy. Usual number two, sometimes only one.

Corn, the second in amount, was all old damaged grain taken from the fields after the harvest, or from roads or stock yards in summer. The principal and almost constant diet, however, is the seeds of weeds. These are eaten at all seasons of the year. They constitute 64 per cent of the annual food supply, and show very little variation during any month. Some of the seeds eaten were so minute it would seem that none but the smallest species of birds would eat them, and then only when driven to do so by lack of other food. Some instances of the enormous numbers of seeds that individual birds consumed will be of interest. In one stomach were found 7,500 seeds of the yellow wood-sorrel (Oxalis stricta), in another 6,400 seeds of barn grass or fox-tail (Chactocloa) and a third had eaten a variety of weed seeds, including 9,200 seeds.

The three doves in question benefited the farmers on whose land they fed by destroying 23,100 prospective weeds. Is there a farmer in this land who would not welcome as a friend the man who would offer to uproot and kill 23,100 weeds? Yet because the doves go about silently and unobtrusively, and make no loud boasts about the good they are doing, they are thought of little or no value. In many sections of the country this valuable, harmless, and gentle creature is considered as a semi-game bird, and is shot during a large part of the year. It is a question for the farmers to settle whether they will permit anyone to kill on their land birds that annually destroy tons of the seeds of pigeon grass, ragweed, smartweed, bindweed, and many other noxious plants, and are thus worth so much as helpers on farms. The matter resolves itself into a question of figures, i. e., dollars and cents to the farmers. If three doves at one meal destroy 23,100 weed seeds, and thus prevent the growth of the same number of prospective weeds, how much good will all the doves on a farm or in a state, or in the country at large accomplish? Or, to present the case in another way, how much will it cost in time, labor and actual cash to destroy what the doves will eat if they are protected and encouraged to remain on the farms? The farmers in the United States spent in 1899 the enormous sum of $365,305,921 for labor; how much of this was paid for killing weeds, and how much of it could have been saved if no doves had been killed but all had been protected and permitted to perform the work that the Creator designed them to do? The dove is far too valuable an auxiliary to the agriculturists to have it classed as a game bird. Its value consists in its weed-destroying activities, and not in the few ounces of food it may furnish if shot as a game bird. It is a rival of bob white as a weed seed destroyer.

The Bay-Breasted Warbler (*Dendroica castanea*)

By I. N. Mitchell

Length: 5½ inches.

Range: Eastern North America.

Song: A low liquid warble.

It is a beautiful company, this warbler family, that come to us about the middle of May. We are fortunate, too, in the number of species that traverse our woods and fields, and best of all, a large and increasing number of her people are interested in the passing show and enjoy "warbler week" as the most delightful days of the migration.

Of the nearly forty species—thirty-eight by the book—that pass our doors, the large majority go on into Canada for the nesting season. Among these is the bay-breasted warbler, so rare that few besides the bird hunters see it, so common to them that it is an unusual spring that fails to find it on their records.

This warbler, though not to be compared with some of his fellow travelers in beauty, is nevertheless, a beautiful bird. The throat, breast, sides, and crown are a bright chestnut or bay, the forehead and sides of the face are black, the sides of the neck are buff, and the rest of the upper parts are sparrow color relieved on the wings by two white bars. This coloring—nicely shown in the cut—taken in connection with its sprightliness and well-groomed plumage, justifies one in placing the bay-breast among Mr. Van Dyke's "little dandies of the air."

In its journey through our midst, this warbler is not given to singing. The song is said to be a short, wheezy "tse-chee, tse-chee, tse-chee, tse-chee, tse-chee," which is certainly more suggestive of a nimble sneeze than a warble and has prompted Mr. Bradford Torrey to say in his very expressive way, "These warblers are poor hands at warbling, but they are musical to the eye." From which it naturally follows that warbler week is the spring season of coloratura opera.

If not good singers, the warblers are great travelers. Our bay-breast spends the winter in Central America, but when the breeding season calls, it leaves the warmth of the tropics and picks its way northward going as far as Hudson's Bay and Labrador.

On this long journey they feed as they go and do good service to the trees and shrubs by ridding them of great numbers of injurious insects, and being little birds, hunting for little insects, no part of tree or bush is too small to escape their keen eyes and sharp bills.

Their habits most nearly resemble those of the Chestnut-sided warbler.

It is rather hard to identify, because its song so closely resembled the Black-polls.

BAY-BREASTED WARBLER.
(Dendroica castanea).
Life-size.

The Road Runner (*Geococcyx californianus*)

Length, 20 to 24 inches, mostly tail. Quite unlike any other North American bird in form and color.

Range: From the upper Sacramento Valley south through California and the peninsula and from Colorado, Kansas, middle and western Texas, Arizona and New Mexico southward; resident.

The name "road runner" when applied to a cuckoo may seem an anomaly to those who may know only our eastern cuckoos, but in truth the road runner is anomalous in many ways. It is distinguished by curiously marked plumage, the possession of a long bill and a disproportionally long tail. As a result of its strange appearance, and stranger antics, the road runner is made the hero of many a fable. Among other wonders it is claimed that it can outrun the swiftest horse and kill the biggest rattlesnake. It is said to accomplish the latter feat by surrounding the reptile while asleep with a rampart of cactus spines on which the enraged reptile accommodatingly impales itself.

The truth is that when in a hurry this ground cuckoo can run with great speed, though as yet no official record of its best time has been made. Its food consists of a great variety of harmful insects, among which the snout beetles or weevils are conspicuous. It devours also mice, horned lizards, centipedes, land shells and small snakes; probably a young rattlesnake would fare no better than any other small snake. Its notes are difficult to interpret with words, but are not likely to be forgotten when once heard, and they are frequently uttered in the early morning from the topmost bough of a mesquite or other tree.

The Arkansas Kingbird (*Tyrannus verticalis*)

Length, 9 inches. The white edge of the feather on each side of the tail distinguishes this from all other flycatchers except the gray and salmon-colored scissortail of Texas.

Range: Breeds from Minnesota, Kansas, and Texas to the Pacific Ocean and from northern Mexico to southern Canada; winters from Mexico to Guatemala.

Habits and economic status: The Arkansas kingbird is not so domestic as its eastern relative and seems to prefer the hill country with scattered oaks rather than the orchard or the vicinity of ranch buildings, but it sometimes places its rude and conspicuous nest in trees on village streets. The bird's yearly food is composed of 87 per cent animal matter and 13 per cent vegetable. The animal food is composed almost entirely of insects. Like the eastern species, it has been accused of destroying honeybees to a harmful extent, and remains of honeybees were found to constitute 5 per cent of the food of the individuals examined, but nearly all those eaten were drones. Bees and wasps, in general, are the biggest item of food (38 per cent), grasshoppers and crickets stand next (20 per cent), and beetles, mostly of noxious species, constitute 14 per cent of the food.

Wilson's Petrel (*Oceanites oceanicus*)

By Gerard Alan Abbott

Length: 7 inches.

Range: Atlantic Ocean, North and South America.

The little petrels are commonly known everywhere as "Mother Carey's Chickens." They are ocean wanderers who spend almost their whole lives on the billows of the deep. Always they follow in the wake of ships, quickly pouncing upon any refuse that may be thrown overboard. Even the smallest morsels catch their eyes, and, to quote Nuttall, "they suddenly stop in their airy, swallow-like flight, and whirl instantly down to the water. Sometimes nine or ten thus crowd together like a flock of chickens scrambling for the same morsel; at the same time, pattering on the water with their feet, as if walking on the surface, they balance themselves with gently fluttering and outspread wings, and often dip down their heads to collect the sinking object in pursuit. On other occasions, as if seeking relief from their almost perpetual exercise of flight, they jerk and hop widely over the water, rebounding, as their feet touch the surface, with great agility and alertness."

Petrels delight in a storm, for it usually brings them food in plenty and they seem to know when one is coming. They gather about the ship in a flock and strike terror to the hearts of the superstitious sailors. When the waves run wildest they mount them gleefully and are seen "descending their sides, then mounting with the breaking surge which threatens to burst over their heads, sweeping through the hollow waves as in a sheltered valley, and again mounting with the rising billow, they trip and jerk sportively and securely on the surface of the roughest sea, defying the horrors of the storm, and, like some magic being, seem to take delight in braving overwhelming dangers."

Petrels, it is said, get their name from their habit of walking on the water like Peter of old. However, they only appear to patter over the surface with their long, slender, black legs and little web feet, for in truth, they are supported by the constant motion of their wings. At night, when these restless birds have finally managed to tire themselves with their endless game of cross-tag and their excursions far and wide on every side of the swiftly running ship, they tuck their heads under their wings and settle down upon the waves to slumber peacefully. In the morning they are up and away with the wings of Mercury and manage to overtake the vessel by nine or ten o'clock.

Two species of petrel are common along our eastern coast. They are Leach's petrel and Wilson's petrel. The only noticeable difference between them is that the first has a forked tail and black webs between its toes, the latter a "square" tail and yellow webs. Leach's petrel nests about the Bay of Fundy and off the coast of Maine, but Wilson's petrel nests thousands of miles away in the southern seas. The "home" of each is said to be a hole in the rock or

From col. Chi. Acad. Sciences.

WILSONS PETREL.
⅔ Life-size.

sand to the depth of a foot or more. The eggs are white and almost transparent. The young are fed with an oily substance which the parents raise from their own stomachs and pump down the throats of the babies with an odd cluttering sound, like a frog's. It is said that the parents rove the sea during the day and feed their young at night. Basket says: "The baby petrels revel in the delights of a cod-liver oil diet from the start."

Indeed, the bodies of petrels are largely oil, no doubt from feeding so much on fatty substances. It is said that the people of Faro Island draw a wick through the body of the petrel and burn it for a lamp! Leach's petrel has so much oil about it, that when it is handled it squirts out a yellowish oil from the nostrils. This oil has a pungent, musk-like odor and there is so much of it about their nesting site that searchers have been guided by it to the nests.

Probably at least a dozen other forms have been recorded on our continent as the petrels are great wanderers and frequently stray out of their course. The feet are webbed and the wings are long and powerful. The flesh is so oily that the plucked body of a petrel supplied with a wick, similar to that of a candle, will burn for over an hour.

Petrels feed from the surface of the water, picking up food while swimming or while on the wing. They seem to delight in following vessels at sea to pick up the refuse matter thrown overboard as they fly close to the water. They also follow the breakers often seizing an unfortunate crab or crawfish that is cast up by the waves.

Wilson's petrel resorts to islands in the Southern Hemisphere during the breeding season. The single white egg, sometimes faintly wreathed with dull lavender, is incubated at the end of a three-foot burrow. The tube-nosed swimmers lay but a single egg. When disturbed on their nests they emit an oily substance from their crops very disagreeable to the intruder.

Audubon's Resting Place

By Jennie Pendelton Erving

The cold spring morning wears an icy lace,
  The climbing sun will scarcely coax away
Till noon from these long slopes, where still a trace
  Of winter's white is lurking, shrunken, gray
  Among the mossy shafts that rise to show
  That hundreds dream below.
For this calm pleasance is a burial place.
  Today no prudent daffodil will blow,
And yet the birds chirp on with saucy grace;
A sturdy robin with a russet breast,
  A flock of blackbirds darkening the trees,
  Their feathers ruffled by the holden breeze,
And all so bold—so quick to stow a nest
In these bare crotches. Though there roars about
The clang of city streets, the birds fear naught,
  What instinct could have taught
    Each wee sharp brain and ear
  That 'neath this pillar, wrought
  With chiseled bird and beast, flung quaintly out,
  Their friend, their gossip, Audubon lies here?

Bush-Tit (*Psaltriparus minimus and sub-species*)

Length: From 4 to 4½ inches.

Range: Pacific coast from southern British Columbia to the Cape Region of Lower California, and eastward to the interior of Oregon and California; nests generally throughout its range.

This pigmy among birds has many of the characteristic habits of the chickadee family, of which it is the smallest member. Extremely sociable, bush-tits move about in large flocks, occasionally in company with other birds, generally without. One moment you are alone, the next moment the trees and bushes are full of these diminutive little busy-bodies that scan you with their curious bead-like eyes as they hurry on in quest of food, keeping up the while a constant calling and twittering. Their pendant nests, often attached to oak trees, suggest the well-known structure of our hang-bird or Baltimore oriole, and are excellent specimens of bird architecture.

The few western states favored by the presence of this bird are to be congratulated, as more than half its animal food consists of insects and spiders, nearly all of which are harmful. Among the insects are many tree bugs, *Hemiptera,* which contain our most dreaded insect pests, such as the black olive scale and other scales equally destructive.

The Wise Crow

Nelson R. Wood, a taxidermist at the Smithsonian Institution, after having made practically a life study of the crow, claims that it is the most intelligent bird in existence. In my youth, he said, I was a farmer boy, and one of the few pets I possessed was a crow given me by my teacher. This crow, Jack, became something of a "Mary's little lamb" pet. No matter where I went he would be near. When I was not working in the field he would hang around looking for food. Sometimes I would catch a worm and would call out "Come here, Jack, and see what I've found," and over he would scurry and gobble it up. The wild crows, incidentally, did everything they could to coax him back with them, and, while Jack refused, he lived in constant terror of them.

I have seen some wonderful instances of intelligence on the part of crows, Mr. Wood continued. One bird, I remember, took a keen delight in tobogganing. He would take a shoe-blacking box top to the top of a board which leaned against the house, climb into it and slide down. This seemed to be his chief pleasure, in which he was ready to indulge at all times.

Another crow preferred his bread soaked in water. One day I caught him picking around a jar top. He finally got it the way he wanted, dropped his bread in it, and then, picking the top up, took it over to his trough. After holding it under the water for a second he proceeded to eat the bread with evident relish.

While crows are exceptionally intelligent they are at the same time abnormally afraid. Their fear is silly, and as many times as not without foundation. One bird I had was afraid of a soda-cracker. The mere sight of it sent him scuttling to his perch, and so long as it remained in evidence he could not be coaxed down. He was equally afraid of a swinging door.

Another bird was afraid of black to the extent that a black tie affected him the same as an entire black suit. Still another feared peanuts. Were a peanut put on the top of his food he would go for hours without touching a morsel.

Crows are usually affectionate, almost as much so as dogs, Mr. Woods claims. Once a crow becomes attached to you he will always be your friend. Leave him, and, while he will make one friendship during your absence, he will come back to you as soon as you return.

Crows must have playthings, and with these they play as intelligently as children. When I am hammering away at something my crow will hammer away in his cage with a tiny stick.

More than this, crows are naturally clean. When they are eating, if the tiniest particle sticks to their plumage they immediately stop to remove it.

Altogether, I consider the crow the most intelligent of birds and one which more than repays any one for the time and trouble required in training him. Crows are more than mere pets, they are companions.

The Dusky Grouse (*Dendragapus obscurus*)

By Henry W. Henshaw

Length: 20 to 24 inches.

Range: Rocky Mountains from northern Utah and northern Colorado to central western New Mexico and central Arizona, and west to East Humboldt Mountains, Nevada.

Food: Bearberries, raspberries, insects, leaves and buds.

Plumage, gray, white and black; darkest on the back and tail, which is margined with a light gray. Female smaller, browner and more barred above. Like the Ruffed Grouse, during the mating season the males of this species strut with tail fully spread over the back and head thrown back until it nearly touches the tail.

Nest: They build their nests under fallen trees or at the base of standing ones. They lay from six to ten eggs of a buff color, spotted and blotched with shades of brown.

This large and beautiful grouse affords an excellent illustration of the effect of the gun on the disposition and habits of a game bird. An inhabitant of the mountains and too small to be much hunted by the Indians when larger game was so abundant, this grouse in early days exhibited the extreme of tameness and indifference. I have many times seen parties of from six to a dozen that scarcely took the trouble to move out of the trail, so entirely unconscious of danger were they and so curious as to the errand of the intruder. Under such circumstances, when alarmed by a gun the flock is apt to betake itself to the nearest trees and sit motionless on the branches, evidently believing themselves to be invisible. The term "fool hen," by which they are known, rather aptly describes their conduct and demeanor on such occasions. Even the "fool hen," however, can profit by experience, and the lesson of caution once learned, it is as shy as it previously was tame. Its flesh is delicious eating and the mountain camper rarely loses an opportunity to feast on it. In spring the loud and sonorous hooting of the grouse coming from some giant pine in ravine and cañon, and can be heared for long distances, and has such marked ventriloquial effect that it is difficult to locate the boomer or to tell whether he is far away or close at hand.

This is the largest grouse in the United States, with one exception—the sage cock. It is much larger than the ruffed grouse, but quite like it in some of its habits and tastes.

The male is a lazy father.

From col. Chi. Acad. Sciences

DUSKY GROUSE.

Where the Black Tern Builds

By Edward B. Clark

The little vilage of Worth lies just beyond the smoke of factory-filled Chicago. It is on the marshes of Worth that the black terns build their nests; it is in the thorn thickets that hedge the pastures that the loggerhead shrikes make their homes; the rails, the redwings, and the wrens haunt the reedy swamps; and the hawks and the crows live in the heavy timber. Outside of a race-track and the many birds that flock in its fields, Worth has few attractions to offer. The race-track draws thousands of people daily for a short season, but the birds' visitors are few. In no other place, perhaps, so near the great city, could the black terns nest in peace. Certain it is that Worth is the only place readily accessible to the city bird-student where these "soft-breasted birds of the sea" may be found during the season of courtship and housekeeping. Black terns are abundant in the shop windows and upon the hats of thoughtless women. The shop birds and the bonnet birds are wired and twisted into positions of grotesque ugliness. There never was a line of beauty in the stuffed bird of a milliner. Would that woman could see it! The black terns of Worth are living; the sweep of their wings is as graceful as are the curving blades of the swamp flags. There is a price upon the head of the black tern because the milliner covets the bird that it may be used as a means for a second temptation of woman. Neither the black tern of Worth nor the Wilson's tern nesting in northern Wisconsin can long survive the demands of fashion for which the word cruel is far too feeble an adjective.

I wandered one late May day through the music-filled fields of Worth. My destination was the Phillips farm, which lies about a mile from the depot. The orioles were whistling wherever a treetop offered a swaying perch. The meadows were literally filled with singing bobolinks. I passed a little country schoolhouse; the children were singing the opening song of the morning. On the ridge-pole above them was perched a black-throated bunting, who was adding his mite of music to swell the chorus. A little farther on I made the acquaintance, that morning, of the grasshopper sparrow. It is a tiny field-loving bird, with a song which much resembles the sound made by the insect for which it is named. One of the sparrows took perch on a slender weed which its weight was not sufficient to bend, and there gave me a sample of its vocal power, though, perhaps, I might better say vocal weakness. It will not do, however, to despise the grasshopper sparrow's song, for some day when greed has caused the killing of all the larger birds we may turn for enjoyment to this humble little feathered rustic.

On either side of the Phillips farmhouse there is an orchard, while hedges that do duty as fences extend in all directions. On that May morning at the end of the porch there were four wild rose bushes in full bloom. A syringa, with

its burden of white blossoms, flanked the line of roses. In the syringa bush a catbird was singing, and strangely enough, he forgot to throw into the midst of his melody the harsh note that so often mars his performance. I stood for a minute enjoying the bloom of the roses and the song of the bird. The singer left the discordant element out of its song, to be sure, but discord came in the shape of an English sparrow, who viciously attacked the catbird who had been presumptious enough to lift its voice in a British sparrow's presence. The American fought faithfully, but it was no match for the heavy-beaked alien. I drove the sparrow away. A few minutes afterward I found its big bulky home in a cherry tree. I tore the nest down and destroyed the eggs. Cruel? Not a bit of it. Cruel to one kind of bird, perhaps, but kindness to an hundred others. Go thou and do likewise.

At the end of a little lane that leads pastureward from the house is an Osage orange, half tree and half shrub. It is the sole surviving corner-piece of two hedges of bygone days. In this growth was a nest of the loggerhead shrike. This bird spends its winters in the South, but comes to this latitude to breed, replacing here the great northern shrike which comes from the far North in the winter and scurries back Arcticward at the first suggestion of spring. The loggerhead lives on small birds, small snakes, and large insects. Being a predatory creature, it supposedly should be possessed of some courage, and yet here was a loggerhead shrike that had five dependent young ones in its nest, and still did not dare to come within a field's width of its home while trespassing man was about. A robin or a jay would have been at the post of danger, and if it could have done nothing else, would have roundly berated the intruder. The loggerhead sat on the far-away fence-post and was apparently perfectly unconcerned while effort was made to peek into its nest. Some friends who had joined me undertook to take a snap-shot of the shrike's home and young. The nest was so well fortified with twigs and branches, each of which carried a score of thorns, that the photographing process was beset with difficulties. To the right of the nest, pierced through the neck and hanging from a thorn, was the half-eaten body of a small snake, placed there by the shrike perhaps to provide the larder against any future scarcity of living game. As soon as we had left the vicinity of the nest the shrike went back to its young and doubtless gave them each a bit of snake steak to make them forget their fright.

The Worth marsh, which stretches away for acres from the foot of the orchard, is a fruitful field for the study of bird-life. When we had opened the old-fashioned gate at the lane's end, we could see a glistening patch of clear water far beyond the rushes' tops. The dark forms of birds were wheeling about above its surface and their cries were borne down to us by the breeze. We skirted the marsh and approached the open water, and there through our glasses had a perfect view of the darting birds. They were dark, almost black, but there was a gloss to their feathers which the sun's rays let us see from time to time as the birds kept up their changeful flight. They were black terns that

had left the waters of the larger lakes to some to this place of sedges to rear their young. The red-winged blackbirds nest by hundreds in the reeds of this great swamp. At the time of our visit the nesting season was at its height. As we walked into the swamp regardless of mud and water, the male redwings met us and hovered over our heads. They asked us more vigorously than politely to turn back. The redwing is protected by law in the state of Illinois, but in nearly all the other states he is put beyond the statute's pale. The bird unquestionably has a weakness for grain, but the good that he does in insect-eating fairly balances the evil of his life. That he is a beauty in his black blouse with its shoulder knots of scarlet and gold, none will gainsay. Can't we give a kernel or two of corn ungrudgingly to a creature that adds something of living beauty to the dreary wastes of swamp-land?

The long-billed marsh wrens are abundant in the Worth country. These birds have the curious habit of building several nests before they make up their minds which one to occupy. The scientists have been hard at work for years trying to find a reason for this bit of wren freakiness. The scientists are still at work, for no one yet knows the reason save the wren, and the wren won't tell. We flushed from the edge of the marsh that morning a Bartram's sandpiper. This bird is, I believe, the largest of the sandpiper kind. It makes its summer home at Worth, and occasionally has for a neighbor its plover cousin, the lesser yellow-legs. When splashing through the water to get a better look at the sandpiper who had taken to some high ground, I found floating the broken egg of a king rail. The egg told the story of a nest built too low, of heavy night rains, and a flooded abode. King rails are interesting creatures, notwithstanding the fact that it is to be doubted if they have any brain. They are big, blundering, stupid birds who get themselves into all sorts of predicaments, out of which, of themselves, they can find no means of extrication. A friend of mine once found a king rail standing in the middle of the sidewalk near the corner of Schiller Street and the Lake Shore Drive in Chicago. The bird paid but little heed to passers, but seemed to lack the wit to get away from such uncongenial surroundings as stone pavements and brick walls. The men in a North Clark Street barber-shop in the same city were astounded one day to see an ungainly bird make his way through the open door to the center of the shop, where it calmly surveyed the surroundings. Another king rail took possession of a bedroom in the second story of a Chicago residence. The bird absolutely refused to allow itself to be "shooed" out of the window through which it had come. It showed no fear of human beings, and allowed itself to be picked up without resistance. When it was put through the window it took flight readily enough, but the chances are that before it had traveled far it managed to get into some other fix.

There is something of the savage left in us all. I am free to confess that I like to see birds fight. I don't mean that I wish them to fight, but if they must fight I like to see the fracas. In a tree in a field back from the Worth swamp was a scarlet tanager. It was sitting there peacefully enough, and apparently

enjoying the view, when a bluejay dropped down from above and went at it beak and claw. I fully expected to see the tanager turn tail and flee before the face of his assailant, but it surprised me and won my admiration by doing nothing of the kind. It gave the bluejay blow for blow. The combatants half flew, half fell to the ground, clawing, pecking, scratching, and screaming. There was a bewildering brilliancy of moving color. There was another witness to this fight besides the human beings who were looking at it with all the interest ever centered on a ring contest. The bluejay's mate was in the treetop, but made no effort to take a claw in the affair until she thought that her spouse was getting the worst of it. Then she came down hurtling, and joining forces with her mate, soon convinced the tanager that it had enough. The jays did not follow the defeated bird, who made off like a scarlet streak to the shelter of the woods.

On our way back to the farm-house we saw a hawk quartering the marsh in search of prey. It was doubtless a marsh harrier, though it looked much like a duck hawk: I have elsewhere spoken of my admiration for the hawk family. The duck hawk is a true falcon. He is the epicure of the feathered race. He disdains mice and barnyard fowl, and lives largely upon game. His delight is in the chase, and the rapidity of his flight is as the passage of light. He overtakes the teal or the mallard, and seizing his quarry in midair, bears it away for a feast. The utter fearlessness of this wandering falcon was shown not long ago at Calumet Lake. Some duck hunters had built a blind, behind which they crouched in their boats. Two ducks came into the decoys. Both men fired a barrel each, and both missed. At that instant, like a bolt from the sky, a falcon descended and struck down one of the ducks within twenty yards of the blind. Instantly the hidden hunters fired the second barrels of their guns at hawk and duck and both birds fell to the water. The men put out from behind their blinds to pick up the birds. The duck was dead; the hawk, still living, though wounded unto death, remained with its talons sunk deep into the feathers of its quarry, and, facing the oncomers with blazing eyes, stood ready to give them battle. They killed the falcon with the stroke of an oar. The hand of man is ever against the hawk. When the last duck hawk is dead there will have passed a creature with more of the essence of true courage in its being than exists in the carcasses of a dozen of the cowards who have brought extinction to its race.

I have spoken of the difficulties that beset the photographer who attempted to make the young loggerhead shrikes "look pleasant" while he was taking their pictures. Bird photography is for the bird-lover who has more patience than I can ever hope to claim. In connection with this shrike "sitting," however, I cannot forbear to tell of another experience which befell two of us while we were hunting birds with a camera. A pair of bluejays, early in May, 1901, built a nest in an oak tree not more than five feet from the window of a room in a Lake Forest home. The nest was below the level of the window-sill and its interior was in plain view. The birds, when building, paid little attention to observers who sat in the window. Finally, however, when the eggs were laid

and Mrs. Jay had taken upon herself the task of sitting, it was proposed to take a photograph of the nest and bird through the overlooking window. Most people will declare that nothing sweet in the way of sound ever issued from the mouth of a bluejay. Nine-tenths of the year the jay's jargon is a pain to the sensitive ear. During the rest of the time, however, the jay has one liquid note which is as pleasing as almost any of Nature's sounds. Master Jay reserves this sweet syllable for the benefit of Miss Jay, whom he hopes before May Day will consent to change her estate in life. I think that I have heard the jay's voice at its best and at its worst, but it was left for that morning when the photographer of the nest in the oak tree was to be taken for a certain Mrs. Jay to outdo in loudness, harshness, and extent of vocabulary the vocal performance of any bird to which I ever before had listened.

It was the habit of Mr. Jay to come regularly and at short intervals to the oak-tree home to feed his sitting spouse. It happened just as the formidable-looking camera was being adjusted and focused on the sitting bird that the husband arrived with a tidbit for his wife. He saw the frowning instrument and fled incontinently. Then it was proposed to wait until he returned, so that a snapshot might be made of both birds while the feeding was in progress. The patient photographer sat with one hand on the bulb, waiting for the reappearance of the male. He did not come. The female sat on her nest, held there by mother love, though there was a great fear in her eye as she looked at the gun-like affair in the window above. An hour passed, and still Mr. Jay did not appear. He was finally located by an interested observer in a tree at the far-off edge of the lawn. He was keeping up his watch on the nest and on the infernal machine in the window, but he dared not approach. An hour and a half had gone by, and Mrs. Jay was getting hungry and restless. She had long since overcome her fear of the camera. Two hours passed. Birds require a constant supply of food and Mrs. Jay was at the famine point. Suddenly she spied her husband in the tree beyond the flower beds. She left her nest and made for her spouse like a flash. She perched just above his head, and then there followed a scolding and berating that has no parallel in bird families. The madame called her husband a lazy, shiftless, good-for-nothing coward. She called his attention to the fact that for two hours she had sat under the frowning face of the awful thing in the window, while he, lost to all jayhood and to all memory of courtship promises, had not dared so much as approach the nesting-tree, even for the moment needed to feed his faithful wife. For fully two minutes the air was filled with jay ejaculations of wrath and contempt, and none of these ejaculations came from Mr. Jay. He took the tirade meekly. The pitch of Mrs. Jay's voice, coupled with the choice selection of adjectives which she hurled at her husband, brought an interested audience, composed of all the bird residents of the neighborhood. Finally madame broke off short and made her way back in all haste to cover her eggs from the chill air of the morning. The instant his wife was off for home, Mr. Jay darted down into a thicket and at once reappeared with a fat morsel of food with which

he struck out like a blue streak for the nest in the oak. He fed Mrs. Jay, and a satisfactory snap-shot photograph was taken of the operation. After feeding his wife, the husband looked at her and uttered the one mellifluous note known to the jay language, and Mrs. Jay, womanlike, was mollified.

Bob White

By Leroy Titus Weeks

Oh, sweet to the ear in the early morn,
Is the whistle clear, over rustling corn,
Of the brown little bird whose rich content
Is a breath of life by summer sent!
His gladness thrills the heart, and spills
The laughter of nature over the hills.
"Bob White!" "All right!"
"O Bob White!"

He pipes of dells with rippling rain,
Of tinkling bells in shady lane,
Of sunburned cheek and sun-filled heart,
Of joyous life in the fields apart,
A true chevalier, he spreads good cheer
And the haunting dream of the golden year,
"Bob White!" "True knight!"
"O Bob White!"

Where leaves are aflame in the Autumn air,
His shy little dame, with wifely care,
Will gather her brood about her breast
As the sun dips low in the purple West,
And lilt love's glee across the lea—
The deep, undying mystery:
"Loyalty!" "Loyalty!" "Loyalty!"

Black Brant (*Branta nigricans*)

Range: Breeds on the Arctic coast and islands from Point Barrow east to near mouth of Anderson River, north probably to Melville Island; common on Siberian coast, Chukchi Peninsula, and west to New Siberian Islands; winters on Pacific coast from British Columbia south to San Quentin Bay, Lower California, and in the interior of Oregon and Nevada.

The black brant is the Pacific counterpart of the brant of the Atlantic coast, and like that bird an object of keen pursuit by the sportsmen of the region it frequents. Like its relative it retires well within the Arctic Circle in summer, and like it also is an exclusive salt-water species, feeding on marine grasses and small marine life. When in search of food, Dawson tells us, the black brant dives as well as a dipper. This brant winters on the Pacific coast in great numbers from Puget Sound southward. Twenty-five years ago it wintered in great numbers in San Diego harbor, and there was so tame and unsophisticated that only moderate skill and caution were necessary to insure a reasonable bag in a very short time. The bird was usually shot from blinds or from points as the flocks passed to and from their feeding grounds. Nelson states that this brant rarely reaches the mouth of the Yukon before May 15th, when the main flight of the other geese has passed, and many of those which remain to breed have already paired.

Sparrow Hawk (*Falco sparverius*)

Length: About 10 inches. This is one of the best known and handsomest, as well as the smallest, of North American hawks.

Range: Breeds throughout the United States, Canada and northern Mexico; winters in the United States and south to Guatemala.

Habits and economic status: The sparrow hawk, which is a true falcon, lives in the more open country and builds its nest in hollow trees. It is abundant in many parts of the west, where telegraph poles afford it convenient perching and feeding places. Its food consists of insects, small mammals, birds, spiders, and reptiles. Grasshoppers, crickets, and terrestrial beetles and caterpillars make up considerably more than half its subsistence, while field mice, house mice, and shrews cover fully 25 per cent of its annual supply. The balance of the food includes birds, reptiles, and spiders. Contrary to the usual habits of the species, some individuals during the breeding season capture nestling birds for food for their young and create considerable havoc among the songsters of the neighborhood. In agricultural districts when new ground is broken by the plow, they sometimes become very tame, even alighting for an instant under the horses in their endeavor to seize a worm or insect. Out of 410 stomachs examined 314 were found to contain insects; 129, small mammals; and 70, small birds. This little falcon renders good service in destroying noxious insects and rodents and should be encouraged and protected.

The Ring-Billed Gull (*Larus delawarensis*)

By Gerard Alan Abbott

Length: 18½ inches.

Range: All of North America, most common in the St. Lawrence region.

Nothing has been added to our knowledge of this gull since Dr. Wheaton's time, and indeed its numbers must have greatly decreased since he wrote of it: "Common spring and fall migrant, perhaps formerly summer resident of Lake Erie." No recent list makes mention of it, and Professor Lynds Jones has never seen it along the Lake Erie shore.

The ring-billed gull has much the habit and appearance of the herring gull, but when the two species appear together, it may be readily distinguished by its smaller size. While its principal diet consists of fish and the flotsam of the tide, it is said occasionally to vary its fare by feeding upon insects and land molluscs. Dr. J. A. Allen reports that during a visit to Salt Lake Valley, where they breed abundantly, he saw them repeatedly subsisting upon grasshoppers, of which they caught enormous numbers, not as might be supposed, by walking about upon the ground, but by hawking at them in the air.

Of all gulls, not excepting the herring, this bird is the commonest on the inland waters. The herring is more abundant on the Atlantic. The southern portion of the Great Lakes and the Mississippi River from Minnesota southward to St. Louis are the winter haunts of the ring-billed gull. They are more commonly found along rivers than formerly, soaring in great numbers about refuse which may be found even in remote sections, sometimes fifteen to twenty miles from any large body of water.

During extremely cold winters the lagoons in our public parks sometimes freeze to the bottom; at the time of the spring thaw these birds feed on the frozen fish which are gradually exposed by the melting ice. They frequently rob other water birds, as a merganser or a grebe. As these divers rise to the surface with a fish the gull with a dexterous swoop seizes his prey and makes off with it. Sometimes the gulls so gorge themselves as to be seen flying away with a half swallowed fish protruding from the bill. The birds are highly useful as scavengers and destroyers of insects.

Rude nests of hay, sticks and grass are placed on the ground, usually on islands. Three buffy, clay-colored eggs, spotted and blotched with brown, are laid in May.

In Defense of Our Feathered Friends

The bobolink that nests in New England, winters in Brazil, the night hawk that summers in Alaska spends the winter months in Argentina, 7,000 miles away, while the arctic tern, whose nests have been found within seven and one-half degrees of the North Pole, migrates over a space of 11,000 miles

to the Antarctic lands, where he can see the sun night and day during our winter months. The migrating bird knows no national boundaries, still less, does he recognize state boundaries.

This was a matter of little public concern, until the value of birds to mankind was realized. It has been said that the true lords of the universe are the insects. So prolific are they, that, despite a constant struggle against myriads of enemies, they continue to thrive and devastate our crops. How powerless we are to check their ravages is only realized when their natural enemy, the bird, is destroyed. It is stated, that if unchecked, the gypsy moth would destroy all the foliage of this country within eight years. Only the voracious appetites of the birds keeps them from overrunning the land. A single bird has been seen to eat thirty-five gypsy moths per minute for eighteen minutes at a time. Six years ago sections of New York and New England were ravaged by the tent caterpillar. The birds came to the rescue and devoured them so rapidly, that, within two years' time, there was not a trace of the devastation to be seen. It was Franklin's gull that saved the early settlers in Utah from starvation by devouring the crickets that were consuming their crops. Birds are worth millions of dollars to a state, not only in the destruction of insects, but also, in the destruction of vermin and noxious weed seeds. They provide the only adequate means of combating the boll weevil, the gypsy and the brown tailed moth, and similar pests.

Realizing their value, many states have passed laws prohibiting the hunting of birds, except during restricted periods, but these provisions are inadequate in the case of the migratory species which pass over states that furnish the birds no protection, or, where at best, the game laws are very lax. It was for this reason—because certain states appreciated the value of the services rendered by birds—that efforts were made to protect them even outside of their state limits.

By a recent act of Congress migratory birds were placed under federal control. The law which prohibits the shooting of birds in the spring time, went into force on October 1, 1913. Spring time is a very important period in the life of the migrating bird, for the reason, that mating usually occurs in the south before the journey to the north, and the killing of a single bird at this time may mean the loss of an entire brood. Recently the constitutionality of the act has been questioned. Hon. Jacob Trieber, United States District Judge of the Eastern District of Kansas, has declared the law unconstitutional. An appeal has been taken from this decision, and will now be argued before the Supreme Court. It will be urged that the interests of the people of the United States require such a law; that these birds are really the property of the nation and not of any one state; and (quoting a previous decision regarding the ownership of wild game) that "The genius and character of the whole Government seem to be that its action is to be applied to all the external concerns of the nation, and to those internal concerns which affect the state, generally." Surely the protection of migratory birds affects the states generally.

On the Trail of Pokagon

By Edward B. Clark

Pokagon, hereditary chief of the Pottawattomies, until his death three years ago lived in a hut which stood among the fire-blasted remains of what was once a great Michigan pine forest. Pokagon was writing a book. He toiled early and late at the narrative which he said would give for the first time the Indian's side of the story of the Chicago massacre. The chief rejected the word "massacre," and called the affair which took place under the old cottonwood tree on the lake shore, a fight—a square, manly, open fight.

One early February day in the year 1897 a Chicago newspaper commissioned me to seek out the old Pottawattomie in his forest retreat, and to get from him an outline of the story which he was writing. I have never been quite able to decide which I found the more interesting, the two hours' talk with the aged Pottawattomie at his fireside in the wilderness, or the drive to his home over snow-covered fields and through the winter woods. Almost every mile of that ride had in it some bird surprise. The thermometer marked zero, and the distance from Hartford, Michigan, to Pokagon's home, twenty-four miles, was made in an open sleigh. The air was perfectly still, however, and with plenty of wraps the cold did not strike deep. Had I known it I could have shortened the journey to four miles by leaving the cars at another station, but I did not make this discovery until the train which had brought me to Hartford was whisking away around a hill in the distance. I have never been sorry that I left the warm Pullman for the cold of the open fields.

The proprietor of a Hartford livery stable agreed to drive me to Pokagon's dwelling and back again in time to take the late night train to Chicago. It was a matter of forty-eight miles out and back, and with zero conditions and the snow over the fences all the way, we flattered ourselves that we were showing some little fortitude in undertaking the trip. When we had reached the edge of the village we met a party of Indians occupying a box sleigh. One of them was Pokagon's son upon whom now rests his father's mantle. We stopped and talked to the Indians for a few minutes, and while we were getting some hints for the shortening of our journey two woodpeckers flew over our heads and flattened themselves against the bole of a big beech tree at the side of the road. I never had seen the species before, but I knew what it was. I wondered if the Indians were true enough to the traditions of their knowledge of wild life in all its forms to give me the name of these stranger birds. I called the chief's son's attention to them and asked him what they were. The two visitors were showing just the tops of their heads around the tree trunk. The Indian looked at them and said simply, "Winter woodpeckers." I asked him whether he never saw them in summer and he answered, "No." Then he went on to tell me that there were "both summer and winter woodpeckers." As members of

this class he described accurately the downy woodpecker, and its larger brother, the hairy. The red-head, he said, was also sometimes a winter woodpecker. The bird on the tree, he informed me, did not come every winter, or if it did come, he did not always see it. The Indian had no definite name for the bird but he knew its habits thoroughly. The books contain nothing better nor truer than this Pottawattomie's descendant's account of the "winter and summer woodpeckers."

The birds which were making a breakfast table of the beech tree were arctic three-toed woodpeckers, an orange-pated northern visitor which is not uncommon in hard winters along the eastern shore of southern Lake Michigan. Before we parted company with the Indians, a downy woodpecker came to the beech and began chasing the arctic visitors around the bole. It seemed to be on the part of the downy more of a frolic than a fight, and I did not feel called upon to interfere. The downy woodpecker, while he is the smallest of his tribe, is far from being the least in interest. I know no more cheerful and companionable bird than this little black and white fellow with the red feather in his cap. Cold cannot chill his optimism nor heat abate one jot of his industry

Our course toward Pokagon's home took us northwest. The roads in many places were unbroken, but our strong, willing horses took us through the drifts with scarce an effort. At times we left the road altogether and drove across lots and through the open woods. At the edge of a small timber patch we passed a spring with a thread of a stream running away from its boiling pot. It was the first spring that I had seen for years for they are practically unknown in the prairie country. The little stream was tumbling over a bed of pebbles and Jack Frost had been unable to fetter it. Some lisping notes fell from a maple whose boughs overhung the water. In the tree I found four golden-crowned kinglets. The kinglet is a winter bird in northern Illinois, I am told, but with all my searching I had never been able to fine one after Thanksgiving Day. The bird is the smallest of the feathered kingdom barring only the ruby-throated hummer.

There is an interest that attaches to the kinglet aside from its beauty and its cheerful habit of life. Aristotle knew and named this bird more than three centuries before Christ. The Greek philosopher was probably the first bird student. He certainly was the first whose books have come to us. Aristotle made all sorts of curious mistakes, but we must honor him as a pioneer. He met the little kinglet with its golden crown and named it Tyrannos, the tyrant. He so named it from its golden crown of royalty which then as today was too often synonymous with tyranny. The bird retains the name in the form of kinglet, as it retains the golden crown until this way. The most interesting study of Aristotle's treatise on birds has been given us by W. Warde Fowler, in his "Summer Studies of Birds and Books." The Michigan kinglets were "t-zeeing, t-zeeing," energetically all the while that they were picking grubs out of the bark. I don't think that I ever ran across a silent golden-crowned kinglet. Their utterance is not loud but it is constant, and as they are always

picking up food I am afraid that the otherwise well-mannered little king is open to the reproach of talking with his mouth full.

It is curious that on one shore of Lake Michigan birds should be abundant in winter which on the opposite shore are accounted rare. I have said that the Michigan kinglets were my first winter birds of the kind. The white-breasted nuthatches that I met on that trip to Pokagon's home were also the first birds of their kind that I had seen in the winter months. The nuthatches certainly winter in northern Illinois but it cannot be that they occur in anything like the numbers in which they are found in the same latitude in Michigan. Friends have occasionally told me of the visits paid by white-breasted nuthatches to January breakfast tables spread with suet for the benefit of the winter birds. It was never my luck, although I have made many a cold-weather trip for the purpose, to find one of these feathered acrobats within range of my rambles. It may go without saying, perhaps, that the bird is abundant on the west side of the lake in fall and spring.

While we kept to the highways we found the nuthatches on nearly every tree that grew along our course. They flew from trunk to trunk as though they were using the line of the road as a guide for a journey, but were making frequent stops at eating-houses along the way. The nuthatches were as silent as the kinglets were noisy. Only occasionally would a vigorous "quank, quank," break the stillness of the frosty air.

From the time we left the village behind I had seen almost constantly large flocks of birds flying over the fields but always keeping beyond the limit of identification. I asked my driver friend what they were, and he said, "Snowbirds." When I asked him what kind of snowbirds, he said, "Why, just snowbirds." By and by when the road turned suddenly around the corner of some woods we came on to a flock of the birds feeding in some bushes and on the ground, which had been cleared of snow for some distance by the wind. The birds were not more than forty feet from us, and there were several hundreds of them. I asked my companion to take a good look and tell me what they were. He looked and again said, "Snowbirds," adding that that was what everybody thereabouts called them. The birds were Canadian or tree sparrows. I will give the good Michigan folk credit for better judgment in the naming of this bird than had the people who were responsible for dubbing the junco, snowbird. The tree sparrow is much more of a snowbird than is the junco. As a matter of fact, nearly all the juncoes leave us at the first sight of a snowflake, while tree sparrows stay with us and maintain their cheerfulness no matter how loud the wind howls nor how deep the snow lies. Not infrequently juncoes and tree sparrows are found together, but this is during the migrations or at the extreme southern limit of the tree sparrow's winter journeyings. Certain it is that no juncoes had the hardihood to stay with those Michigan tree sparrows during that February month. Before the day was over I had seen four great flocks of the sparrows at close range, and not a junco feather did I see.

Upon a dead tree in a field, with its shapely form silhouetted against the

sky, sat a sharp-shinned hawk. A flock of the tree sparrows was flitting about the tops of the snow banks not many yards beyond his perch. I had not the slightest doubt that the villain's maw already contained several of the birds. At any rate his hunger must have been pretty well satisfied for in the midst of plenty he made no attempt to secure food. I have confessed elsewhere to a sort of liking for the hawk; but the hawk is one thing and the sharp-shinned hawk is another. The scientists of Uncle Sam's agricultural department tell us that the sharp-shinned hawk is a double-dyed rascal, and they prove their point to my satisfaction. The Cooper's hawk is another villain and with his sharp-shinned friend has an inordinate appetite for song birds and small chickens. We may make friends of the rest of the hawks, the scientists tell us, without laying ourselves open to the charge of keeping bad company.

The hawk sitting on his watch tower was the last glimpse of bird life that we had before Pokagon's hut came into view. Just before we reached it our horses and sleigh became fast in a huge snowdrift. The horses were in it much more than leg deep and all their efforts to free themselves and the cutter were unavailing. Soon we saw someone come to the doorway of the house. It was Pokagon. He looked across the snow and, seeing our predicament, came plowing through the big drifts to the rescue. He had just the trace of a smile on his face as he went to the back of the sleigh and put his shoulder well under the box. There was a heave forward and upward, an encouraging word to the horses, and with a great lurch the cutter was free. Pokagon was old, but he had a deal of strength left in his arms, legs and body, and a talk with him showed likewise that no weakness had entered into his brain.

I am tempted to forget momentarily that this is a book of birds and tell a little something of this visit to the fireside of the famous Pottawattomie chief. He told the pathetic story of his attempt to get from the United States what was due the remnant of his people under their treaty rights. He told of violated promises and of perfidy whose recital would have better place in another "Century of Dishonor" than in this little volume. It was Pokagon's father who sold, for three cents an acre, the land on which now stands the city of Chicago. On that winter day in Michigan, the chief said: "They tell me that vast sums now are paid for a few feet of what was then sold for a trifle by the square mile. I inherited my father's rights and I also inherited the care of my people. They are scattered all through the country now and are few in numbers. The tribal relation is broken by their becoming citizens of the United States. All this has weakened my efforts to do for them what might be done. There is much more money due from the white people and I shall try to get it. I may die before success comes; if I do, my eldest son will take up what little there is left of my authority and the much that there is left of my troubles."

In his youth Pokagon hunted deer on the site of the hut in which he told his troubles that day. The old fellow knew nature like a book. I drew him out on the subject of birds and mammals. When I spoke of my interest in birds and asked him if he knew them well he smiled a little and asked me if I had

never read his writings on the birds. Then it was that I felt uncomfortable in being forced to confess that I had not had the pleasure. Pokagon then told me his legend of the robin, which I have since seen in birch-bark book form, and his story of the days when the chimney swifts dwelt in hollow trees and went in and out like black clouds and with a "roar of wings like the mutter of thunder."

We left the old Pottawattomie at dusk with a sort of a sadness on our spirits. The drive back to Hartford was under the glittering stars of a cloudless sky. Pokagon had cared for the inner cravings of his guests, both man and beast, and our rested and refreshed horses homeward bound needed neither the urging of voice nor whip. As we sped onward through the darkness, the thought that I was through with the birds for the day came into my mind. No sooner was the thought framed than from a wood by the roadside came the loud hoot of an owl, as if to say, "Day or night, you cannot get away from us."

The Snow Bunting (*Plectrophenax nivalis*)

By W. Leon Dawson

Length: 6½ inches.

Range: Northern parts of the northern hemisphere, breeding in Arctic regions, south in winter to Illinois and northern United States.

The guests of winter form a distinct category in the bird-man's reckoning. There are loyal hearts which no adversity of winter elements (short of sheer freezing, which is brutal) can drive from our midst—song sparrows, titmice, nuthatches—and to these we pay appropriate honors. But, after all, these simple-hearted creatures, who refuse to budge from their native heaths and tree-holes, lack not only the culture of travel in foreign parts, but the dash and wild romance of those who hazard their fortune to the north wind. What treasures of choice spirits are poured out upon us when the winds blow raw and the streams hide their faces! Hardy Norsemen they,—the redpolls, the longspurs, the horned larks, and the snowflakes. They burst upon us in the wake of the first storm, and set up in our back pastures a wintry Valhalla, where good cheer of a very sturdy sort reigns supreme.

In spite of striking difference of form and color a strange similarity exists among these northern visitors, so that one may easily contruct a mental *genre* picture—or, at most, two such—which will fairly represent them all. Thus the snowflakes, the longspurs, the horned larks,—and through them even the daft pipits—have a common fashion of giving themselves to the air to be blown about at hazard: or, when the season advances, of setting their faces also with equal steadfastness against the gainsaying of the blast. Their notes, too (excepting this time the inane yipping of the pipit), have a weird wind-born quality which is inseparable in thought from the shrill piping of the storm. To carry

SNOWFLAKE.

the matter further, the siskins, the crossbills, the purple finches and the redpolls have each a mellow rattle, which lends itself with equal facility to that generic conception of the iceberg children. The dialect may differ, but in all of them the accent is Hyperborean.

I well remember my first meeting with that prince of storm waifs, the snowflake. It was in eastern Washington, where the climate is not less hospitable than that of much lower latitudes farther east. A distant-faring, feathered stranger had tempted me far afield, when, all at once, a fluttering snowdrift, contrary to nature's wont, rose from earth toward heaven. I held my breath while I listened to the mild babel of *tut-ut-ut-tews* with which the snow buntings greeted me. The birds were loath to leave the place, and hovered indecisively while the bird-man drank them in. As they moved slowly off each bird seemed alternately to fall and struggle upward through an arc of five or six feet, independently of his fellows, so that the flock as a whole produced quite the effect of a troubled snowstorm.

Snowflakes occur singly or associated in flocks of from a dozen to several hundred individuals. Their thrilling call note, *tew* or *te-ew,* may be heard during the falling of the real flakes, when the passing bird is invisible. Careful scrutiny of loosely flocking horned larks may occasionally discover a stray snowflake, as also a few Lapland longspurs.

Probably no winter passes in which a few of the birds do not reach our northern borders. But they rarely extend below the middle of the state, and only during the most severe winters are they found anywhere in large numbers. While with us they move from field to field in open places, seeking out the weed-seed which forms their almost exclusive diet. A few individuals may linger long enough in the spring to display the deeper browns and blacks of the breeding plumage.

The snowflake, or snow bunting, is the true snow bird. It is a sociable creature, visiting the Great Lakes region during our severe weather in company with longspurs and horned larks. Like the snowy owl the range extends to the far north. The food consists principally of weed seeds, which they gather about meadows, pastures and stubble land. Particularly fond of the black bind weed and fox-tail grass, they are a most useful bird. In their evolutions they present a pretty sight, and have a pleasant mellow chirp which is quite impressive when uttered simultaneously by several score of throats.

The little fellow should be readily distinguished from all other finches as it is the only white form. It is strictly terrestrial, never alighting in trees, but is sometimes seen on rail fences or on the roofs of outbuildings. Like the horned lark it walks and does not hop. Snowflakes are of an optimistic disposition considering the scarcity of suitable food during our severe weather, which scarcity often forces them to visit our homes and barnyards.

The Maryland Yellow-Throat (*Geothlypis trichas*)

By Thomas Nuttall

Length: 5¼ inches.

Range: Eastern North America, breeding from Gulf of Mexico to New Jersey. Though known as Maryland yellow-throat, this bird is so common in many states that it may well be called northern yellow-throat. Often confused with other warblers.

This common and familiar species extends its summer migrations from Florida to Nova Scotia, arriving in Pennsylvania toward the middle of April and in Massachusetts about the first week in May. They return to the south in September; a few stragglers of the young, however, may be seen to the first week in October. Though some remain and winter in the southern states, many of them retire at this season into the interior of tropical America, as they were seen late in autumn around Vera Cruz by the naturalist and traveler, Mr. Bullock. Early in the month of March, however, I heard this species singing in the forests of west Florida.

The Maryland yellow-throat, with cheerful devotedness to the great object of his summer migration, the attachments and care of his species, passes his time near some shady rill of water, amidst briars, brambles, alders and such other shrubbery as grows in low and watery situations. Unambitious to be seen, he seldom ascends to the top of the underwood where he dwells busily employed in collecting the insects on which he feeds. After these, like the wren, he darts into the deepest thicket and threads his devious way through every opening; he searches around the stems, examines beneath the leaves, and, raising himself on his peculiarly pale and slender legs, peeps into each crevice in order to seize by surprise his tiny lurking prey.

While thus engaged his affection to his neighboring mate is not forgotten, and, with a simplicity agreeable and characteristic, he twitters forth at short intervals his *'whititetee, 'whititetee, 'whititetee* but his more common song is *'whittitshee, 'whittitshee,* or *'wetitshee, 'wetitsheewee;* sometimes I have heard his notes like *'wetitshee wetit shee, 'witeyu we.* On this last syllable a plaintive sinking of the voice renders the lively, earnest ditty of the active minstrel peculiarly agreeable. The whole is likewise often varied and lowered into a slender whisper or tender reverie of vocal instinct.

He appears by no means shy or suspicious as long as his nest is unapproached, but for the safety of that precious treasure he scolds, laments and entreats with great anxiety. These birds generally nest in secluded thickets of the forest, or the low, bushy meadow, but sometimes they take up their abode in the garden, or the field contiguous to the house, and if undisturbed they show a predilection for the place which has shown them security for themselves and their young. They commence their labor of building about the middle of May, fixing the nest on or near the ground among dry leaves, withered grass

or brush, and often choose for security the most intricate thicket of briars, so that the nest is often sheltered and concealed by projecting weeds and grass. Sometimes a mere tussock of grass or accidental pile of brush is chosen. It is made of dry sedge grass and a few leaves loosely wound together and supported by the weeds or twigs where it rests; the lining consists entirely of fine bent grass.

The eggs, about five in number, are white, inclined to flesh color with touches of specks and small spreading blotches, and sometimes with a few lines of two or three shades of reddish brown, chiefly disposed toward the greater end. The young leave the nest about the middle of June, and a second brood is sometimes raised in the course of the season. The parents and young now rove about in restless prying troops and take to the most secluded marshes where they pass their time in comparative security till the arrival of that period of scarcity which warns them to depart. As early as the close of July the lively song of the male ceases to be heard, and the whole party now forage in silence.

Turkey Buzzard (*Cathartes aura septentrionalis*)

Length: About 30 inches. The naked head and neck and glossy black plumage are distinctive.

Range: Extends from southwestern Canada, northern Minnesota, southern New York and south into northern Mexico and Lower California.

This buzzard displays superb powers of flight which even the eagle cannot surpass, and no small part of its time is spent in the upper air, describing great circles on motionless wings as if for the mere pleasure of flight. Let another buzzard, however, discover a carcass, and the movements of our aeronaut as he hastens to the feast are at once noted by his next neighbor, and his by a third, till the carrion feeders of a wide territory are assembled. Sight and not smell, then, is depended on by the buzzard to guide him to his food. Though of great strength and provided with a formidable bill, the buzzard rarely, if ever, attacks living animals, unless they are disabled, but depends upon death to provide for his wants. No doubt his ability to fast is as great as his capacity for gorging himself when occasion offers, and he must often go for days without food. As a scavenger the buzzard does good service and no sound reason exists for destroying him, notwithstanding the fact that occasionally the bird may be instrumental in spreading hog cholera by transporting the germs on his feet and bill. This disease, however, may be, and no doubt often is, transmitted by the feet of so many other birds, especially the English sparrow, and of so many mammals, especially rats, and even on the footwear of man himself as to lead to the belief that if every buzzard in the hog cholera districts were to be sacrificed no perceptible diminution of the disease would follow. The bird should continue to enjoy the protection which is at present accorded it in nearly every state of the Union.

The Nightingale (*Luscinia philomela*)

By J. G. Wood

Length: 5½ inches.

Range: Southern Europe and southwestern Asia.

Food: A valuable bird to the farmer, feeding largely upon insects, caterpillars, etc.

Eggs: Four to five, small and of very thin shells.

The nightingale is a small, reddish-brown, thrush-like bird of the Old World, celebrated for the sweetness of its song. In England it is a modest, shy bird, haunting rich woods and thickets. It lives chiefly on insects, especially the larvae of ants. Like most insect-eating birds it is migrating, ranging from northern Europe to northern Africa. It appears in England in April but does not visit Wales, Ireland, or Scotland. The nest is large and built of grass and leaves, preferably near running water. The eggs, four to five in number, are olive green in color. The male is the singer, some poets to the contrary; while the female is nesting, especially in the evening, he soars aloft pouring out a rich burden of song, as if too happy to contain his secret. When the young are hatched, he stops singing and busies himself hunting insects to fill open mouths. The male is a favorite cage bird. The nightingale is celebrated in literature. It is the Philomela of the poets. The name has been extended to a number of somewhat similar birds, including the bulbul of the Orient and one or more finches of our southern states.

All attempts to introduce the far-famed nightingale into the United States have failed. As a singer, he far surpasses the mocking bird and has been known to sing more than one hundred days continuously. Its notes seem modulated upon the rules of musical science. A study of this bird reminds one of the story of Philomela whom the gods transformed into a nightingale and her sister, Procne, into a swallow.

Some Wonders of Bird Migration

The biological survey has been collecting notes on bird migration for a quarter of a century and has received migration notes from some 2,000 observers, from Panama to the Arctic circle, so that a mass of information concerning the migratory habits of the various species of birds, the location of their breeding grounds and winter homes, the routes followed in their migrations, the times and speeds of migrations, and the relations of all these to the distribution of food, climatic, meteorological and geographical conditions, etc., is available. From the data at hand many interesting facts about bird migration have been gleaned by the department of agriculture and published in a recent bulletin.

There are some remarkable differences between the habits of various species of birds. A few, notably the grouse, the quail, the cardinal and the Carolina wren, are non-migratory while the arctic tern which nests in the frigid regions

NIGHTINGALE.
(Motacilla luscinia).
$\frac{4}{5}$ Life-size.

only a few degrees from the north pole and migrates to the borders of the antarctic continent is a wonderful traveler. The 22,000-mile journey from one place to the other requires barely twenty weeks. This means that the bird must cover 150 miles a day. Undoubtedly it averages considerably more than this for its side flights in quest of food must be taken into consideration.

It would seem that the arctic tern is a lover of the light. At any rate it manages to secure more hours of daylight and sunlight every year than any other living creature for, during at least eight months of the year it lives in a region of perpetual daylight and during the other four months it lives where the daylight period is much longer than the period of darkness.

The average weather, rather than the weather which appears to prevail in a migration period of any particular year, determines the dates of migratory movements. That is to say, migration is more a question of climate than of weather. When the travels once begin, however, the weather encountered has some effect in retarding or accelerating the advance more or less. The time of flight appears to be little affected by winds.

The different species do not follow the same route in migrating. The favorite course extends directly across the Gulf of Mexico. It has generally been believed that after such long continued flights as this most birds are exhausted and are obliged to seek the ground as soon as possible but evidence submitted to the biological survey tends to disprove this supposition.

As knowledge concerning the flight of birds increases, their marvelous efficiency as flying machines becomes more and more apparent. The golden plover which in favorable weather is able to cover the 2,400 miles over the ocean between Nova Scotia and South America without stop, remaining some forty-eight hours on the wing, is spoken of as "an aerial machine that is more economical of fuel (energy) than the best aeroplane yet invented." The application of power in the to-and-fro motion of the bird's wings appears theoretically to be uneconomical since the power required in bringing the wing forward is wasted and at the same time it increases the friction against the air and retards motion forward. The screw propeller of the aeroplane, with no lost motion, would seem a far more efficient form of mechanism, yet in covering the 2,400 miles of its migratory flight the golden plover uses only about two ounces of fuel in the form of body fat. If a 1,000-pound aeroplane could be made as economical of fuel as this bird it could make a 20-mile flight on a single pint of gasoline instead of a gallon as it actually requires.

The question of how migrating birds find their way has always been a puzzling one. Birds are known to return unerringly year after year to old nesting places after spending the winter thousands of miles away, flying a large part of the distance by night and crossing large bodies of water which are devoid of guiding marks. Various theories have been advanced to account for this wonderful faculty. One of the latest is that the birds are a sort of natural compass and are peculiarly susceptible to the earth's magnetic lines of force. It is suggested in the department of agriculture bulletin that they find their way by means of a peculiar sense, a sense of direction, which is more or less noticeable in humans.

The Chipping Sparrow (*Spizella passerina*)

By T. Gilbert Pearson

Length: 5¼ inches.

Range: Eastern North America, west to the Rocky Mountains, north to Great Slave Lake, and south to eastern Mexico.

In the United States are about forty kinds of useful, interesting birds called sparrows. Besides the English sparrow, which is not included in the foregoing statement, the one known to more persons than any other is the little confiding chipping sparrow. It is the bird that more than any other, perhaps, shows its absolute trust in mankind. It seems not to care for the deep forest, the windy beaches, the vast marshes, or the impenetrable swamps where so many of the feathered denizens of the land are wont to live.

If you look for the chipping sparrow, particularly in spring, go to the garden, for you can find it there, hopping along the rows of sprouting vegetables. It does not injure any of these tender plants—in fact you may consider yourself fortunate if one or more pairs make their home in your garden, for they will be familiar and delightful friends.

You will find it in the apple-orchard, by the roadside, and on the lawn. It will fly up in front of you as you pass along the gravel walk, and will alight on the veranda-railing and look inquiringly at you as you emerge from the door. It is an unobtrusive bird, and really has no human interest, so far as I am aware. One may love or may ignore the chipping sparrow, but where is the person who dislikes this friendly bird? It does not get in the way; it does not fill your gutters with dry leaves and trash; and its simple, chipping notes are so low that they would never awaken one of a morning.

I have always liked the chipping sparrow, it is so like a good woman I once knew, who, though very plain and somewhat unimaginative, was nevertheless considerate, thoughtful and very gentle. Many persons did not notice her, but those who did always spoke kindly of her.

This is one of the birds that has greatly increased since white men settled the country, for the cultivation of fields and gardens has furnished it just the proper amount of protection, and an abundance of the right kind of food.

The trees and bushes that men plant in orchards and on their lawns provide splendid places for the chipping sparrow to build its nest.

The cradle for the babies is a very dainty structure. It is made of dry grasses, with a few small twigs to strengthen and support it. In the center of this one will find a smooth cup lined deeply with horsehair, where four or five pale blue or greenish eggs are laid. Scattered about over the surface of the shell, but particularly numerous around the larger end, is a sprinkling of black or brownish spots. A variety of situations is chosen, so that we may find a nest near the end of a swaying bough or saddled among the twigs of

CHIPPING SPARROW.
About Life-size.

a lower branch of a shade tree by the street. Often, the birds choose cedar bushes or other thick shrubs, and in such cases the nest may be only three or four feet from the ground.

I recall one pair that built their home in a clematis vine, which grew on the veranda-trellis. Here, day by day, we used to watch the parent-birds bring food to their little ones, and it is astonishing how much labor it requires to keep four baby chipping sparrows supplied with all the food they will eat. Every two or three minutes one of the parents would flit into the clematis vine with food for the young. So far as we could tell, it appeared that the male attended to the duties of caring for the young fully as much as did his mate. This, truly, is the correct way to do; but not all father-birds follow this custom.

One of the little chipping sparrows seemed to be stronger than the others, and usually raised his head a little higher than his brothers and sisters, and opened his mouth a little wider in an attempt to get all the good things which his parents brought to eat. I fear much of the time he received more than his share. When a little later, however, the young had left the nest, and were learning to fly, this selfish youngster received no more than the others—in fact, on more than one occasion we saw the mother pass him by to give food to a brother or sister that sat farther along on the same limb.

It would be pleasant to say that all four of these young chipping sparrows grew up and lived happily ever after, but this, alas! would not be telling the truth. Our neighbor had a cat, and the cat knew of the nest in the clematis vine, and no doubt would have torn it down some dark night had we not arranged some boards and a piece of tin in such a way that it could not climb up the vine. But as soon as the young scattered about the lawn, and before they were able to fly more than a few yards at a time, the cat was ready for them, and before noon of the day they left the nest one of the baby birds had disappeared. It was just after luncheon when I heard the angry chipping of our friends, the sparrows, and, dashing out on the veranda, I saw the cat marching away with a bird child in its mouth. That cat was well fed and well cared for, and had all the good food that any reasonable cat could mew for, yet its love for hunting was so strong, that, like almost every other cat that you or I have ever seen, it would catch birds if it had the chance.

Some of us like cats, but we *love* birds. Do you wonder that I had dark thoughts when I saw the cat stealing away with one of the innocent little baby birds? For a little while I think I wished that I were a lion so that I could show the cat how it is to be grabbed up in a big mouth and carried off. The next day only one of the youthful chipping sparrows was to be found, and I am not quite sure that it ever grew up to fly away to the south when cold weather came.

Chipping sparrows are very useful birds, for they destroy "worms" (the caterpillars, or larvæ, of moths and butterflies) which eat holes in the vegetables in the graden, and consume grass-blades and the leaves of trees.

Over large areas of the New England states, the gipsy-moth has become a great scourge, for its caterpillars attack nearly all the trees in the country, except pines and cedars. They destroy the leaves; and, as trees really breathe through their leaves, the gipsy-moth of course is responsible for killing the trees. Some states have tried many experiments in order to learn how they may rid themselves of these pests.

To learn more about the life-history of the gipsy-moth, the men in charge of the experiments in Massachusetts not long ago built a large inclosure out-of-doors. This was covered and surrounded by a thin netting, inside of which a great many gipsy-moths were placed, where their various habits could be closely watched. Then a curious thing happened, the chipping sparrows began to arrive, and would continually break through the frail netting to get inside the frame where they could catch the moths. The men in charge did not think a moment of killing the sparrows. No, indeed! So useful a bird should not be destroyed! They did a much wiser thing, for they kept a man on guard to frighten the sparrows away when they came too close to the netting. The actions of the birds plainly showed that they much preferred to eat this noxious insect, instead of contenting themselves with other kinds of food that might be found in the neighborhood.

These birds are very fond of beet-worms, currant-worms, and caterpillars of many kinds. Edward H. Forbush, who has spent a great deal of time in finding out especially what birds eat, says: "In all, thirty-eight per cent of the food of the chipping sparrow consists of animal matter, three-fourths of which is made up of noxious insects. In June, ninety-three per cent of the food consists of insects, of which thirty-six per cent is grasshoppers; caterpillars, twenty-five per cent; and leaf-eating beetles, six per cent. I have been much impressed with the value of this bird in the garden during the spring and summer months. It destroys at least three species of caterpillar on the cabbage. It is the most destructive of all birds to the injurious pea-louse, which caused a loss of three million dollars to the pea crop of a single state in one year. It is a persistent destroyer of the grubs that mine the leaves of beets. I watched one bird secure eleven of these grubs in a few minutes."

Th song of the chipping sparrow is little more than a continued, monotonous repetition of *chippy, chippy, chippy.* This call is given in a high, wiry voice, and the notes are run together until the sound suggests the trilling of some insect. Few of the sparrows have ever attained a very high place as singing birds.

Late in the summer, Chippy changes his dress. He loses the ruddy brown cap which he has worn all summer, and in appearance now much resembles his mate. He then goes to the fields, where you may find him associating with snowbirds, and with other kinds of sparrows. As insect-food becomes scarce, and cold weather approaches, he changes his diet also, and begins to eat seeds of grasses and weeds. Then there comes a morning when chippies cannot be found; over large areas of the northern part of their range they have disap-

peared. During the night they have taken up their long flight toward the south. This journey does not go on continuously, but the birds stop to feed and associate with their friends here and there on the way.

In the southern states you may find this bird in winter enjoying the company of friends and neighbors; but wherever found, or under whatever conditions you see it, the chipping sparrow shows a gentleness in disposition which insures for it the friendship of all who study its ways and spy upon its coming and going.

Canada Goose (*Branta canadensis canadensis*)

Range: Breeds from the valley of lower Yukon, northwestern Mackenzie, and central Keewatin south to southern Oregon, northern Colorado, Nebraska, and Indiana; winters from southern British Columbia, southern Colorado, southern Wisconsin, southern Illinois, and New Jersey south to southern California, Texas, and Florida.

This, one of the largest of our waterfowl, is notable in many respects other than mere size. The wedge-shaped flocks of wild geese that, spring and fall, with melodious honking, wing their way respectively to their breeding and wintering grounds are a very familiar sight, and advertise in a most spectacular way that wonderful phenomenon—bird migration. The bird observer of speculative mind may find interest in answering the question—Why do geese usually fly in wedge formation? Is it because the powerful wings of the leader make easier the passage of those behind him or, as suggested by Forbush, does the wedge formation enable each individual member of the flock to see better?

Formerly the Canada goose, despite its name, nested in much of our territory and as far south at least as Massachusetts. Today comparatively few geese nest within our borders, although flocks of goslings, convoyed by their parents, may still be seen on some of our western lakes. The "honker" is still far from extinct, and owes its present numbers both to the fact that it nests chiefly in the unfrequented territory of the far North, where its only enemies are the wild beast and the roving Indian, and to its wariness, the result of much and long-continued persecution.

The Hairy Woodpecker (*Dryobates villosus*)

By Charles Bendire

Length: 8½ inches.

Range: Northern and middle portions of the United States from the Atlantic Coast to the Great Plains.

Food: Insects, chiefly noxious; beetles, caterpillars, ants. Truly a conservator of forests.

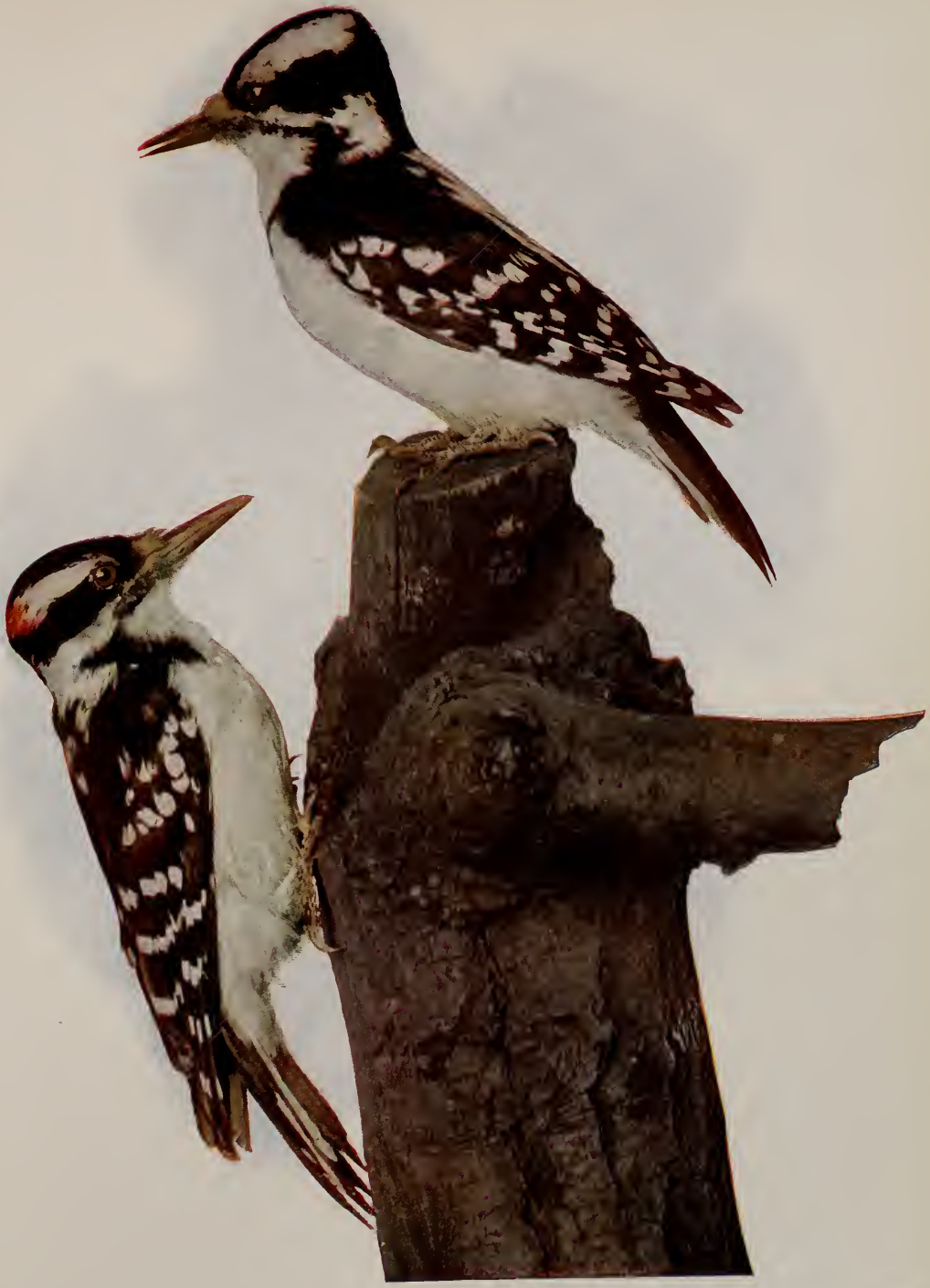
The hairy woodpecker is fairly common through the wooded regions of our northern and middle states, and in winter is occasionally found in some of the southern states—Louisiana, for instance. It is a resident in the mountainous regions of North Carolina, while in the lowlands it is replaced by a smaller southern race. It is a hardy bird, and intense cold does not appear to affect it much.

As a rule the hairy woodpecker is rather unsocial, and unless followed by their young more than a pair are rarely seen together. It does not live in harmony with smaller species of its own kind, and drives them away when they encroach on its feeding grounds, being exceedingly greedy in disposition and always hungry. It is partial to timbered river bottoms, the outskirts of forests and occasionally it makes its home in old orchards and in rather open, cultivated country, interspersed here and there with isolated clumps of trees. It is also found in the midst of extended forest regions.

The hairy woodpecker, like most of its relatives, is an exceedingly beneficial and useful bird, which rids our orchards and forests of innumerable injurious larvæ, like those of the boring beetles, which burrow in the wood and between the bark and trunk of trees. It never attacks a sound tree. Although commonly known as Sapsucker, this name is very inappropriate. It is not in search of sap, but of such grubs as are found only in decaying wood. Nevertheless it is exceedingly difficult to make the average farmer believe this, and in winter when these birds are more often seen about the vicinity of dwellings and the neighboring orchards than at any other season of the year, many are shot under the erroneous belief that they injure the very trees they are doing their best to protect.

The food of this bird, besides larvæ, consists of various species of small beetles, spiders, flies, ants, and in winter when such food is scarce to some extent of seeds and grain, and less often of nuts and acorns. I have seen it cling to fresh hides hung up to dry, picking off small articles of fat and meat, and in summer occasionally eats a few berries of different kinds. In the fall of the year it can often be seen inspecting old fence-posts and telegraph poles, probably on the lookout for cocoons, spider eggs, etc.

Like all the woodpeckers, it is an expert climber, and moves rapidly up and around trees in short hops. It is equally easy for it to go backward or sidewise, and it is astonishing how rapidly it can move in any direction. The



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HAIRY WOODPECKER.
(Dryobates villosus.)
⅔ Life-size.

strong feet and sharp claws enable it to hold firmly to the bark, and the stiff spiny tail feathers also come in play while it is at work, acting as a support for the body, which is well thrown back when a blow is delivered with its powerful chisel-like bill.

Although usually rather shy, when busy in search of food one will occasionally allow itself to be very closely approached. I have seen one alight on the trunk of a crab-apple tree within three feet of me and deliberately commence searching for larvæ, apparently perfectly unconcerned about my presence, and when I moved up a little closer he simply hopped around on the opposite side of the tree and continued his search. Every once in a while, however, his head would appear from behind the tree to see if I were still watching him. He remained fully thirty minutes on the same tree where he evidently found an abundance of food, and then flew off uttering several loud notes like *huip, huip.* His ordinary call sounds like *triii, triii,* a shrill rattling note.

The tongue of the majority of our woodpeckers is especially adapted for extracting larvæ, etc., from the wood in which they live. The tongue proper is rather small, flat, and terminates in a sharp, horny point, which is armed at the sides with a series of bristle-like barbed hooks. The worm-like neck, or the *hyoid process* to which it is attached, is generally rather long and curves around the back of the skull in a sheath, and this can readily be thrown forward for two or three inches. A sticky saliva is also secreted, with which the tongue is covered to facilitate the extraction of the food of which they are in search.

Their sense of hearing must be exceedingly acute, as they appear to detect readily the slightest movement of any insect under the bark or in the solid wood, and they make no mistakes in properly locating it. Their flight is rapid, undulating, usually not very protracted, and they rarely descend to the ground in search of food, where their movements are rather awkward and clumsy.

Nidification usually begins early in April, and it requires about a week to prepare the nesting site. Both sexes take part in this labor, and it is really wonderful how neat and smooth an excavation these birds can make with their chisel-shaped bills in a comparatively short time. The entrance hole is as round as if made with an auger, about two inches in diameter, and just large enough to admit the body of the bird; the edges are nicely beveled, the inside is equally smooth, and the cavity is gradually enlarged toward the bottom. The entrance hole, which is not unfrequently placed under a limb for protection from the weather, generally runs in straight through the solid wood for about three inches and then downward from ten to eighteen inches, and some of the finer chips are allowed to remain in the bottom of the cavity in which the eggs are deposited.

After this is completed the male frequently excavates another hole, or even several in the same tree, or in another close by, in which to pass the night or to seek shelter, and to be close to the nest while the female is incubating. These holes are not as deep as the others. A fresh nesting site is generally selected each season, but where suitable trees are scarce the same one may

be used for several years in succession. In such a case it is usually thoroughly cleaned out, and the old chips in the bottom replaced by new ones. Beach, ash, poplar, birch, oak, sycamore, haw and apple trees are mostly used for nesting sites. The number of eggs laid to a set varies from three to five, usually four. They are pure white and unspotted.

The duties of incubation are divided between the sexes and last about two weeks. The young when first hatched are repulsive looking creatures, blind and naked, with enormously large heads and ugly protuberances at the base of the bill, resembling a reptile more than a bird. They are fed by the parents by regurgitation of their food, which is the usual way in which the young of most woodpeckers are fed when first hatched. The young remain in the nest about three weeks. Even after leaving the nest they are assiduously cared for by both parents for several weeks until able to provide for themselves.

The Winter Wren (*Nannus hiemalis*)

By W. Leon Dawson

Length: 4 inches.

Range: Eastern North America.

This is the shortest and most stoutly built of all wrens. Note how pert his short, stubby tail makes him look in the color plate.

Its songs is a rippling flow of melody, not as loud but more musical than that of the house wren.

When the woods are bare and the leaves are huddled into corners to escape the teasing of a November wind, a little brown shadow flashes up for an instant at the edge of a brush heap; chitters apprehensively once or twice, and is gone again, just as you have made up your mind that the winter wren has come. A cautious foot resting on the heap and stirring it gently will bring him out again to estimate the danger. How deliciously absurd it is! this tiny creature with its sparkling eyes and dumpy form. Its tail, too, is turned up until it leans the other way, and it gives one the impression that the bird will tumble forward and nothing to prevent it.

When driven from one cover the winter wren instantly seeks another, and spends little time a-wing, except as it flits from branch to branch. It is to be found principally along river bottoms and in ravines under overhanging banks, and about upturned roots of trees. Some occasionally venture into the barns and outbuildings of country places, or may spend the winter about the woodpile.

The only note heard commonly is the chitit or chirr of alarm, but the full song is sometimes heard in May; and there is just a suspicion that it occasionally breeds. Its song is a surprising effort for a bird, so tiny and obscure—a cataract of tinkling, splashing, gurgling sounds, and wanton trills, lasting for seven or eight seconds.

WINTER WREN.
(Troglodytes hiemalis.)
About Life-size.

To a Waterfowl

By William Cullen Bryant

Whither, 'midst falling dew,
While glow the heavens with the last steps of day,
Far, through their rosy depths, dost thou pursue
Thy solitary way?

Vainly the fowler's eye
Might mark thy distant flight to do thee wrong,
As darkly seen against the crimson sky,
Thy figure floats along.

Seek'st thou the plashy brink
Of weedy lake, or marge of river wide,
Or where the rocking billows rise and sink
On the chafed ocean side?

There is a Power whose care
Teaches thy way along that pathless coast,
The desert and illimitable air,
Lone wandering, but not lost.

All day thy wings have fann'd,
At that far height, the cold, thin atmosphere,
Yet stoop not, weary, to the welcome land,
Though the dark night is near.

And soon that toil shall end;
Soon shalt thou find a summer home and rest,
And scream among thy fellows; reeds shall bend
Soon o'er thy sheltered nest.

Thou'rt gone, the abyss of heaven
Hath swallowed up thy form; yet on my heart,
Deeply hath sunk the lesson thou hast given,
And shall not soon depart.

He who, from zone to zone,
Guides through the boundless sky thy certain flight,
In the long way that I must tread alone,
Will lead my steps aright.

The Starling (*Stutnus vulgaris*)

By Henry W. Henshaw

Length: About 8½ inches. General color, dark purple or green with reflections; feathers above tipped with creamy buff. In flight and general appearance unlike any native species.

Range: At present most numerous near New York City. Has spread to Massachusetts, Connecticut, New Jersey, Pennsylvania, Maryland, Virginia and recently to the District of Columbia; resident where found, though wandering southward in winter in search of food.

The Old World has sent us two bird pests, the English sparrow and the starling. Although, up to the present time, we cannot convict the starling of having done any great damage he has proclivities which make him potentially very dangerous. Introduced into New York in 1890, the original sixty have multiplied many fold and spread in all directions till now they occupy territory hundreds of miles square, and are multiplying and spreading faster than ever. On the north they have entered Massachusetts and Connecticut, and on the south they have reached Richmond, though only in migration. Even as I write the calls of a flock of 200 or more can be heard coming from a neighboring park, but as yet the bird has not elected to summer in the national capital. The starling is a hardy prolific bird and is also aggressive. Like the English sparrow it associates in flocks, which is a great advantage in bird disputes. There is little doubt that the effect of its increase and spread over our country will prove disastrous to native species such as the blue-birds, crested flycatchers, swallows, wrens and flickers, all valuable economic species, which nest in cavities as does the starling. Then too the starling has a taste for grain and small fruits, especially cherries, which will not commend it to our farmers and orchardists.

But the food of this handsome fellow is very varied, consisting mainly of insects. They follow cows, sheep and horses to catch the insects stirred up by their feet.

The original home of this bird is Europe. About two hundred varieties of the starling occur in various parts of Europe and Asia, but this introduced species is the only true starling to be found in America. The starling was originally given a place on the list of North American birds through record of a specimen from Greenland. Several unsuccessful attempts were made to introduce this bird into the United States before the last importation proved only too successful.

Like our other foreigner, the English sparrow, these birds take refuge about the habitations of man, nesting in the crevices of buildings and hollow trees and lately in branches of trees. Outside of the breeding season they congregate in flocks about parks and orchards. Like our crow and meadowlark, the starling progresses on land by walking instead or hopping or running.

STARLING.
(Sturnus vulgaris).
¾ Life-size.

They are birds with handsome, glossy plumage and exhibit to a certain degree some of the intelligence and cunning possessed by our crows and jays. They are fond of mimicking other birds, and this trait can be cultivated to a remarkable degree by birds in captivity, for like some other members of the intelligent family they may be taught to speak.

In the Old World the starling, like the English sparrow, constructs a nest in the trees, under the eaves, in church steeples and in boxes erected for their accommodation. Outwardly the nests are constructed of twigs, straws and grasses, lined with finer material. The eggs are about the size of a meadowlark's and are pale blue unspotted.

Purple Finch (*Carpodacus purpureus*)

Length: About 6 to 6¼ inches. Unlike any other eastern finch, the crimson head of the male sufficiently distinguishes it.

Range: Breeds in southern Canada and southward to North Dakota, Minnesota, Illinois, Pennsylvania mountains, and northern New Jersey; winters from somewhat north of the southern boundary of its breeding range to the Gulf States.

Considering that it is common and widely distributed, the purple finch is not so well known as it should be. For one thing it has a marked liking for the tops of trees, particularly elms, and when in a tree top and more or less screened by foliage it requires the aid of a good glass to make its identity sure. Its warbling song is sweet and melodious but is all too brief for perfect enjoyment, though in spring the bird is prodigal enough of its carols, and not infrequently a dozen males may be heard singing at once in the same or in contiguous trees. It frequently nests around houses and for a site is very partial to the Virginia juniper.

The purple finch lives almost entirely on the seeds of various plants, including those of false buckwheat and ragweed, with some wild berries. It is accused, not without reason, of being a confirmed budder of fruit and other trees, but the damage it inflicts on eastern orchards appears to very slight, if indeed the modest budding it does is an injury at all.

The Biography of a Canary-Bird

By Joseph Grinnell

Sing away, aye, sing away,
    Merry little bird,
Always gayest of the gay,
Though a woodland roundelay
    You ne'er sung nor heard;
Though your life from youth to age
Passes in a narrow cage.

Near the window wild birds fly,
    Trees are waving round;
Fair things everywhere you spy
Through the glass pane's mystery,
    Your small life's small bound
Nothing hinders your desire
But a little gilded wire.

Mrs. Craik.

He didn't look very much like a bird, being mostly a big little stomach, as bare of feathers as a beechnut just out of the burr, with here and there on the head and back a tuft of down. His eyelids bulged prominently, but did not open, sight being unnecessary in consideration of the needs of his large stomach. Said needs were partially satisfied every few minutes with the nursing-bottle.

And a very primitive nursing-bottle it was, being no other than the beak of the parent bird thrust far down the little throat, as is the family custom of the rest of the finches.

From somewhere in the breast of the mother a supply was always forthcoming, and found its way down the tiny throat of the baby and into the depths of its pudgy being. This food, which was moist and smooth, was very nourishing indeed, and sweet as well, for it tasted good, and left such a relish in the mouth that said mouth always opened of itself when the mother bird came near. But no more than its own share of the victuals did Dicky get, though he did his very best to have it all. There were other babies in the same cradle to be looked after and fed. And they all five were as much alike as five peas, excepting that Dicky was the smallest of all and was kept pushed well down in the bottom of the nest. This did not prevent his mother from noticing his open mouth when it came his turn to be fed.

Canary mothers have sharp eyes; so have canary fathers, as will be seen.

Now, when this particular pair of birds began to look about the cage for a good place to fix upon for family affairs, some kind hand from outside fastened a little round basket in one corner, exactly of the right sort to stimulate nesting

business. It was an old-fashioned basket, with openwork sides and bottom, airy and clean. Now, had this basket been a box instead, we should have had no tragedy to record; or had the mesh been closely woven, no fatal mistake (though well meant) would have darkened the sky of this domestic affair. But alas! the truth must be told, since the biography we are writing admits of no reservations.

It all came about by the interference of the father bird, whose presence in the nursery should have been forbidden at the start. The mother was more than once alarmed by his activity and misapplied zeal about the nest, and she had scolded him away with emphatic tones.

Not having anything of importance to do save to eat all day and sleep all night, he was on the alert for employment. One dreadful morning, when the mother was attending to breakfast, this father canary espied some tatters sticking out of the bottom meshes of the nest basket, bits of string ends and threads, carelessly and innocently overlooked.

"Ah," thought he, "here is something that ought to be attended to at once."

And he went to work! He thrust his sharp beak up between the round meshes of the basket bottom and pulled at every thread he could lay hold of, struggling beneath, fairly losing his foothold in his eagerness to pull them out. Having succeeded in dragging most of the material from beneath the birdlings, he caught sight of a few more straight pink strings lying across the meshes, and began tugging at them. The mother, feeding the babies from the edge of the nest above, noticed the little ones each in its turn crouching farther and farther into the bottom of the cradle, faintly opening their mouths as if to cry, but being too young and weak to utter a sound. It was a mystery, but the deepest mystery of it all was the fact that little Dicky, the dwarf of the family, came to the top as the rest worked down, and was getting more than his share of the breakfast.

About this time the mistress of the canary-cage came to see after her pets, and beheld a sight which made her scream as hard as if she had seen a mouse. There, beneath the nest, was the father bird tugging at protruding feet and legs of baby birds with all his might, growing more and more excited as he saw his supposed strings resisting his attempts to pull them through.

When the affair was looked into, there was but one bird left alive of the five little infants no more than five days old, and they were released from their predicament to have a decent burial in the garden at the foot of a motherly-looking cabbage head that stood straight up in disgust of the cruel affair, "as if she would ever have such a thing happen to her little cabbages!" True, she had no little cabbages of her own, but that made no difference.

Now that we have tucked away these four little canary-birds, who never saw the light of day, and therefore never could realize what they missed by not holding on harder to what little they had by way of feet and legs, we will drop the painful subject and attend to Dicky.

Of course the father bird was excluded from the nursery, as he should have been weeks before, and there was only one mouth to feed. And that mouth

was never empty unless the owner of it was sleeping. In fact, the babe was stuffed; though, strange to say, his stomach grew no bigger, but less and less, as the rest of his body filled out.

At the end of a couple of weeks he had a pretty fair shirt on his back, of delicate down, softer than any shirt of wool that ever warmed a human baby's body. And the mother stood on the edge of the basket and admired it. She didn't make it, of course, but she was in some way responsible for it, and no doubt felt proud of the bit of fancy work. She noticed, also, that the eyes of the little one did not bulge so much as they did, and a tiny slit appeared at the center, widening slowly, until one happy hour they opened fairly out, and "the baby had eyes." But they were tired eyes to start with, like the eyes of most young things, and they wearied with just a glimpse of the light. So the lids closed, and it was several days before Dicky actually took in the situation as he ought.

There being no other baby to crowd, he kept to the nest longer than birds commonly do, and when at last he got on his feet he was pretty well fledged.

Now, when he had obtained his first youthful suit of clothes, his mother looked surprised, as did also his father, it is to be supposed, he in his solitary cage hanging close to the other. Both parent birds were pure-bred Teneriffe canaries, the male as green as emerald and the female more dusky and lighter. By a strange freak of nature, which happens sometimes by breeding these birds in captivity, the young fellow was bright yellow, of the tint of a ripe lemon, beak white, and eye black, while his feet and ankles retained their original baby pinkness. Oh, he was a pretty bird! But it was foreordained in his case, as in similar cases, that he should not be so sweet a singer as though his color had been like that of his parents. He was not conscious of this fact, however, and it mattered not to him that he was yellow instead of green. Nor did he care in the least that the price of him was marked down to a dollar and a half when it should have been double. Away he went in a new cage, after his new mistress had paid the sum named into the hand of his former owner. He peeked out of the bars as he was carried along swinging at every step; that is, he peeped out as well as he could, considering that a cloth was covered over the cage. The wind blew the cloth aside now and then and Dicky saw wonderful sights—sights that were familiar and "so soul-appealing." Not that he, in his own short life, had ever seen such sights, but that somehow in his little being were vague memories or conceptions of what his ancestors had seen. It is hard to explain it, but everything cannot be explained. When we come to one of these things we call it "instinct," with a wise shake of our heads, just as we were told to say "Jerusalem" when we came to a word we couldn't pronounce when we were very young and read in the Second Reader.

Well, Dicky had a good home of his own, and lived for a purpose, although he never developed into a trained singer. In the heart of him he longed for a mate, and often expressed his desires in low, musical notes. But no mate came

to him, and he would sit for hours pondering on his bachelor's lot, and singing more notes.

Now, wild birds are constantly having something "happen" to them. They fly against a wire or get a wing hurt, or the young fall out of the nest and can't find their mother. Dicky's mistress was always on the lookout for such accidents, and she brought such birds into the house and nursed them and brought them back to health when possible. It occurred to her to offer a "calling" or "vocation" to Dicky. So she made a small private hospital of his cage, into which she placed the victims of accident or sickness as she found them. Dicky was surprised, never having seen a bird save his parents, and his lady-love in his dreams, and at first he stood on tiptoe and was frightened.

But he learned to be kind after a while, and to show his visitors where the food and water were kept, and to snuggle up to them on the perch when it came bedtime. Many and many a poor invalid did he aid in restoring to freedom and flight, until he became pretty well acquainted with the birds that nest in our grounds.

Year after year the good work went on, and Dicky developed more musical talent, until he sang sweetly, imitating the finches and linnets outside. In the fall of the year, when the wild birds were thinking of their annual migrations, Dicky himself grew restless and quit his songs. Then his mistress opened his door and told him he might "go." Not far away, of course, but all about in the room, that seemed to this caged bird as big as any world could be. In his quest for new nooks he came by accident upon the mirror above the fireplace. Standing on the edge of a little vase before the glass, just in front of the beveled edge of it, he espied two yellow birds, one in the glass itself and another in the beveled edge, as a strict law of science had determined should be the case.

In a second the whole bearing of the bird was changed. His feathers lay close, his legs stood long and slim, and his eyes bulged as they never had bulged since the lids parted when he was two weeks old. Then he found voice. He sang as never a green bird sang sweeter. He turned his head and the two birds in the glass turned their heads. He preened his wing and the two birds preened each a wing. His little throat swelled out in melody, the tip of his beak pointing straight to the ceiling of the big room as if it were indeed the blue sky, and the two birds sang with uplifted beaks and swelling throats. They were of his own kind, his own race, his own ancestral comrades. And they were not green! The low mesas of the Canary Islands never resounded to such melody.

But melody was not food, at least so thought Dicky's mistress, as she tempted the bird in vain to eat. Not a crumb would he touch until placed back in his cage, where he straightway forgot his recent discoveries. As usual, he took his bread and cooky to the water-dish and set it to soak for dinner, and scattered his seeds about the cage floor in his eagerness to dispose of the non-essentials, the hemp only being, in his opinion, suitable for his needs. Of course he was obliged to pick up his crumbs after he had thus assorted the varieties.

Every day when the door was open he flew straight to the mirror. If we moved the vase to the middle, away from the beveled edge, he found the place by himself and stood on tiptoe exactly where the reflection accorded him the companionship of two birds, and he would resume his melody. It was real to him, this comradeship, and it lasted until actual and personally responsible companions were provided for him.

Now, let not the reader conjure up a picture of many birds in a cage with Dicky as governor or presiding elder. It was midsummer, when the sands are hot and inviting to the retiring and modest family known by name as "lizards." The particular branch of this family to which we refer, and to which Dicky was referred, is known to scientists, who would be precise of expression, as Gerrhonotus. But the familiar name of "lizard" is sufficient for the creatures we placed in a large wire cage on the upper balcony and designed for Dickey's summer companions.

Now, it should not seem strange to any one that we chose the lizard people to associate with this yellow-as-gold canary. Were they not one and the same long ages ago? And this is no legend, but fact. Have they not both to this day scales on their legs and a good long backbone? To be sure, the birds now have feathers on most of their bodies, so they may be able to fly; but a long while ago the bird had only scales, and not a single feather. And are not baby lizards hatched from eggs laid by the mother lizard? Ah, it is a long story, this dating back too far to count. But long stories are quite the accepted fashion in natural science, and from reading them we resolved to make some observations of our own. There is more to be gained sometimes in making observations on one's own account than by adopting those of others.

We captured half a dozen lizards and gave them the names of Lizbeth, Liza, Liz, and Lize. That is, four of them, being of the same order, received these names; there were two little ones besides, with peacock-blue trimmings, which have nothing to do with this story. The four named were about eight inches in length, speckled above and silver beneath. Their other beauties and characteristics will not be discussed except as it becomes necessary in treating of Dicky's further development.

From the day when these five creatures became fellow-captives they were friends. The lizards took to sleeping in the canary's food-box, so that in getting at his meals he was obliged to peck between them, and sometimes to step over them and crowd them with his head after hidden seeds. As the afternoon sunshine slanted across the cage the five took their dry bath all in a heap, bird on top with wings outspread, lizards in a tangle, each and all thankful that there was such a thing as a sun bath or family descent. Later, as the sun was going down and the lizards became drowsy, as lizards will, Dicky sang them a low lullaby, now on the perch above them, now on the rim of the feed-box. At times another comrade joined them, especially at this choral hour.

One of those red and white striped snakes seen in ferns and brakes along

watercourses made a home in the cage with the bird and the lizards. This snake had an ear for music; at the first notes he emerged from his lair slowly and cautiously, lifted his graceful head toward the singer, and glided in his direction. If the bird were on the perch the snake would crawl up the end posts, taking hold with his scales, which, of course, were his feet, and lie at length on the perch at Dicky's feet, watching out of his beautiful eyes. At other times it would merely glide toward the bird, lift its head erect some five or six inches, and remain motionless until the song was finished. A big, warty hop-toad, also an inmate of his asylum, was a friend of Dicky's, as indeed was every creature, even to the big grasshopper. This toad and the bird were often seen in the bath together, the toad simply squatting, as is the custom of toads, the bird splashing and spattering the water over everything, including, of course, the toad. The toad blinked and squatted flatter to the bottom of the bath, hopping out when the bird was done, and the two sunning themselves after nature's own way of using a bath-towel.

It would be too long a story were one to tell of the songs Dicky sang to the drone of the drones bumming away against the wire, sorry perhaps that they were to become dinner to lizards before summer was half over. But we must bring the biography to an end, hoping that these few reminiscences will tend to interest people in the "Dickies" that are about them in wire cages, too often neglected and never half comprehended.

But we should, by all means, give an account of the last we ever saw of this particular Dicky.

During his stay on the balcony he had become acquainted with the finches and linnets and mocking-birds of the yard, holding quiet talks with them in the twilight, and growing more thoughtful at times, even to the extent of watching for opportunities to escape. One evening, just as we lifted the door to set in a fresh pan of water, out darted Dicky. Straight to a tree near by he flew, and called himself over and over again. We cried to him, "Dicky, O, Dicky, come back."

Ah, but here was a taste of freedom—the freedom which his ancestral relatives had enjoyed on the low slopes of Teneriffe before ever a foreign ship had carried them away captive. And Dicky had never read a word about his ancestors and their freedom! Therefore, what did he know about it? Scientists call it "instinct." It is a word too hard for us, and we will say "Jerusalem" and let it pass. Away across the street flew Dicky, the bird of prison birth, the bird of only two comrades of his kind and color, and these but shadows in a mirror.

The lizards heard us call, and peeped lazily over the edge of the hammock seed-box, blinking sleepily, and then cuddled down again without sense of their loss.

Running after the bird did not bring him back, as everybody knows to his sorrow who has once tried it. A glint of gold in the pine-tree a radiance as of lemon streamers in and out of the cypress hedge, and we saw Dicky no more.

My bird has flown away,
Far out of sight has flown, I know not where.
Look in your lawn, I pray,
Ye maidens kind and fair,
And see if my beloved bird be there.

Find him, but do not dwell
With eyes too fond on the fair form you see,
Nor love his song too well;
Send him at once to me,
Or leave him to the air and liberty.

From the Spanish.

Some day a budding ornithologist, more eager than wise, with note-book and pencil, will possibly record a "new species" among the foothill trees—a species that resembles both yellow warbler and goldfinch. And the young man will look very knowing, all alone out in the woods; and he will send his specimen to the National Museum for identification. And the museum people will shake their wiser heads and inform the "ornithologist" that, in their opinion, there is more of the ordinary tame canary "let loose" in the individual than goldfinch or warbler.

Let it pass.

A bird for thee in silken bonds I hold,
Whose yellow plumage shines like polished gold:
From distant isles the lovely stranger came,
And bears the far-away Canary's name.

Littleton.

List of Forty-Eight Colored Plates. Vol. II

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