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 IV

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
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MOUNTAIN BLUE BIRD.
⅔ Life-size.

The Mountain Bluebird (*Sialia currucoides*)

By Gerard Alan Abbott

Length: 7 inches.

Range: Colorado to the Pacific coast and north to the Hudson Bay country.

This handsome bird of the thrush family is more delicately colored than our eastern bluebird. In some localities it is known as the Rocky Mountain, or Arctic, Bluebird. The habits are similar to those of the bluebird.

The birds feed upon insects, worms, wild fruit, and seeds. They are able to adapt themselves to climatic conditions and weather some of the severest storms.

In certain portions of our western states the birds show a preference for the habitation of man and build their nests in nooks and crevices about barns and sheds. Frequently the deserted excavations constructed by various woodpeckers are used as nesting sites. Dry grass is the chief and often only article used in constructing the nest. Four or five pale blue eggs are laid. Like our eastern bluebird, the young when able to fly are escorted by the male, while the female prepares the nest for another setting.

The exquisite coloring of the Arctic Bluebird makes it seem the gentlest, most beautiful of all the lovely bluebirds.

No bird can ge more attractive than this gentle, sweet tempered and shy bluebird of the mountains. Loving the light, bracing air and and the quiet forests of the mountain side, it is rarely seen upon the lowlands, but is abundant from the plains up to timber-line. In some localities it has been known to go above the point at which timber growth ceases, and it has been observed at an elevation of 13,000 feet.

The Mountain Bluebird very closely resembles its eastern relative, the well-known bluebird, *Sialia sialis*. Its colors, however, are softer and more delicate, and it is not so truly arboreal as is the eastern species. It seeks its food, to a great extent, in the open places while hovering but a short distance above the ground. It possesses a shy and retiring disposition, yet it will accept the hospitality of the miner or ranchman, and builds its home in the nesting places that he has provided. The bluebirds will also build their nests about old buildings; in suitable places in the vicinity of mines; in hollow trees; in the deserted holes of woodpeckers, and in openings and crevices in the rocky formations at higher elevations.

The Mountain Bluebirds feed upon grasshoppers, beetles and other insects, and also upon the seeds of various plants and cedar berries. A large part of their food is picked up from the ground, and not infrequently it is obtained by scratching among the fallen leaves.

The song of the Mountain Bluebird is like its own nature, simple and sweet. Dr. Ridgway says: "The common note of this Bluebird would, from its character, be at once recognized as that of a bluebird. Its autumnal note, however, lacks entirely the peculiar plaintiveness so characteristic of that of our eastern species,

and is much more feeble, consisting of a single weak chirp. The *Sialia artica* was also never heard to give utterance to anything resembling the lovely spring warbling of the *Sialia sialis.*"

Of this beautiful bird, Mrs. Wheelock has written: "No words can describe his brilliancy in the breeding season, as he flies through the sunny clearings of the higher Sierra Nevada, or sits like a bright blue flower against the dark-green of the pines."

The White-Fronted Goose (*Anser albifrons gambeli*)

By A. C. Bent

Length: 27 inches.

Range: North America, rare on the Atlantic coast, common on the Pacific slope and in the interior; nests in the Far North.

The White-fronted Goose has an extensive range which includes North America, though it is rare on the Atlantic coast. In the interior and on the Pacific slope it is common, excepting during the nesting season, for it breeds only in the Far North. This species winters in the United States, southward to Mexico and Cuba. As a winter resident it is much more abundant on the Great Plains and westward to the Pacific coast. In the Mississippi Valley and eastward, it is more common as a migrant, and in most localities of this region it is rare in winter. In Illinois it appears in its fall migrations during October or early in November, and in the spring it returns during March and April. In those localities where it only appears as a migrant, its peculiar and rapidly repeated notes, *Wah, wah, wah, wah, wah,* may well remind one of the words of Celia Thaxter in her poem "Wild Geese":

> Hark, what a clamor goes winging through the sky!
> Look, children! Listen to the sound so wild and high!
> Like a peal of broken bells,—Kling, kling, kling,—
> Far and high the wild geese cry, "Spring! it is Spring!"

The loud, harsh and quite trumpetlike notes of this goose have given to it the name Laughing Goose. But it also bears many other names. As it shows a special liking for low prairies, it is frequently called the Prairie Brant or Goose. Because of the coloration of its plumage it is often called Gray Brant, Speckled Brant or Goose and Yellow-legged Goose. It bears several other popular names, but the ones already mentioned are those more commonly used. During their migrations, they often fly so high that they appear as mere dots against the clouds or sky. They, however, spend most of their time upon the land, for it is there that they obtain their food. When flying in large flocks this interesting species, like the Canada Goose and the Snow Goose, with which it is frequently associated, flies in a wedge-shaped company led by one whose ringing call notes

From col. Chi. Acad. Sciences.

WHITE-FRONTED GOOSE.
1/3 Life-size.

are constantly uttered. The flight of these birds is beautiful, but appears to be much less rapid than it really is because of their large size and the height at which they were moving. The flesh of the White-fronted Goose is very highly esteemed, and by many epicures it is considered much more delicious than the flesh of any of the other geese.

The geese are vegetarians and much more terrestrial than are the ducks, for they frequent the land in order to feed upon tender herbage. The White-fronted Goose during its migrations and in its winter home, frequents prairies and fields where it feeds upon the tender blades of grass and to some extent, at least, upon the green blades of winter wheat. It will also glean the scattered grains of corn in corn fields. In California, where it is very abundant in winter, it is said to be very destructive to the growing wheat crop and that, in some localities, the farmers employ men to kill them or drive them from the fields. When obtainable, berries of various kinds and buds of shrubs are staple articles of food. When these geese arrive upon their breeding grounds in the early spring, the lakes are still frozen and the ground is more or less covered with snow. At this time the heath berries of the preceding year form their principal food.

Mr. E. W. Nelson has given an excellent account of their breeding habits in Alaska, where they nest very abundantly. There, the White-fronted Geese begin to arrive the latter part of April if the season is early, but usually early in May. "As the season advances they become more numerous and noisy. Their loud call notes and the cries of the males are heard everywhere." Along the Yukon Dall found them breeding gregariously, depositing their eggs in a hollow scooped out in the sand. At the Yukon mouth and Saint Michaels they were found breeding in scattered pairs over the flat country. Every one of the nests examined by me in these places had a slight lining of grass or moss, gathered by the parent, and upon this the first egg was laid; as the complement of eggs is approached the female always plucks down and feathers from her breast until the eggs rest in a soft, warm bed, when incubation commences." Regarding the care of the young, Mr. Nelson says: "During my visits to the haunts of these birds the parents were seen leading their young away through the grass, all crouching and trying to make themselves as inconspicuous as possible." He also states that all through the month of September both the old and young gather in larger flocks, and "as the sharp frosts toward the end of September warn them of approaching winter, commence moving south. The marshes resound with their cries, and after some days of chattering, flying back and forth, and a general bustle, they suddenly start off in considerable flocks." Very soon thereafter we begin to hear their cries, and see them in the United States.

Fifty Kinds of Birds Winter in New York

By George F. Guelf

One of the most popular winter resorts for birds is near the shore of Lake Ontario. As the main line of flight of the birds during their migrations is along the lake shore, many of them stop there to winter or loiter along the way.

There are many different species to be found, but one must know where to look for them, for each has its own particular choice as to the character of its winter habitat. Familiar birds of summer are occasionally met with, under changed conditions and environment, and it is then that they become doubly interesting.

While there may be days when the birds do not appear very common, there are always some birds to be found, and sometimes the unexpected ones. The broad, open fields have their tenants as well as the sheltered woods. Where the winter winds have swept the knolls bare of snow the Lapland longspur and horned lark are usually to be found, their dull coloring blending in perfect harmony with their surroundings.

In a weedy, sheltered nook along the border of a marsh a meadow lark will occasionally be found, for it is not unusual for a few of these birds of summer meadows to spend the winter here.

Along the hedgerows or an old brush-grown fence is the favorite haunt of that feathered butcher, the shrike. Before the coming of a barbed wire fence these birds selected a thorn tree on which to hang up their victims. But metal hooks are just as good and much more convenient, and more numerous are the places where their prizes can be swung to the breeze.

The snowy owl is a regular winter visitor along the lake. His favorite hunting ground is the rough, open country, dotted with stone piles, and bordered with old rail fences. Unlike his ducky cousin, the great horned owl, he prefers this open country to the secluded woods and does most of his hunting during the early hours of the day.

Over the frozen marsh and through the thickets are found sharply printed in the snow the three-barred tracks of the ring-necked pheasant. During the bleak winter weather, when the snow is drifted deep in the cover, a band of these hardy birds will often go on a seed hunting trip to the adjoining fields. Then it is that there is some chance of observing the trailmakers themselves as they wander over the fields, gleaning the seeds from the wood clusters exposd above the snow.

In the woods and border thickets are found the greatest varieties of birds. Dense towering hemlocks are a safe refuge into which the small feathered folks may avoid the bold, swift dash of a hawk, are a protection against the north winds, and are the source of principal food supply of the crossbill, its oddly shaped bill being specially designed for extracting seeds from hemlock cones. Whenever there is an abundant crop of cones, a large flight of crossbills may be looked

for. There are two species of crossbills, the red or American crossbill and the white winged variety, the latter being the more common.

Of the small winter birds the pine siskin and common redpoll are probably the most numerous. There are two more species of redpoll found here, but they are not very common.

Pine grosbeaks are occasionally seen. Goldfinches are usually found, sometimes in quite large flocks, but they would hardly be recognized now, for they have discarded their bright yellow dress for one of a plain, more sombre hue.

The purple finch, that beautiful songster heard so frequently during April, occasionally spends the winter here. Often a song sparrow will be found in some sheltered nook.

Juncos and tree sparrows are usually found in the thickets along the border of a woods. Cedar waxwings are sometimes seen in large flocks, but their occurrence is irregular. They are confirmed nomads and never content to remain long in any locality.

The little brown creeper is often found here in winter. He is one of the tiniest of our winter birds and it requires careful hunting to find him. He is a plain, quiet and solitary little chap, seldom, if ever, utters a sound and is always industrious and interested strictly in his own affairs. In searching over the tree trunks he always starts at the bottom and works his way upward, carefully inspecting every crack and crevice of the bark for dormant insects or eggs. On gaining the upper branches, like a wind-tossed leaf, he flutters down again to another tree and immediately continues his silent, earnest searching.

Two species of nuthatch are found here in winter, the red breasted and the more common white breasted. Wherever the nuthatch is found there also will be found the downy woodpecker and the ever industrious and excitable chickadee. To the city dweller these three are probably the most familiar of our winter birds. If food is placed for them they will be daily visitors and their confidence once gained they become very tame.

If strips of suet are kept tied in the trees and bushes these birds can be induced to remain about all winter, even in thickly settled communities, and their benefactors will be rewarded thereby by many a pleasant hour. There is another species of chickadee, the Hudsonian. It is a Northern one, occurring only in winter, and is never common.

The rarest of the small birds found here in winter is the tufted titmouse. Two small flocks of these have been observed in the woods along the lake. Their usual range, even in summer, is much further south.

The red-headed woodpeckers are frequently permanent residents. They inhabit the old beech timber, the decaying stubs offering them an abundance of places in which to chisel out a home. Here they are secure from the winter weather.

When the sun shines clear and the storms have lulled their peculiar rattling call is often heard through the woods. For neighbors they often have the north-

ern hairy woodpecker, and in a taller, more isolated stub a sparrowhawk will sometimes make his winter home.

In a sheltered nook in the hemlock woods a few robins will usually be found spending the winter. These robins that winter in the swamps are usually the ones seen first in the early spring. The migrating robin, the one that has made the journey from the South, is the one that announces his arrival in early morning from the topmost branch of a lofty tree.

Seven different species of owls are usually to be found here in winter. This does not include the rare hawk owl, which has been taken on one or two occasions. Of the hawks there are six species, but they, like the owls, are never common, only an occasional one being seen.

More than fifty species of birds, not including the waterfowl, have been found in winter along the shores of Lake Ontario. A number of other species remain until the early part of the winter, when they move a little further south, to return again as soon as the first signs of spring become apparent.

Whooping Crane (*Grus americana*)

Range: Mainly restricted to southern Mackenzie and northern Saskatchewan; winters from the Gulf States to central Mexico.

If we go back about a century we find this, the largest of our cranes, abundant and nesting over a vast area stretching from the Mackenzie region to Iowa, a strip 1,500 miles long by less than 300 miles wide. Cooke states that eggs of this species were taken in Iowa as late as 1894, and at Yorkton, Saskatchewan, as late as May 16, 1900. In its day and generation the whooping crane, big and conspicuous as it is, was common enough, as is attested by numerous authorities. Thus, Nuttall, speaking of a night on the Mississippi in December, 1811, says, "The whole continent seemed as if giving up its quota of the species to swell the mighty host. The clangor of their numerous legions, passing along, high in air, seemed almost deafening." Today what a contrast! The clangor of passing multitudes no longer fills the air, for this noble bird whose number was legion a century ago, is now practically extinct in the Atlantic States, while only a few pairs manage to maintain themselves in far out-of-the-way places, and so to delay for a few years the final extinction of the species.

In early colonial times the whooping crane was taxed with pillaging corn fields and doubtless suffered for its crimes. Moreover, its flesh was reputed to be excellent, and no doubt this fact contributed to its destruction. One of the regulations under the Federal law fixes a closed season till 1918 for our three species of cranes, whooping crane, sandhill crane, and little brown crane, but, so far as this species is concerned, the regulation probably comes too late.

The Mocking Bird

By Frank L. Stanton

He didn't know much music
  When first he came along;
An' all the birds went wonderin'
  Why he didn't sing a song.

They primed their feathers in the sun,
  An' sung their sweetest notes;
An' music jest come on the run
  From all their purty throats!

But still that bird was silent
  In summer time an' fall;
He jest set still an' listened
  An' he wouldn't sing at all!

But one night when the songsters
  Was tired out an' still,
An' the wind sighed down the valley
  An' went creepin' up the hill;

When the stars was all a-tremble
  In the dreamin' fields o' blue,
An' the daisy in the darkness
  Felt the fallin' o' the dew,—

There come a sound o' melody
  No mortal ever heard,
An' all the birds seemed singin'
  From the throat of one sweet bird!

Then the other birds went playin'
  In a land too fur to call;
Fer there warn't no use in stayin'
  When one bird could sing fer all!

The Chestnut-Sided Warbler (*Dendroica pensylvanica*)

By T. Gilbert Pearson

Description.—*Adult male:* Extreme forehead ashy white; crown bright yellow (gamboge); hind neck streaked black and ashy white; back and rump bright olive-green, with partially concealed black stripes; upper tail-coverts black, edged with ashy and olive; wings and tail black, primaries and rectrices edged with ashy; secondaries and tertials edged with yellowish green; two irregular wing-bars light yellow; three outer pairs of tail-feathers extensively white on inner webs; a black patch on the side of the head including eye; an irregular white patch behind this; below white; sides of breast and sides with large chestnut patches, irregular or interrupted; bill black; feet dark. *Adult female:* Like male, but duller; chestnut of sides much restricted; black face blotch divided by ashy, etc. No autumnal change in either sex. *Immature:* Quite different; above bright olive-green; below ashy or sordid white; wing-bars and tail-blotches as in adult; rectrices in unworn plumage quite acute; bill light below. Length, 4.75-5.25 (120.6-133.3); av. of six Columbus specimens: wing, 2.36 (59.9); tail, 1.91 (48.5); bill, .36 (9.1).

Recognition Marks.—Smaller; white under parts and chestnut sides of adult; light yellow wing-bars of young.

Nest.—Made of bark-strips, grasses and plant-down, and lined with hair; placed two to ten feet high in bush or sapling. *Eggs,* 4 or 5, white or creamy white, speckled with rufous or chestnut, chiefly near larger end. Av. size, .68x.50 (17.3x12.7).

General Range.—Eastern United States and southern Ontario, west to Manitoba and the Plains, breeding southward to central Illinois, and northern New Jersey, and in the Appalachian highlands probably to southern Georgia. Visits the Bahamas, eastern Mexico, Central America and Panama in winter.

Among the most charming birds in the world are the members of that group classified as the family of Wood Warblers. There are about one hundred and fifty-five known species, and they are found in no other country but America. Seventy-four kinds occur in North America, and fifty-five of these have been recorded in the United States.

They are small birds, the majority measuring rather less than five and one-half inches from bill-tip to tail-tip. They are birds mainly of woods and thickets, a few only venturing into open country. The Warbler's bill is longer than that of most small birds, and is well adapted for seizing the soft-bodied insects upon which it so largely preys.

One of the most common members of the family in the Eastern States is the Chestnut-sided Warbler. The general appearance of the male is that of a particularly trim little bird with olive-green back and bright yellow crown; the under parts are lighter, and the sides are marked by deep chestnut—that is, this is the way the male looks in spring. At this season the female is quite similar, although its colors are duller. In the fall and winter the plumage presents a very different

CHESTNUT-SIDED WARBLER.
(Dendroica pensylvanica).
Life-size.

appearance. The upper parts then are yellowish olive-green, sometimes with faint streaks on the back. The deep-chestnut of the sides has given way to a few spots or patches of this color.

In seeking the Chestnut-sided Warbler, one should go to woodlands that have been cut over and grown up in bushes. There are found the conditions which this bird dearly loves, and in such a situation one may pass a whole forenoon and seldom be out of sight or hearing of one or more of them.

The nest is made of strips of bark, soft dead leaf-stems, and similar material; it is lined with tendrils and rootlets. Usually the nest is from two and a half to three and a half feet from the ground. Rarely have I found one so situated that it could not readily be reached by the spring of an agile house-cat, and there is much evidence to show that many are pulled down every year by these feline hunters.

It is commonly reported that as many as five eggs are deposited in the nest before the bird begins setting, but fully three-fourths of those nests that I have found contained only four eggs. They are white, with numerous brown markings of various shades—some distinct, others more or less obscure, as if the inside of the shell had been painted and the color was showing through. The spots and blotches are gathered chiefly in a wreath about the larger end. They are pretty, dainty little objects, as is the case with all Warblers' eggs. In size, they are about two-thirds of an inch long, and half an inch in diameter at the largest place.

In the latitude of Boston, fresh eggs may usually be found late in May or in the first week of June.

The Chestnut-sided Warbler feeds almost exclusively on insects. John James Audubon wrote that once in Pennsylvania, during a snow-storm in early spring, he examined the dead bodies of several, and found that their stomachs contained only grass-seeds and a few spiders. The birds were very poor, and evidently were in a half-starved condition, which would probably account for the fact that they had been engaged in such an un-warbler-like act as eating seeds. Ordinarily this bird is highly insectivorous, and feeds very largely on leaf-eating caterpillars. It also collects plant-lice, ants, leaf-hoppers, small bark-beetles, and, in fact, is a perfect scourge to the small insect-life inhabiting the foliage of the bushes and trees where it makes its home. Sometimes the birds take short flights in the air after winged insects. It will thus be seen that the Chestnut-sided Warbler is of decided value as a guardian of trees, which is reason enough why the legislators of the various states where the bird is found were induced to enact the Audubon Law for its protection.

All birds that depend so much on insects for their livelihood as does the Chestnut-sided Warbler are necessarily highly migratory. By the middle of September nearly all have departed from their summer home, which, we may say roughly, covers the territory of the southern Canadian Provinces from Saskatchewan eastward, and extends southward as far as Ohio and New Jersey. They are also found in summer along the Alleghany Mountains in Tennessee and South Carolina. Most of the migrants go to Central America by way of the Gulf of

Mexico, and only a comparatively small number travel to Florida and the Bahama Islands.

The song of the Chestnut-sided Warbler is confused in the minds of some listeners with that of the Yellow Warbler. Mathews says the song resembles the words, "I wish, I wish, I wish to see Miss Beecher."

Mr. Clinton G. Abbott, writing in *Bird-Lore* in 1909, told most entertainingly of the fortunes of a pair of these Warblers and their nest, which he watched one summer. After telling of finding a nest from which all the eggs had been thrown but one, and in their place had been deposited two eggs of the Cowbird, he says:

"The nest was found at Rhinebeck, New York, on July 6, 1900, incubation having apparently just started. Four days later I discovered that one of the Cowbird's eggs was infertile; so I removed it from the nest, disappointed that I should not, after all, enjoy the somewhat unique experience of observing two young Cowbirds growing up in the same nest. It was some time during the night of July 13-14 that the first of the remaining two eggs hatched—the Cowbird's of course. The Warbler's hatched between twelve and twelve-thirty o'clock on the 14th. The nicety with which matters had been so arranged that the young Cowbird would have just a convenient start in life over its unfortunate rival commanded at least my admiration if not my sympathy. Cowbirds must indeed be sharp nest-finders to be able to discover at short notice not only the nests of certain suitable kinds of birds, but even nests containing eggs at a certain stage of incubation!

"After the hatching of the eggs, I spent considerable time at the nest-side, and observed with interest the many pretty little incidents of a bird's domestic life—the constant and tender brooding of the newly hatched young by both Warblers in turn; the never-ceasing search among the neighboring trees and bushes for small caterpillars; the delivery of the food by the male to the brooding female, who, in turn, would raise herself and pass it to the young; the careful cleansing of the nest; and many other intimate details of the birds' loving and happy lives. When I drew aside the leaves that sheltered the nest and allowed the sun to shine upon it for purposes of photography, the mother, realizing with that wonderful instinct common to all birds which nest in the shade, the fatal effect on her babies of the sun's direct rays, would take her stand on the edge of the nest and with outstretched wings would form of her own body a living shield for the comfort and protection of her young. Although herself in evident distress from the heat, and with parted mandibles continually gasping for air, she would remain in this position as long as the sun shone upon her, only stepping aside occasionally when a well-known signal announced that her husband had arrived with a meal for the little ones. It was a beautiful picture of parental devotion.

"As the young birds began to grow, the Cowbird not only maintained, but rapidly increased its lead over its small nest-mate. At every visit of the parent bird with food, its capacious gullet could be seen violently waving aloft and almost completely hiding the feeble little mouth of the Warbler, whose owner was pathetically doing its best in a dumb appeal for food. The Cowbird's appetite seemed

never to be satiated and, unlike most nestlings, which relapse after a meal and give their brethren the next chance, he seemd ready for every fresh opportunity; and, by reason of his superior display, he usually succeeded in obtaining the coveted morsel. However, the young Warbler did manage to get an occasional portion, and I had strong hopes that he might reach maturity. For I realized that a Chestnut-sided Warbler's usual laying is about five eggs, and that, therefore, some four eggs must have been made to give place to the two Cowbird's. Hence the young Cowbird in the nest might reasonably be granted the room and food of four young Warblers. More than this I hoped he was not getting.

"On July 18, at 3:30 p. m., when the birds were about four days old, I took them from the nest to compare their sizes. I replaced them in the nest, but that was the last I saw of the poor little Warbler. When I returned at 5 p. m., the Cowbird was in sole and triumphant possession of the nest. Just what became of the Chestnut-sided Warbler will never be known, but my theory is that, weakened by lack of sufficient food, the little fellow at last became too feeble to raise himself at all, and was crushed to death by the Cowbird's gross body. The parent birds, returning and finding the little corpse in the bottom of the nest, were no doubt impelled by their instinctive sense of cleanliness to carry it to a distance; for the most careful search over a large area beneath the nest failed to reveal any sign of the missing bird, thus proving that it had not fallen from the nest nor been forced out by the Cowbird.

"The Cowbird now had things all his own way and, there being no one to dispute his right to all the food, he grew with amazing rapidity. The dainty little cup of a nest, never built to accommodate such a monster, was soon completely forced out of shape. His body then protruded beyond the lower rim of the nest, and the ground underneath became littered with droppings, quite baffling the cleanly, sanitary instincts of the Warblers.

"The Cowbird, now almost twice as large as his devoted foster-parents, rises with hideous chitterings of delight to receive an ever-acceptable meal. I visited the nest at 7:30 a. m. on July 26. As I walked home to breakfast, I resolved that in the interests of justice I ought to put an end to that Cowbird as a murderer and a menace to the welfare of birddom. But when I returned to the spot, about 9 a. m., he had escaped me; the nest was empty, my bird flown. No doubt, if I had searched and listened, I should have heard him shouting for food not far away; but my spirit of vengeance was only half-hearted at best, and so I left him, a criminal abroad, to be the parent, I suppose, of others as bad."

The Snowy Plover (*Aegialitis hiaticula*)

By Frank M. Woodruff

Length: 5¼ inches.

Though the range of this beautiful Plover is fairly extensive, it is much more common west of the Rocky Mountains. It is found eastward to Kansas and the western Gulf States. It is known to breed quite throughout this range, and it may also nest in Central America, and western South America. It winters from Southern California and Louisiana, southward on both coasts of Central America and on the western coast of South America, at least to Chili. It has also been found in western Cuba, and Mr. C. B. Cory has recorded it from Long Island. Mr. N. S. Goss found the Snowy Plover breeding on the salt plains along the Cimarron River in the Indian Territory. In this territory he saw young birds and several adults. He found the nest to be a "depression marked out in the sand, with no lining, and nothing near to shelter or hide it from view."

Mr. T. S. Van Dyke says the Snowy Plover is found on the coast of Southern California, inland as far as the great Salt Lake. It is abundant on the ocean beaches, frequenting the high dry sand, and has many of the habits of the piping plover. It is generally silent, and the soft coloring of its plumage blends perfectly with the surroundings. Along the California shore this Plover remains through the winter and breeds during the month of May. The nest is a mere depression in the sand, and several pairs are often found nesting in a comparatively small area. The eggs of the Snowy Plover resemble very closely the color of the sand upon which they are laid, and for this reason are not easily observed.

When hatched the young at once begin to search for food under the guidance of their parents. Their food consists of the various small insects and other minute forms of life that abound on the beaches. If surprised or pursued they quickly run away, and may finaly settle upon the sand where they remain perfectly motionless, and because of their color, easily escape observation. In regard to this habit, Mrs. Bailey says that on the shores of Salt Lake, while the great white gulls disport themselves in the air and on the water, the plump little Snowy Plover is trotting along the beach gathering his food as he goes. If frightened, he drops into deep footprints of a horse, and is lost to view, so well does his back match the gray surface. While leading their brood, the parent birds will feign injury when pursued and flutter along in an apparently crippled manner in order to attract attention to themselves while their young are escaping. Finally the parent bird, when the young has had sufficient time to escape, and hide, takes to wing and flies, in a roundabout manner back to the vicinity of her young. Mrs. Wheelock records the finding of a Snowy Plover's nest near San Diego, Calif., in the month of April. When discovered it contained three eggs. When the nest was again visited three hours later two little ones had broken the shells and were crouched in the nest looking like small gray stones. They were about the size of large walnuts and were very pretty creatures.

SNOWY PLOVER.
(Ægialitis nivosa).
Life-size.

The Robin

By Alfred Kummer

I hear the dash of rain
Against my window-pane;
A robin in the tree-top swings
While in the rain he sings

Courageous songster thou,
To thee we cowards bow;
O, robin, roystering in the rain,
Thy song is not in vain.

When clouds and storms prevail,
And hopes and courage fail,
Upon the limb, O, sing and swing,
Dear robin in the rain.

Upon his twig so frail,
Ah! what if it should fail?
Amid the rudest rain he sings,
He fears not,—HE HATH WINGS.

A heavenly message thine,
I'll make your message mine:
Not clouds or dashing rain
Can quench thy throat of flame.

Though all on earth should fail,
Let Love and Faith prevail,
The robin sings: "These are thy wings!"
Sing thou in every rain.

O, robin, brave of heart,
Thou dost bright hope impart:
Look up, attain, ye men of pain,
The robin in the rain.

The Buffle-Head (*Charitonetta albeola*)

By Lynds Jones

Synonyms.—Butter-Ball; Spirit Duck.

Description.—*Adult male:* Feathers of head puffy, somewhat lengthened along crest and nape; head and upper neck black, sooty below, with brilliant violet, purple, steel-blue, and bronze-green metallic reflections; a broad white space from eye to eye around occiput; back, inner scapulars and tertiaries with touches on coverts and some narrow bordering on the outer scapulars and upturned side-feathers glossy black; upper tail-coverts and tail ashy gray; remaining plumage, including a broad collar around neck, white; belly silky or washed with pale gray; bill dull bluish with dusky nail and base; feet flesh color, with black claws; iris brown. *Adult female:* Head and neck mouse-brown, darker on crown, lighter on throat; a dull white patch below and behind eye; speculum narrowly white; reminiscences of white coverts of male in shape of two or three central spots on greater coverts; remaining plumage above, grayish dusky below, below silky white, shading on sides and hind-neck. Length, 14.00-15.25 (355.6-387.4); av. of six Columbus males: wing, 6.67 (169.4); tail, 2.93 (74.4); bill, 1.10 (27.9); tarsus, 1.31 (33.3). Female smaller.

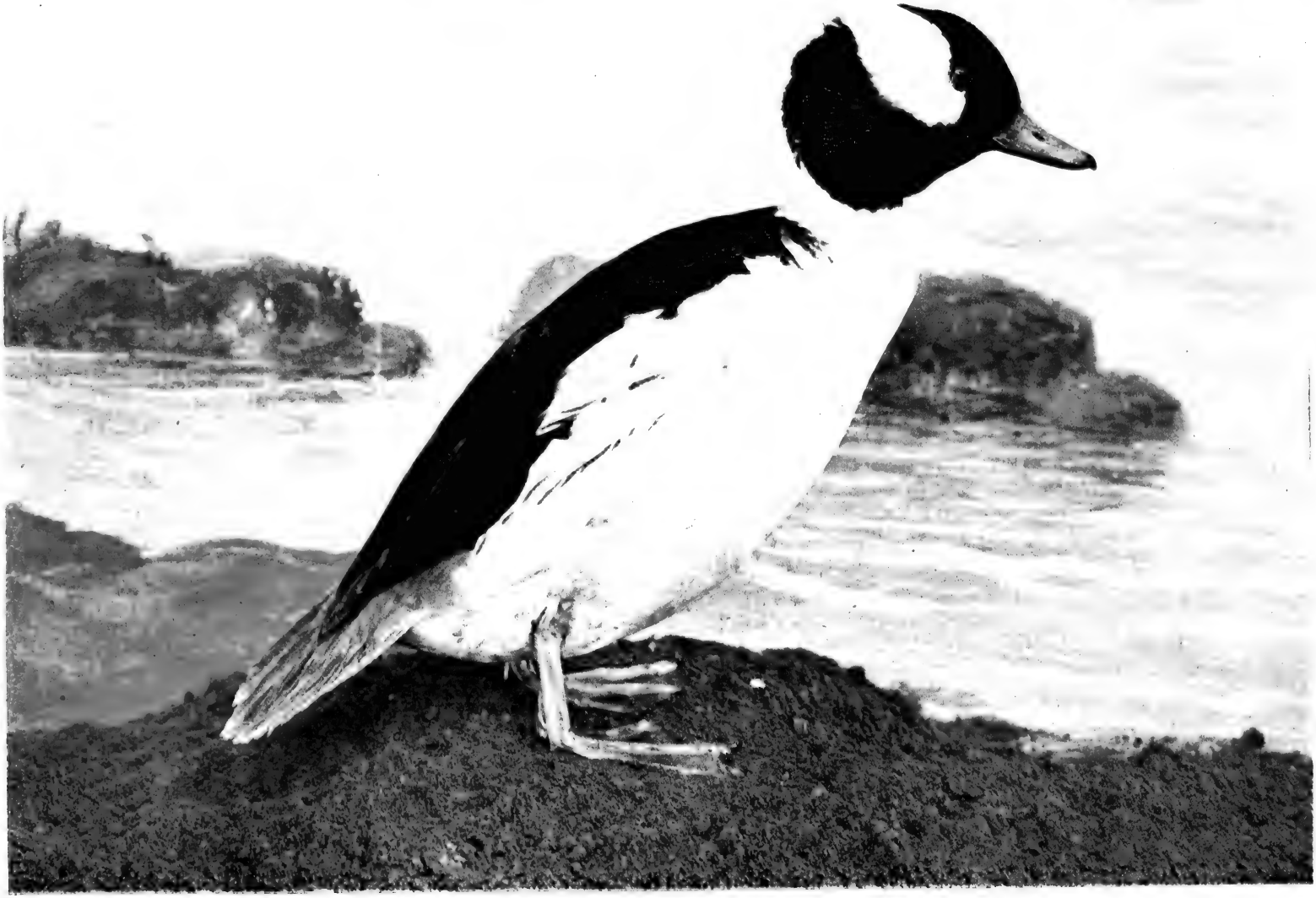
Recognition Marks.—Teal size; plumage extensively white; head black, with large sharply defined patch of white from eye to eye behind. Similar spot much reduced, distinctive for female. Expert diver.

Nesting.—Not known to breed in Ohio. *Nest,* in hollow of tree or stump, lined with grasses, feathers, etc. *Eggs,* 6-14, pale olive gray, creamy, or buffy white. Av. size, 1.98 x 1.46 (50.3 x 37.1).

Range.—North America; south in winter to Cuba and Mexico. Breeds from Maine and Montana northward, through the fur countries and Alaska.

Each bird species, like each human family, possesses a character wholly its own. "Butter-ball" and "Butter Duck" are expressive of this duck's close-knit, fat appearance, and the name "Spirit Duck" arises from its appearance of floating in the air above the water, since the white breast and sides, below the field of black, cannot be seen, at first glance, above the water. No doubt its expertness in diving, thus dodging the shot, has also given point to this title. But aside from this superficial appearance, the Buffle-head possesses a character of his own. He rides the water daintily, scarcely wetting his toes, or lies on his side with one foot out of water, or plunges down to great depths, with utter disregard of the fact that he is an air-breathing animal. And too, he is always spick and span, never with so much as a dampened feather. How easy to become master of the water if you could go into it without getting in the least wet!

Buffle-head takes the world easy. He does nobody harm, and assumes that he will be treated equally well. Flocks of the Oberlin water-works reservoir never think of being disturbed by the curious spectators on the bank. One can almost believe that they were raised there.



BUFFLE-HEAD.
(Charitonetta albeola.)
Nearly ½ Life size.

The glossy, purplish-black, fluffy head with its mark of pure white reaching from eye to eye around the back of the head, makes a pleasant as well as a conspicuous contrast. The females are content with a white spot behind the eye. Females usually accompany the flocks of early males, and males the flocks of late females, but I have seen flocks composed wholly of one sex. In flight the birds form a bunch rather than a flock.

The spring migrations cover the last week in March and almost the whole of April. The birds return in October, and some may remain all winter in favorable winters or in favorable localities. While there seem to be considerable numbers of these birds, they never swarm anywhere. The flocks are usually not large, but the birds keep close together.

Buffle-head nests north of Ohio, but Dr. F. W. Langdon has found individuals in summer in Ottawa County, and it is reported as breeding sparingly on the St. Clair Flats. The nest is in a hollow tree or stump, and the mother bird plucks her own breast for the lining. The eggs range up to twelve in number, and do not differ in color from other duck eggs. It does not seem to be settled whether the old bird carries the young to the water, or whether she drops them to the ground and then guides them there.

Address to the Woodlark

By Robert Burns

O stay, sweet warbling woodlark, stay,
Nor quit for me the trembling spray,
A hapless lover courts thy lay,
  Thy soothing fond complaining.

Again, again that tender part,
That I may catch thy melting art;
For surely that wad touch her heart,
  Wha kills me wi' disdaining.

Say, was thy little mate unkind,
And heard thee as the careless wind?
Oh, nocht but love and sorrow join'd
  Sic notes o' wae could wauken.

Thou tells o' never-ending care;
  O' speechless grief, and dark despair;
For pity's sake, sweet bird, nae mair!
  Or my poor heart is broken!

The Pied-Billed Grebe (*Podilymbus podiceps*)

By I. N. Mitchell

Common summer resident; sexes, alike; length, thirteen and one-half inches; nest, on the water either fastened to rushes, or resting on the bottom; eggs, four to eight; arrives about March 20th.

The grebes are water birds, and because they resemble bob-tailed ducks are often thought to belong to the duck family.

A glimpse at their feet shows at least one important difference. The duck's feet are fully webbed, while the grebe's toes are webbed for about half their length and have broad, free, rounded lobes the rest of the way.

Being remarkably good divers and swimmers, when disturbed they take to their heels—or toes—instead of to their wings.

Citicus had strayed into the country, and, climbing a low ridge, appeared suddenly near the margin of a beautiful little lake. Rushes and willows fringed the shore. At the first glance Citicus saw a small, duck-like bird swim from behind a clump of willows and immediately disappear under water. Interested at once, Citicus sat down on a near-by log to get a better view of the bird when it should rise to the surface.

He waited a minute,—no bird; two minutes—he began to fear for the bird; was it a case of heart failure? Had some monster fish seized it? Three minutes—all quiet; four—five! It can hold its breath like a turtle! He look out over the lake, nothing in sight but a similar bird swimming leisurely about on the opposite side, but that did not interest him. What could have happened to his bird!

He welcomed the approach of a young stranger. Rusticus greeted him with "a fine day." "Fine as silk," he replied. "Anything doing? Have you been in?" asked R. "No," said C. "I'm as dry as a drunkard, but just as I came over the ridge, I saw a bird swim from behind those willows. At sight of me it dove like a flash and hasn't come up yet. That was nearly ten minutes ago!" "What sort of a bird, big or little?" asked R. "It was like a small duck, brownish above and light below; I didn't make out any tail," said C. "Did it have a dark ring about the bill?" queried R. "Didn't present any bill, just a bit of change, and mighty quick at that, now you see me,—now you don't," replied C. "And you have not seen it since?"—"No, I have hardly taken my eyes off the spot where it went down, and I'm sure that it has not come up yet." "I see," replied R., "you think it hasn't, but it has been up most of the time that you have been watching the spot. There is your bird over on the other side. Don't you know the hell-diver? No? Well, that's your bird. Let's sneak around and surprise him again and watch where he comes up."

They circled the bay, kept under cover of a raised roadway, and popped up not more than sixty feet from the grebe. It swam a few strokes, turning its head to look back at the boys, then dived quickly and disappeared.

PIED-BILLED GREBE
PODILYMBUS PODICEPS
ADULT, LEGS

Citicus again watched the spot, but Rusticus watched the opposite side of the bay. A few moments later he exclaimed, "There he is again, over near the willows!" "Yes," assented C., "just where I saw him first. So that is the hell-diver! I saw the black ring around the bill as plain as day when he turned to look at us. But say—he can dive some, can't he?" "Indeed he can, but Quimbo King, a friend of mine, and the best hunter in these parts, says the water witch, as he calls him, instead of swimming all the way under water, really dives for a distance, then comes near enough to the surface to stick the bill out now and then for a breath and swims the rest of the way in this manner. Lots of fellows say that he can dive so quick as to dodge a bullet, but I notice that Quimbo gets them when he tries for them. Poor marksmen have helped the grebe to get his reputation—and his names, hell-diver, waterwitch, dabchick and dipper. But, say, I'll stump you to go in and find the nest! I'll bet it is over near those willows."

They rolled their pantaloons almost to their hips and waded around to the willows. "Nothing here," remarked Citicus, as he waded about a small mass of water-soaked weeds floating on the surface, but caught upon some rushes.

"I'll bet the nest is right here under our very eyes," said R., as he began to remove the top layer of the wet weeds.

Presently a dirty white egg was seen, then another, and finally eight. They replaced the weeds and waded ashore, quite filled with admiration of the grebe's skill in concealing her nest.

The Pied-billed Grebe, commonly called Hell-diver, Diedapper, Dabchick, Waterwitch, is often mistaken for the horned grebe.

Grebes are unexcelled as divers as they swim and dive like a fish, and reach a depth of five or six fathoms. They are the most acquatic of all North American birds found in the interior, but are helpless on land, unable to walk or rise on the wing. Like other grebes, they rest on the tarsus while on land, as shown in plate. The toes are not connected by a web, as in the ducks, but each toe is equipped with separate lobes, enabling the birds to propel themselves through the water, either on or beneath the surface, with great rapidity. They have no tail feathers.

The floating nest of decaying vegetation is anchored to the reeds or rushes in from one to five feet of water. The birds obtain the material for these floating nests from the bottom of the lakes and marshes where the nest is situated. It is estimated that the birds make two hundred trips below the surface to obtain the required amount of nesting material. The pied-billed arrives in the Great Lakes region in April, and may remain to breed around the lagoons and lakesides of Illinois and Indiana. A few pairs nest within the city limits of Chicago.

The Wilson Phalarope (*Steganopus tricolor*)

By Lynds Jones

Description.—*Adult female in summer:* Top of head and upper back pearl-gray; nape and upper tail-coverts white; a white supraloral line; a black stripe starting from before eye passes backward, becoming broader on side of neck, changes to deep chestnut on hind-neck, and continuing backward over shoulder, is interrupted and dispersed over the scapulars; rump and wings grayish brown, the latter with a very little white edging; tail still lighter gray-brown; a reddish brown wash across throat and chest and sometimes sides, as tho' the coloring matter of the hind-neck had "run"; remaining under parts pure white; bill black; feet brownish. *Adult male in summer:* Similar to female but smaller, lacking the pearl-gray and chestnut,—slaty-gray and rusty instead; general appearance of back and wings brownish gray, with blackish centers of feathers and some ochraceous edging; black on sides of head and neck almost obsolete; rufous tinge of chest very slight. *Adults in winter:* "Above plain ash-gray; upper tail-coverts, superciliary stripe, and lower parts white, the chest and sides of breast shaded with pale gray. *Young:* Top of head, back, and scapulars dusky blackish, the feathers distinctly bordered with buff; wing-coverts also bordered with pale buff or whitish; upper tail-coverts, superciliary stripe, and lower parts white, the neck tinged with buff" (Ridgw.). Adult female length 9.70 (246.4); wing 5.23 (132.8); tail 2.03 (51.6); bill 1.40 (35.6); tarsus 1.38 (35.1); middle toe and claw 1.20 (30.5). Adult male length 8.75 (222.3); wing 4.69 (119.1); tail 2.17 (55.1); bill 1.25 (31.8); tarsus 1.26 (32.); middle toe and claw 1.06 (26.9).

Recognition Marks.—Chewink to Robin size; pearl-gray, chestnut, and black in masses distinctive in adult female. This bird superficially resembles the preceding in some of its plumage; its larger size and especially longer bill, and larger feet, as well as really different color pattern, should be noted.

Nesting.—Not definitely known to breed in Ohio. *Nest,* a shallow depression in the earth lined sparingly with grass, or not. *Eggs,* 3 or 4, grayish or brownish buff, speckled, spotted, and blotched with dark brown.

Range.—Temperate North America, chiefly interior, breeding from northern Illinois and Utah northward to the Saskatchewan region; south in winter to Brazil and Patagonia.

In view of Mr. E. W. Nelson's remarkable discoveries in northeastern Illinois, Dr. Wheaton was led to surmise that these birds might be found breeding in at least the northwestern corner of our state. Nothing has, however, come to light to sustain this conjecture, and it is pretty generally understood that we are too far east to expect such a favor.

Although it has been frequently copied, I cannot forbear to reproduce in this connection a portion of Mr. Nelson's unrivalled description:

"During the first two weeks of May, the exact date varying with the season, this beautiful bird first makes its appearance in northeastern Illinois. Its arrival

WILSON PHALAROPE
⅝ Life size.

is heralded by a few females, which arrive first, and are found singly about the marshes. At this time the females have a peculiar harsh note, which I have heard but a few times, and only from solitary individuals, before the arrival of the main body.

"A few days later small flocks, embracing both sexes, may be found along the borders of grassy pools, or lying at midday on the sunny side of some warm knoll in the marsh. As the breeding season approaches they become more restless, flying from place to place, and finally separate into small parties of two or three pairs. About the middle of May their love-making commences, and is at first indicated by the increasing solicitude they show for each other's welfare. The appearance of a person in their vicinity at this time is the signal for all the birds near to come circling about, though not within easy gun-shot. By a careful approach one may now and then find a small party swimming about in some secluded pool.

"The charming grace of movement exhibited at such times, combined with their tasteful elegance of attire, form one of the most pleasing sights one could witness as they swim buoyantly from side to side of the pool, gracefully nodding their heads, now pausing for an instant to arrange a feather or to daintily gather some fragment of food, and now floating idly about, wafted by the slight breeze, which at intervals ripples the surface of the water. A more common, but scarcely less pleasing sight, is presented when, unconscious of observation, they walk sedately along the border of the water, never departing from the usual grace of movement. Their food is generally found in such places where the receding water furnishes a bountiful supply. The only demonstrations I have observed during the pairing time consist of a kind of solemn bowing of the head and body; but sometimes, with the head lowered and thrust forward, they will run back and forth in front of the object of their regard, or again, a pair may be seen to salute each other by alternately bowing or lowering their heads; but their courtship is characterized by a lack of the rivalry and vehemence exhibited by birds.

"The nesting is usually in some thin tuft of grass on a level spot, but often in an open place concealed by a few straggling blades of small carices. The male scratches a shallow depression in the soft earth, which is usually lined with a thin layer of fragments of old grass blades, upon which the eggs, numbering from three to four, are deposited about the last of May or first of June."

The Geographical Distribution of Birds

By Lynds Jones

What do we mean by the "Geographical Distribution" of birds? Are not birds to be found everywhere, over both land and sea? Are they not, then, universally distributed? As a class they certainly are, but not as species nor even orders. Parrots are not found in frigid regions, nor are snowflakes and snowy owls found in the tropical regions. Our Wood Warblers and Vireos are not found outside of America, while there are no birds of Paradise anywhere in America. We shall see that most of the birds found in the eastern hemisphere differ from those found in the western, speaking broadly, but that many of the island birds are different from birds of continents.

Since most birds migrate shorter or longer distances in search of a place to rear their young, and return again to warmer regions to pass the winter months, the question at once arises: What is the geographical distribution of such migratory birds? That is not so difficult as it may seem at first glance. We have only to inquire what governs the movements of the species in question in such a way that its appearance at certain places at certain known times may be confidently expected. The study of migration and breeding has shown that the impulse to move northward in the spring to the old nesting-places where the young are reared is more reliable than the impulse to move southward on the approach of cold. The birds are more certain to appear at their old summer homes in spring than they are to be found at any particular place during the winter. But if there be any objection to this view it will yet remain true that where a bird rears its young should more properly be called its home than the place to which it is forced by the approach of cold or the lack of food. In either case, therefore, we may regard the home of the bird, and, therefore, treat its distribution geographically as the place where it habitually rears its young. Having settled the question as to what shall determine the distribution of the separate species, it remains to study the physical conditions of the earth for the sake of finding what it is that determines the limits to which the different species may go.

We know that the distribution of land and water over the earth has not always been the same as it is now, but that many places that are now covered with water were once dry land, and that in many places where there is now land there used to be water. Now, America is wholly separated from Uro-Asia-Africa, but once they were connected together by a broad neck of land where Bering Sea now lies, and there may have been another neck of land connecting Europe with Iceland and Greenland and so with North America. Now Australia and New Zealand are wholly separated from all other lands, but they were not so long ago. So of the larger islands in general, they have not always been isolated as now, but connected with great land masses, sharing with them the animals which roamed over the whole vast regions. For in the earlier times before Man had appeared upon the earth, before the great Glacial Period, the whole earth was tropical in

climate, making it possible for plants as well as animals to live anywhere upon the earth, as they cannot now. Then extensive migrations north and south were not necessary, but instead there were roaming about in all directions, or great invasions of new regions by hosts of animals of one kind.

As the land sank away here and there, and the sea covered it, barriers were thus formed to further roamings, except by the birds of strong flight or animals that could swim long distances, and there could no longer be an intermingling of the animals of the whole land surface of the world. Since all animals are inclined to change somewhat to meet or keep pace with the changes that are going on in vegetation and the general physical conditions of the earth, those that have been separated in this way will grow more and more unlike. In some such isolated regions there may not be much change in their environment and so they will change but little, if at all, and so will not keep pace with those in other regions where life is a constant struggle with others for supremacy. It is just as true in the natural world as in the commercial, that competition is necessary for the highest development. It is probably true that the disturbances which caused the land to sink in places and so disconnect what had been connected lands, possibly a splitting up of one great flat land mass, also brought about the changes which made out of one great tropical world the one that we know with its frigid, temperate and tropical zones. So that just at the time when the animals of the different regions were separated from each other forever there came these changes in physical conditions which would make them change to meet the new conditions. But that is a long story for the geologist to tell. Of course the sinking of the land in different regions occurred at different times, probably thousands of years apart in many cases. And the changes from tropical to temperate and frigid must have been very gradual also, or there would have been no animals left alive in the northern and southern regions. Only those near the equator could have lived.

Probably New Zealand was the first considerable land mass to be separated absolutely and for all time from all other land, because here we find the lowest type of birds and lower animals. There are no terrestrial indigenous mammals even. Such birds as were not able to fly across the now wide stretches of ocean did not continue to develop rapidly because there was little change in their environment and because there was little or no competition with other similar forms. So today we find them either very similar to what they were when their island home was made an island home, or else even degenerated into flightless creatures. Australia seems to have been the next tract of land cut off, for here, too, we meet with the lower forms which show the lack of the keen competition which their relatives further north had to sustain. When North America was cut off from Siberia, marking the close of more or less extensive interchange of communication of the animals of both regions, there was little difference in their animal life; but following this separation there came about a more rapid change in the Orient than in the Occident. It may not be quite clear why this was so, but that it was cannot be doubted, for some of the lower forms of animals which still inhabit America have been completely destroyed in the Orient. At the time of their separation these forms were found in both places. What seems a probable explanation of

this more rapid change in the Orient may be briefly stated. The configuration of the Orient is such that animals would have a far greater range east and west than north and south. A great mountain range and a great desert are thrown as barriers across the way of the northward and southward movement. In America there is a continuous gateway to the north and south, but barriers to an eastward or westward movement. With such creatures as the birds freedom to move north and south would always lessen competition, while the crowding of one group or race upon another eastward or westward would increase the competition. But Geology tells us that in the Orient such westward invasions have actually occurred, causing the death of the less hardy forms and the modification of all forms of animal life.

It must not be understood, from what has been said, that all the animals, especially the birds, found in any one country or island, are different from the birds found in all others, for that is not true. There are many species of birds that are found practically all over the earth. But what is true is that each country or region of any considerable extent, or group of oceanic islands has some species which are not found anywhere else in the world.

From what has already been said it will be clear that the world may be divided into several different regions, according to the animals which are peculiar to the different ones. Following Newton's system, because it seems the most logical, at least so far as the birds are concerned, we have first, the New Zealand region.

Here we find the flightless Apteryx and a flightless goose now extinct, also the extinct Moa. There are also peculiar forms among the shore-birds, the birds of prey, the parrots, and some rather curiously constituted passerine birds. There have been several species introduced in relatively recent times, some of which already show signs of change.

The Australian region is but slightly connected with the preceding. The line separating this region from the Indian passes between the islands of Bali and Lombok, through the Strait of Macassar, between Borneo and Celebes, thence northward between the Philippines and Sanguir and Pelew; including, further on, the Ladrones, Hawaiians, all of Polynesia except the northern outliers of the New Zealand group, and finally sweeping back to encompass Australia. Here we find the curious egg-laying mammal, Ornithorhynchus. But to pass at once to the birds. Here we find such peculiar forms as the megapodes, cassowaries, sun-bitterns, birds-of-paradise, lyre-birds, and many not so familiar. Of the higher birds there are but few compared with Europe or America. It is evidently a continent which has long been separated from the rest of the world.

The Neotropical region includes, broadly, tropical America. The forms found here bear certain resemblances to those found in the two regions already discussed; but this resemblance is probably rather because they are low in the scale of development than that there has ever been any direct land connection between them. Much the same conditions of life must have prevailed for all, thus making the rate of development nearly equal. Here we find the rhea, tinamou and hoactzin, which show low grade; but mingling freely with them the higher forms which seem to have come down from the north later and all but crowded out these lower

ones. There is abundant evidence that the struggle for existence in South America has been far less severe than in North America.

The Holarctic Region, as the name implies, includes all of North America, Europe, Asia north of India, and the Himalaya mountains, northern Africa where the great Sahara forms the natural boundary, and all islands belonging to the north temperate and north frigid zones. Many have divided this great belt into Palearctic and Nearctic, but the intermingling of species between northeast Siberia and Alaska seems to make such a distinction impracticable. But these distinctions should be and are retained in the divisions of the Holarctic. When we understand that at least one-third of the species found in the Nearctic are also found in the Palearctic, we shall understand why these two are grouped under one region. There are no orders, and there seem to be no families which are found in the Holarctic and nowhere else. Indeed, it is difficult to find even genera which do not have some species ranging into the Neotropical, Ethiopian or Indian. But among the species we find many. Indeed, there are few species which nest in both the Holarctic and in the regions bounding it on the south, and many of these are found only on the southern boundaries of the Holarctic. In our part of the Holarctic, that is, the Nearctic, the familiar birds about us do not nest also in the tropical regions.

The Ethiopian Region, as the name suggests, includes the whole of Africa except that portion north of the Sahara desert, and Arabia and Egypt, with Madagascar and other islands in the immediate vicinity. It seems hardly necessary to even mention the forms that are peculiar to this peculiar region. Even the word Africa brings trooping to our minds a whole continent of peculiarities in more realms than one. Here we find the Ostrich, the plantain eaters, the colies and several other families—nine in all. Of the lower groups there are the rollers, bee-eaters, horn-bills, the curious secretary-bird and many others. It is significant that among the Passerine birds there are but three families that are peculiar. So on the whole, this region has not developed so rapidly as the Holarctic. There has not been the intense struggle for supremacy here which we see in the north temperate and higher regions.

The Indian region completes the list. Broadly speaking, this region comprises that part of Asia which lies east of the Indus river south of the Himalaya mountains except the eastern half of the drainage basin of the Yang-tse-kiang river, reaching the coast just south of Shanghai, including the island of Formosa, the Philippines, Borneo, Java, Sumatra and Ceylon. This is the Oriental Region of Wallace. There are, apparently, but two families of birds peculiar to this region: the bulbuls and the broad-bills; but there are very many genera and species found nowhere else in the world. The king-crows, sun-birds, swallow-shrikes, argus pheasant, jungle fowl and the well-known peacocks belong here. Very many of the birds of this region are gaudily colored and striking in appearance.

Each of these great regions, except possibly New Zealand, are readily divisible into sub-regions, and these again into areas of lesser extent, until each fauna may be assigned its proper place. Thus in the Holarctic Region we recognize the

Nearctic, which comprises about all of North America, and a Palearctic subregion, the outlines of which have already been sketched. Within the Nearctic three minor regions are recognized. The Arctic "includes that part of the continent and its adjacent islands north of about the limit of forest vegetation" (Allen). That is, extreme northern and northwestern Alaska, sweeping southeasterly through British America to and including Hudson Bay, northern and northeastern Labrador and northern Newfoundland. The Cold Temperate, which lies next south, begins in the east near Quebec, then sweeps westward past the Great Lakes almost to Winnipeg, thence in a northwesterly direction just west of Lake Winnipeg; from there in a more westerly direction to the mountains, which it follows even into northern Mexico as a narrow line; from the west coast at the north end of Vancouver Island it runs east to the mountains. Maine and Nova Scotia are a part of the Allegheny belt which reaches to Alabama. Below this southern limit of the Cold Temperate lies the Warm Temperate, extending almost to Central America. But this is again subdivided into an eastern Humid Province which ends at the Plains, and a western Arid Province. These are again subdivided into an Appalachian Subprovince and an Austroriparian Subprovince for the Humid Province, and a Sonoran and Campestrian Subprovince for the Arid Province. But the boundaries of these minor subdivisions are not yet definitely settled, nor are the characteristic species in each finally decided upon, so it will not be profitable to carry our investigation further at this time.

We learn from this that when we find that one region, be it large or small, is unlike every other region in some particulars of climate or vegetation or temperature, or when it is not easily accessible from other regions, we may expect to find the animals somewhat different according to the conditions which prevail. From this it is a clear step to the truth that an animal's environment exerts a considerable influence upon its life and through its life upon its form; changing the form in some particulars that make it different from all other animals. It is also true of plants. Since, then, there are different physical conditions in every country of any considerable size, these changes in plants and animals are going on now, but so slowly that we are not able to see them. At the end of another thousand years or longer, the species of birds which we now know may be so changed that we should not know them if we could see them. But that need not worry us!

The Wilson Snipe *(Gallinago delicata)*

By C. Hart Merriam

Synonyms.—American snipe; jack snipe; "English" snipe; bobsucker.

Range.—Breeds from northwestern Alaska, northern Mackenzie, central Keewatin, and northern Ungava south to northern California, southern Colorado, northern Iowa, northern Illinois, Pennsylvania, and New Jersey; winters from northern California, New Mexico, Arkansas, and North Carolina to Columbia and southern Brazil.

WILSONS SNIPE.
♂ Life-size.

Wilson's, or the English snipe, is a bird of fresh-water swamp and meadow, in which it finds concealment among the grass or grassy tussocks. It is particularly fond of places where the soil is boggy enough to permit probing with its sensitive bill, for it finds much of its food beneath the surface in the shape of succulent worms. Owing to the nature of its haunts and its secretive habits, the snipe is familiar to but few outside the guild of sportsmen. Even nature lovers know the bird chiefly by its sharp "scaip, scaip," as it flushes suddenly from among the grasses. So quickly does the snipe get under way that one is apt to catch only a glimpse of a brown and black body as it cuts the air on powerful wings with many a twist and turn. It is this peculiar flight that endears the snipe to the sportsman, since a steady hand and a quick eye are needed to stop the bird when bent on escaping from a dangerous neighborhood. Most States until recently have permitted spring snipe-shooting. The practice is held by many to be the more excusable inasmuch as some States get little or no snipe-shooting in fall, and to forego spring shooting means no snipe-shooting at all in such States. No one, however, who has marked the steady decline in the number of snipe that migrate across our territory can doubt that the continuance of spring shooting means the extinction of this highly-prized game bird.

Description.—*Adult:* Upper parts brownish black, freckled, mottled, barred, and streaked with ochraceous-buff and whitish; crown and back nearly pure black, the former divided by irregular buffy median line; the scapulars and interscapulars bordered by whitish or cream-buff on outer margins only; wings fuscous, the edge including outer web of first primary, white; the greater coverts, secondaries, and sometimes inner primaries narrowly tipped with white; a dark line from eye to bill; throat whitish; sides of head and neck and breast ochraceous-buff, finely spotted and streaked, or indistinctly barred with blackish; belly white, the axillars, sides and flanks strongly barred,—blackish and white; both tail-coverts and exposed tip of tail strongly ochraceous-buff, or rufous, finely barred with black; tail-feathers black basally, some of the lateral ones white or white-tipped. Length, 10.00-12.00 (254-304.8); wing, 5.00 (127.); tail, 2.40 (61.); bill, 2.50 (63.5); tarsus, 1.25 (31.8). The female averages smaller than the male.

Recognition Marks.—Robin size; general mottled and streaked appearance; long bill used as mud-probe; marsh-skulking habits, and *jack, jack* notes on rising.

Nesting.—*Nest,* on the ground. *Eggs,* 3 or 4, clay-color, olive, or ashy-brown, spotted and blotched with reddish brown or umber. Average size, 1.58x 1.14 (40.1 x 29.).

Whenever the word "snipe" is uttered we think most naturally of this recluse of the inland fens, for he is *the* Snipe of America. Although possessing much in common with the European Snipe (*G. gallinago*) and something with the Woodcock, his ways are peculiar enough to make him distinctly known to every sportsman. He is rather a disreputable looking fellow, a tatterdemalion in fact, as he bursts out of his bog with an exultant cry of *"escape, escape,"* and flutters his rags in the wind. And as he pursues his devious way through the air, jerking

hither and thither in most lawless fashion, the gunner could easily believe him an escaped jail-bird, if the stripes of his garments only ran the other way.

The Wilson Snipe is a bird of the open marsh, a frequenter of the grassy border stretches, or of the boggy margins of the "spring branch." Here he lies pretty closely by day, but as dusk comes he bestirs himself and goes pattering about in the shallow water or over the weedy scum-strewn muck, thrusting his beak down rapidly into the ooze and extracting worms or succulent roots. If danger approaches by day, the bird's first instinct is to crouch low. If the sky is clear, it is difficult to dislodge him, for the light blinds him in the air, and he knows that his ragged blacks and browns exactly match the criss-crossed vegetation and interlacing shadows of his present surroundings. If, however, the day be overcast and windy, the bird springs up quickly against the wind, shouts *"Jack, Jack,"* twice, pursues a bewildering zigzag until out of range, and then flies straight to some other feeding ground, or circles about and enters the old one from another quarter. This zigzag flight, which is the joy of the old gunners and the despair of the young, is really a wonderful exhibition of the self-protecting instinct. For we cannot fairly accuse the Snipe of not knowing his own mind, since when once out of harm's way, his flight is direct and rapid, and he drops into a bog like a shot. The trick must have been deliberately acquired. The cries of the first bird startled are sometimes a signal for all the others in a given swamp to rise and dodge about in the upper air, taking distant counsel whether to return or fly to pastures-new. In either case, the sport is off for that day, for the aerial caucus is a sign that the birds won't stand much fooling.

Of course the degree of timidity which the birds exhibit in any locality is simply a matter of the amount of persecution to which they have been recently subjected. Sometimes the entrance of a gunner into a field is the signal for the Snipe to flee the country. On the other hand, I once approached in midwinter a bird which I knew to be in perfect condition, and which stood quizzically in full survey until I got within five feet of it, whereupon it calmly *swam* across a little brook rather than bother to fly from the harmless bird-man.

Besides its semi-nocturnal habits and fashion of probing the mud for food, the Wilson Snipe closely resembles the Woodcock in the manner of its love-making. Indeed, never having had opportunity of simultaneous comparison, I cannot now distinguish in memory the characteristic hooting notes of the Snipe from those of the Woodcock. I have seen the former, not only at the favorite hours of dawn and sunset, but at high noon as well, hovering over a pasture swamp patch, or cutting mysterious figures in high air, and uttering ever and anon the most lugubrious, love-lorn strains, like unfocused flute-notes. This passion song of the Jack-snipe has been called drumming, but the term is inappropriate. When nesting season is on the male betrays his anxiety by resorting frequently to commanding positions on fence-posts and stumps. Sometimes, when greatly excited, the bird will utter a harsh, guttural cackling or bleating note. On such occasions, when the bird is settled on a post regarding you with sober, down-turned beak and watchful eye, the effect is irresistibly comical. And you might as well laugh, for you can't find the nest—not once in a dozen times.

Birds in Winter

Winter is upon us, but there are birds still here, though they do not sing much and are shy enough, many of them, to need coaxing in order to catch sight of them. The birds enumerated and described below are winter visitors in this latitude. A plentiful sprinkling of crumbs on the snow some morning, or a piece of meat hung to the low-hanging limb of a tree, will bring many of them near enough for recognition.

Let each school watch for them and keep a record of the appearance and habits of such winter birds as they see. To the record may be added a drawing or painting of the bird described.

According to *Birdcraft* we may expect the following birds to remain in the latitude of 35° to 45° north in the winter:

Chickadee.—Five and one-half inches long. Gray above; crown, nape, chin and throat black; sides of head white; wings and tail gray with white edgings; bill and feet black. Sings Chick-add-dee-dee.

Snowbird.—Six and one-half inches long; bluish slate color with lower breast and belly grayish white; outer tail feathers white; bill, flesh white; song, a simple trill.

Snow Bunting.—Length, seven inches; plumage soft brown with white banded wings and tail; bill and feet black.

Blue Jay.—Well known in most parts of the United States.

Winter Wren—Length, about four inches; color, dark brown above, finely barred with black; tail and bill short, the latter dark and slender; feet dark. Call-note "tr-r-r-r-r-r".

Pine Finch.—Length, four and three-fourths inches; color, striped generally; above olive brown and gray, darkest on the head and back, sometimes having a sulphur yellow tinge below; bill and feet brown. May be seen eating from cones.

Meadow Lark.—Ten to eleven inches long; color, brown above, yellow below, with black crescent on throat; tail black with white outer quills; wings edged with yellow; brown and black stripes on crown; black line behind eye; bill stout and straight.

Tree Sparrow (winter Chip-Bird).—Six inches long. Gray stripe over eye, cheeks, throat and breast; feathers edged on the back with orange and brown; wings dark brown edged with paler with two white bars; bill black above, yellowish below; feet brownish black.

Brown Creeper (Tree trunk bird)—Five and one-half inches long. Color, brown and white striped above; tail pale brown, underneath grayish white; slender curving bill, black above, yellowish beneath; feet brown. Climbs round and round the tree.

Red Breasted Nuthatch.—Four and three-fourths inches long. Color, lead above, crown and sides of neck black; white stripe over eye; under parts rust red; bill dark lead color; feet lead brown.

Crossbill.—Six inches long. General color Indian red in the male and greenish yellow in the female; wings and tail brown; back and shoulders brown with red edges to the feathers; bill crossed at the tip. Feeds on cones.

Horned Lark.—Seven and one-half inches long; black crescent on breast; black bar across to side of head forming two tufts; throat and neck pale yellow; bill dark; feet black. Feed about swamps, fields or barns.

Cedar Waxwing.—Known by its crest; yellow tail tips, red wing appendages and straight black bill. Eats berries.

Owls.—Barn owl; barred owl; greated horned owl; snowy owl.

Hawks.—Sharpshinned hawk; chicken hawk; red-tailed hawk.

Goldfinch, Shrike, Pine Grosbeak.

INVITE THE FEATHERED NEIGHBORS

Far better than any amount of talking by the teacher about kindness to animals and the cruelty of killing birds and robbing nests, is a little well directed effort to make the boys and the birds acquainted with one another. A boy whose interest has been developed in birds by feeding them as pets is not likely to use a sling shooter to their hurt or to molest them in the nesting season.

The following, by E. H. Baynes in *St. Nicholas,* suggests a line of nature study for winter which may be very successfully followed out by a school, and in which the boys and girls will take great delight. A committee on birds may be appointed each week to take charge of the feeding arrangements; the birds and the children will do the rest. Let the children report their observations every few days. This is an opportunity to combine nature study and moral training.

Mr. Bayne's article is entitled:

COAXING BIRD GUESTS

It is well to begin to make preparations for bird guests at least as early as the middle of November. In the first place it takes some time for the news of one's hospitality to spread among the feathered folk, and the sooner it starts the better. Then, most people prefer to work outdoors in November rather than in December. But January is not too late. It is very desirable that some of the birds should be induced to feed where they may be observed by their hosts.

Generally speaking, there are two kinds of birds to prepare for—those which eat seed or grain and those which prefer animal food of some kind. There is another class, well represented by the bluejays, which will eat almost anything, but no special preparations need be made for the birds belonging to it, since they will fare riotously on the food set out for the others. First of all we will consider the insectivorous birds. Their natural fare is rarely attainable in winter, but beef suet will be found a very good and convenient substitute for it. All things considered, suet is the best thing I have tried for this purpose.

If there happen to be trees near the house, the problem of the bird-feeder is simple; all he has to do is to tie the suet securely to the trunks and prominent branches and await the arrival of his guests. If there are no trees, he should go

out into the woods and cut down as large a dead one as he can handle, and set it in the ground exactly where he wants it. A sapling will answer, but a larger tree is more interesting.

For the seed-eating birds it is well to have a variety of food. Mixed bird seed is excellent for the smaller birds, but to it should be added such things as oats, wheat, buckwheat, corn and sunflower seeds. If there are no cats in the neighborhood, the best place to scatter the seed is on the ground, where seed-eating birds usually get their food. First of all, however, the snow should be cleared away; otherwise the food is liable to sink in out of sight; and besides, it is very difficult for small birds to get about on foot in soft, deep snow. If there are cats about, the food may be placed on shallow trays or tin pans, which may be set on posts or fastened to the trunks and branches of trees.

The American Coot

By Thomas Nuttall

The Coot of America, so very similar to that of Europe, according to the season, is found in almost every part of the continent, from the grassy lakes that skirt the Saskatchewan plains to the reedy lagoons of east Florida and the marshes of Jamaica. Nocturnal in their habits, and dispersing themselves far and wide over every watery solitude, they seem in many places to have disappeared for the season, until the numbers, swelled by their prolific broods, and impelled by the approach of winter to migrate for food, now begin to show themselves in the lakes and pools, and estuaries in the vicinity of the sea. From such situations they gradually recede toward the south, as the severity of the season compels them, being unable to subsist amid the ice.

In this way they proceed, accumulating in numbers as they advance, so that in the inundated and marshy tracts of Florida, particularly along the banks of the San Juan, they are seen in winter congregated in vast and noisy flocks. In the milder latitudes their whole migration will be limited to a traverse from the interior to the vicinity of the sea, while those which visit the wilderness of upper Canada, where they are abundant in summer, will probably migrate from twenty-five to thirty degrees every spring and autumn.

The Coots arrive in Pennsylvania about the beginning of October. They appear in fresh ponds, in the vicinity of Boston, about the first week in September. One year a pair took up their residence in a small lake about the 15th of April, and in June were occasionally seen accompanied by their young.

Timorous and defenseless, they seek out the remotest solitudes at the nesting season, where amid impassable bogs and pools, the few individuals which dwell in the same vicinity are readily overlooked, and with difficulty discovered, from the pertinacity of the older birds in hiding themselves wholly by day. It is, therefore, only when the affections and necessities of the species increase that they are urged to make more visible exertions, and throw aside for a time the

characteristic indolence of their furtive nature. We now see them abroad, accompanied by their more active and incautious offspring; night and morning, without much timidity the young sporting and feeding with careless confidence in their fickle element.

The old birds, ever watchful and solicitous for their brood with which they appear still to associate when alarmed, utter at times a sort of hoarse *kruk*, which serves as a signal either to dive or swim away. In east Florida where they appear—according to Bartram—to assemble and breed in great numbers they are very chattering and noisy and may be heard calling on each other almost night and day. With us they are, however, very taciturn, and, like many other birds, appear to have no voice, except during the nesting season.

When closely pursued in the water, the Coot sometimes makes for the shore, and from the compressed form of its body, though so awkward in its gait, can make rapid progress through the grass and reeds. When driven to take wing on the water, it rises low and with reluctance, fluttering along the surface with both wings and feet pattering over it, for which reason, according to Lawson in his "History of Carolina," they had in that county received the name of Flusterers.

The food of the American Coot is chiefly vegetable; they live also upon small shells and aquatic insects, to all which they add gravel and sand, in the manner of common fowls. A specimen which I examined in September had the stomach filled with the tops of water milfoil, and a few seeds or nuts of a small species of bur reed.

Yellowhead (*Xanthocephalus xanthocephalus*)

Length: About 10 inches. Our only blackbird with a yellow head.

Range: Confined to western North America. Breeds from southern British Columbia, southern Mackenzie, southwestern Keewatin, and northern Minnesota to southern California and Arizona, east to southern Wisconsin, Illinois and Indiana; winters from southwestern California, southern Arizona, southeastern Texas, and southwestern Louisiana south into Mexico.

Apparently Nature started out with the intention of making an oriole but decided to make a blackbird instead—and behold the yellowhead. He is a sociable chap and nests in great companies in the tule swamps of the west. The yellowhead's voice is harsh and guttural and his vocal efforts have been well characterized as a maximum of earnest effort with a minimum of harmony. Late in midsummer when the young are on the wing, old and young betake themselves to the uplands, grain fields, pastures and corrals, associating as often as not with redwings and Brewer's blackbirds. The yellowhead feeds principally upon insects, grain and weed seed, and does not attack fruit or garden produce; but it does much good by eating noxious insects and troublesome weeds; where too abundant it is likely to be injurious to grain.

Feeding Wild Birds

By Eugene Swope

"I see fewer birds about this winter," is the substance of the observation my neighbors at College Hill, Cincinnati, have been making annually for the last three years.

"The fact is there are more birds about this winter than for years, but fewer visit your yard, however, because there are three times as many feeding-stations in the neighborhood this winter as there were last, and there are birds at all of them," is my annual explanatory reply.

Three winters ago there were three feeding-boards for birds in our neighborhood. This winter there are thirty. The number of feathered pensioners has not increased in proportion to the number of places where their food awaits them, when frost and snow have locked them out from nature's storehouses. This special attention to wild birds exemplifies a new activity of the humane spirit as well as the popularity of the idea of feeding the wild birds. What has taken place here has been repeated in nearly every community throughout the country. Farmers are now making a special point of feeding quail when snow covers the ground. The number of birds that are finding their way to these feeding-places—"lunch counters"—is annually increasing, and new species are now and then added to the numbers. For instance at Wilmington, Ohio, last winter a chewink became a daily caller at Mrs. N. H. Henderson's feeding-board. This winter a southern mocking-bird is staying with her.

The humane appeal is probably responsible for the existence of nine-tenths of all the feeding-boards about our homes, and those who supply the food do not bother themselves to know what birds or how many enjoy their hospitality. They are satisfied to know that the birds come. Nevertheless, the feeding-board, when advantageously placed, properly adapted, affords one of the very best opportunities for the study and identification of resident birds and some winter visitors. What I consider a practical and a most convenient feeding-board for easy observation consists of a few inches extension to an ordinary window-sill. A few pot plants on the inside afford sufficient screen for the observer, who can sit in the comfort of his home and watch and learn at close range, very close if he so desires, those birds that come and go.

At a bird feeding-board one gets ornithology first-hand, along with continuous, impromptu vaudeville thrown in. The fun will interfere with necessary concentration to fix facts, for I assure you that there are some funny "stunts" pulled off about a feeding-board. The elementary emotions and desires are the themes of these sketches—fear, confidence, love, hate, sham, simplicity, conceit, humility, pugnacity, peace at any price, hunger, satiety, and super-abundance of life, and all exemplified; and characters ranging from the confiding, cheerful little chickadee to the conscience-stricken blue jay, from the awkward nuthatch to the agile titmouse, will not only use your feeding-board for a public dining-room, but for a public stage.

The Loggerhead Shrike (*Lanius Ludovicianus*)

By W. Leon Dawson

Description.—*Adult:* Dark bluish-gray above; rump just perceptibly lighter; lower scapulars tipped with black; wings black, a small white spot at base of primaries; the inner quills narrowly tipped with white; tail black, the outer pair of feathers broadly tipped with white, and the succeeding pairs less so or not at all; below grayish-white, sordid on breast, but everywhere strongly contrasting with upper parts; narrow frontal line, including nasal tufts, lores and ear-coverts, black—continuous, and passing mostly below eye; bill and feet black. *Immature:* Colors of adult less strongly contrasted; lower parts washed with brownish; loral bar obscure; more or less vermiculated with dusky all over (in younger birds), or upon the under parts alone; ends of wing-quills, coverts and tail-feathers often with ochraceous or rusty markings. Length, 9.00 (228.6); wing, 3.78 (96.); tail, 3.70 (94.); bill, .61 (15.5). The description is from a typical South Carolina bird in the O. S. U. collection. Ohio birds, even when clearly referable to this form, average much lighter and somewhat larger.

Recognition Marks.—Chewink to Robin size; dark gray above; whitish below; black patch on head; white spot on wing; breast of adult unmarked, as distinguished from *L. borealis;* dark gray or ashy on rump, as distinguished from *L. l, excubitorides.*

Nest, a bulky, but well put together mass of sticks, thorn-twigs, weed-stalks and the like, carefully lined with plant-down, wool or feathers, placed five to fifteen feet high in orchard trees, thorn hedges, etc. *Eggs,* 3-6, sometimes 7, dull grayish, or greenish white, thickly speckled and spotted with olive or red-dish-brown. Av. size, .97 x .73 (24.6 x 18.5).

Range.—Eastern United States, west to the Plains; north to the Great Lakes, northern New England, etc. Breeds throughout its range.

In all but southern localities, where the species is partially resident, the Shrike arrives about the middle of March. His patchy plumage harmonizes more or less with the snow-checkered landscape, but he is nowise concerned with problems of protective coloration. Seeking out some prominent perch, usually at this time of year a fence-post, he divides his time between spying upon the early-creeping field mice and entertaining his lady love with outlandish music. Those who have not heard our resident Shrike *sing* have missed a treat. He begins with a series of rasping sounds, which are probably intended to produce the same receptive condition on his audience which Ole Bull secured by awkwardly breaking one string after another on his violin until only one was left. There the resemblance ceases, however, for where the virtuoso could extract a melody of marvelous range and sweetness from his single string, the bird produces the sole note of a struck anvil. This pours forth, however, in successive three-syllabled phrases like the metallic and reiterative clink of a free-falling hammer. The chief difference which appears between this love song and the ordinary call

LOGGERHEAD SHRIKE.
(Lanius ludovicianus).

of warning or excitement is that in the latter case the less tender passions have weighted the clanging anvil with scrap iron and destroyed its resonance.

The Shrike is a bird of prey, but he is no restless prowler wearing out his wings by incessant flight,—not he. Choosing rather a commanding position on a telegraph wire or exposed tree-top he searches the ground with his eye until he detects some suspicious movement of insect, mouse, or bird. Then he dives down into the grass, and returns to his post to devour at leisure. I once saw a Shrike rise perpendicularly some fifty feet from a telegraph wire by a labored but rapid flight to seize an insect to me invisible, and repair with it to a stone wall. Here he dealt his catch a severe blow, and when satisfied that it was dead, ate it contentedly.

Like most guilty birds, and some innocent ones, the Shrike usually selects a thorn tree for a home. Honey-locusts and the various species of Crataegi are favorite places, but osage-orange hedges also present irresistible attractions. It is safe to say that there is not a mature ten-rod stretch of these delectable thorns in open country which has not harbored one or more nests of this bird. Not only do thorns protect the Shrikes from their enemies, but they afford them convenient hooks for the preservation of game. Mice, grass-hoppers, sparrows, garter-snakes,—anything which the over-fed butcher does not care for at the time of capture, is impaled on a thorn for future reference, or as a ghastly warning to the unwary. Besides that which is laid up, the bird, in the case of larger game, invariably seeks the assistance of a thorn or splinter to enable it to rend its catch for immediate consumption.

The nest—admirably shown in our illustration—is usually a bulky affair outside, but exceedingly tight and warm within. Since the bird nests early, it counts nothing on the protection of foliage, but cunningly screens its eggs by overarching chicken feathers worked into the rim of the nest. First sets are commonly found by the middle of April, but the birds usually nest again in June. They are singularly indifferent, as a rule, to the welfare of the nest, but when it is disturbed sit clinking in the distance, or absent themselves entirely. Occasionally, however, especially if the young are well grown, they make a spirited and deafening defense. Eggs are deposited on successive or alternate days, and incubation is accomplished in about two weeks.

The American Sparrow Hawk

By William Dutcher

Synonym.—Rusty-crowned Falcon.

Description.—*Adult male:* Top of head slaty blue, with a rufous crown-patch; sides of head and throat white, a black stripe from the lower eye-lid anteriorly, proceeding obliquely downward; a similar transverse bar on the side of the neck, and a dab on either side and sometimes in the middle of the cervix; back, scapulars, and tail rich rusty red; strong black bars in variable quantity across the middle of the back and lower scapulars, or rarely reaching cervix; a heavy subterminal black band on tail, the central feathers tipped with rufous and the others with white; the wing-coverts and inner quills (including secondaries) slaty blue, the former black-spotted and the latter crossed by a heavy black bar; primaries blackish, the point of wing formed by the second; the first sharply emarginate on the inner web, the second slightly so; all the wing-quills heavily spotted with white on the inner webs, these spots confluent in bars on the under surface; below whitish or slightly tinged, immaculate on lower belly, flanks, and crissum; elsewhere (save on throat, as noted above) lightly tinged or heavily shaded with rufous,—the fore breast usually but not always unmarked, the sides and middle belly very lightly or quite heavily spotted with black. Bill bluish black; cere and feet yellow. *Young mate:* Similar to adult, but lower scapulars and wing-quills lightly tipped with white; not so heavily shaded with rufous below. *Adult female:* Subsimilar, but wings like the back; the black barring regular and continuous over entire back, wings (except quills), and tail,—the tail having ten to twelve bars, but the subterminal bar often larger; barring indicated narrowly across upper tail-coverts; below not tinged with rufous, but streaked instead with rusty brown; the sides sometimes barred with blackish. *Young female:* "Similar to adult, but colors softer, deeper, and more blended" (Ridgway). Adult male length, 9 to 10½ inches.

Recognition Marks.—Robin size, but appearing larger. The black markings about head, and rufous of upper parts distinctive.

Range.—North America east to the Rocky Mountains, and from Great Slave Lake south to northern South America.

The handsome appearance of this little Falcon, together with its comparative fearlessness and gratifying abundance, make it rather the best-known bird of prey throughout the state. It is to be found almost anywhere, and pays us frequent visits in town, but its favorite perch is a dead tree-top or stub at the edge of the woods, or a telegraph pole commanding an unobstructed view. From these points of vantage the birds attentively watch the happenings on the ground and dive down whenever they think their presence is needed by mouse or grasshopper. Much time is spent also on the wing, passing rapidly from wood to field, or flying slowly across a promising meadow, and pausing frequently at a good height to study a suspicious movement in the grass below. A Hawk will

AMERICAN SPARROW HAWK
½ Life-size

flutter over one spot for a minute at a time, and then pass on disappointed, or else pounce suddenly upon its prey and bear it off to some elevated perch for quiet consumption. When the wind is blowing strong the bird no longer flutters at its critical stops, but only balances on the wind, so nicely, indeed, that its wings are almost motionless.

The Sparrow Hawk is the smallest of the North American Hawks, and is also our most beautiful species, as well as being one of the most beneficial. Its name is singularly inappropriate, as it no way resembles a sparrow in form or habits, nor does it eat them to any serious extent. If it could be renamed at the present time, it might very properly be called the Grasshopper Hawk, because it destroys such enormous quantities of these destructive insects. The only species that the Sparrow Hawk can be confused with is the Pigeon Hawk or the Sharp-shinned Hawk. While it is always somewhat difficult to recognize some birds while flying or even while at rest, yet it may be done by a careful observer, and it should be done in the case of the Sparrow Hawk because of its great worth and entire lack of harmful qualities.

The large amount of chestnut color on the back and tail of both sexes of the Sparrow Hawk is a strong distinguishing mark, the Pigeon Hawk and Sharp-shinned Hawk being much darker. Below the Sparrow Hawk presents a much lighter effect than the two other species, which are heavily barred or streaked underneath. The length of the wings is another very marked point of difference in the Sparrow Hawks. When the Sparrow Hawk is perched with wings folded they reach nearly to the end of the tail, while the wings of the Sharp-shinned Hawk fall far short of it. The flight of these small hawks differs quite materially, the Sparrow Hawk being much given to hovering in the open, when it will drop to the ground with a not very rapid motion and seize its humble game of a grasshopper and fly back to a perch and eat it.

The Pigeon Hawk and Sharp-shinned Hawk make a few rapid wing-strokes and then sail for some distance. The Sparrow Hawk hunts and perches in open places while the Sharp-shinned Hawk confines itself to the woods and thickets, perching in a tree where it may be hidden. The note of the Sparrow Hawk when once heard will always serve to distinguish this species from the two others with which it may be confounded. Another very excellent means of identification of the Sparrow Hawk, if seen at or near its resting site, is the location of the nest; if it is in a hole of any kind it is almost sure to belong to a Sparrow Hawk, while if it is a nest built of sticks and other material in the branches of a tree it is equally sure to be the nest of a Pigeon or Sharp-shinned Hawk. As the Pigeon Hawk is not often found breeding within the limits of the United States the tree nest, if found south of the Canadian border, will very likely be that of the Sharp-shinned Hawk.

These several distinguishing marks are given with the earnest hope that farmers, sportsmen and others who in the past have killed all Hawks, will in the future spare the Sparrow Hawk, owing to its great value to agriculture. When

in doubt, regarding the identity of a small Hawk, give the benefit of the doubt to the Hawk and refrain from killing it, for you may thus spare a valuable bird belonging to a species that during every twelve months renders service to the agricultural industry of the country that is far beyond computation, but if measured in dollars and cents would reach to very high figures. This appeal for protection of the Sparrow Hawks, and the statements as to their value, would of course be worthless if they could not be supported by facts.

In the exhaustive report on this species made in 1893 by Dr. A. K. Fisher, of the United States Department of Agriculture, will be found indisputable statements that prove the absolute value of this Hawk as a grasshopper—and rodent—destroyer, and, on the other hand, will show how little harm it does.

Three hundred and twenty stomachs were examined, which had been collected in widely separated parts of the country, and in all seasons of the year, by government experts. In only one stomach was found remains of a game-bird (it also contained 29 insects). This fact shows that the sportsmen have no excuse for killing a Sparrow Hawk, as it certainly does not molest game-birds. Fifty-three stomachs contained remains of other birds, the species being such as lived on or very near the ground. In almost every instance the stomachs of these 53 Hawks contained, in addition, insects or rodents of some kind. Eighty-nine birds had been eating mice of some species, while 24 Hawks had been eating other mammals, reptiles or batrachians. Two hundred and fifteen birds had been eating insects of various kinds, largely grasshoppers, crickets, beetles, caterpillars, etc. A stomach of a Hawk collected at Lockport, New York, in August, contained 30 crickets; another, collected in Dakota County, Nebraska, in July, contained a gopher and 38 insects; another, from Cedar County, Nebraska, in August, contained 35 grasshoppers, 24 crickets, 1 dragon-fly and 2 spiders; a West Virginia bird had eaten 25 grasshoppers, 5 crickets and 2 larvae; while another, in February, had eaten a cotton rat.

Dr. Fisher summarizes as follows: "The subject of the food of this Hawk is one of great interest, and, considered in its economic bearings, is one that should be carefully studied. The Sparrow Hawk is almost exclusively insectivorous, except when insect food is difficult to obtain. In localities where grasshoppers and crickets are abundant these Hawks congregate often in moderate-sized flocks, and gorge themselves continuously. Rarely do they touch any other form of food until either by the advancing season or other natural causes the grasshopper crop is so lessened that their hunger cannot be appeased without undue exertion. Then other kinds of insects and other forms of life contribute to their fare; and beetles, spiders, mice, shrews, small snakes, lizards, or even birds may be required to bring up the balance.

"In some places in the West and South telegraph poles pass for miles through treeless plains and savannas. For lack of better perches, the Sparrow Hawks often use these poles for resting places, from which they make short trips to pick up a grasshopper or mouse, which they carry back to their perch. At times, when

grasshoppers are abundant, such a line of poles is pretty well occupied by these Hawks. In the vicinity of Washington, D. C., remarkable as it may appear to those who have not interested themselves especially in the matter, it is the exception not to find grasshoppers or crickets in the stomachs of the Sparrow Hawks, even when killed during the months of January and February, unless the ground is covered with snow. It is wonderful how the birds can discover the half-concealed, semi-dormant insects, which in color so closely resemble the ground or dry grass. Whether they are attracted by a slight movement or distinguish the form of their prey as it sits motionless, is difficult to prove, but in any case the acuteness of their vision is of a character which we are unable to appreciate.

"Feeding on insects so exclusively as they do, it is to be presumed that they destroy a considerable number of beneficial kinds, as well as spiders, which they find in the same localities as the grasshoppers. However, examination of their stomach contents shows the number to be so small, compared with that of the noxious species, that it is hardly worth considering.

"In the spring, when new ground or meadow is broken by the plow, they often become very tame if not molested. They fly down, even alighting under the very horses for an instant in their endeavor to capture an unearthed mouse or insect."

In speaking of its nesting habits, Mr. T. Gilbert Pearson says: "In the Southern States the eggs are almost invariably laid in the abandoned nesting cavity of the Flicker, a bird which is very abundant, particularly in the pine tree regions. If undisturbed, the birds will often continue to use the hole year after year until one or the other of the pair is killed. They appear to mate for life, and even during the season when not employed in rearing young they display an attachment somewhat unusual among birds. While not demonstrative in the least at this period, they nevertheless remain in close proximity to each other, feeding frequently in the same field and often roosting at night under the eave of the same building.

"The eggs are usually four, but sometimes five, in number. They exhibit a wonderful variety of rich markings of various shades of brown, chocolate and lavender. Frequently these spots and splotches show a marked tendency to cluster in a circle around the larger end, but not infrequently this intensity of marking is noticeably gathered about the smaller end. Now and then, but rarely, an egg is found almost destitute of color decorations of any character except the pale blue ground color of the shell."

The White-Faced Glossy Ibis

By Gerard Alan Abbott

Description.—*Adult*: Head, neck, upper back, lesser wing-coverts, and entire under parts, except under tail-coverts, rich purplish chestnut; remaining plumage shining, metallic green, bronze, violet, violet-green, purple, etc.; "lores greenish in life, blackish in dried skins; feathers surrounding the base of the bill blackish" (Ridgw.); bill black; feet and legs grayish black in life, drying dark brown. *Immature*: Head and neck dark grayish brown, minutely streaked with white; under parts dull grayish brown, acquiring purplish chestnut in increasing intensity; back and wings dark greenish dusky. Length 22.00-25.00 (558.8-635.); wing 11.25 (285.8); tail 4.25 (108.); bill about 5.00 (127.); tarsus 3.50 (88.9); middle toe and claw 3.50 (88.9).

Recognition Marks.—Brant size, but appearing smaller; dark, reddish and shining bronzy coloration; long, black, decurved bill.

Nesting.—Not known to breed in Ohio. *Nest*, of broken-down reeds, compactly built and well-cupped, in swamps. *Eggs*, 3, deep greenish blue. Av. size, 2.01 x 1.47 (51.1 x 37.3).

General Range.—Warmer parts of eastern hemisphere, West Indies, and southern portion of eastern United States, wandering northward to New England and Illinois. In America only locally abundant and of irregular distribution.

ONLY the most meagre accounts exist of this little known and irregularly distributed species. It remained undiscovered in America until 1817, when Mr. Ord took a specimen on the eastern coast of New Jersey. Although at first described under a new name, it is now known to be identical with the Old World species, which thus enjoys a wide and rather remarkable range. It is believed that this bird was known to Herodotus, and that it was held by the ancient Egyptians in reverence second only to that accorded the Sacred Ibis (*Ibis athiopica*).

The White Ibis resembles the ancient sacred ibis of the Nile, while in habits it resembles the heron, crane and bittern. Inhabitants of warm climates, in America their range is becoming restricted yearly. Four varieties occur in North America, the wood ibis and the white-faced glossy ibis like the white ibis are peculiarly American, while the scarlet ibis is an accidental visitor. Some years ago the white ibis was found in the southern swamps of Illinois and Indiana. Of late years they have retreated to the wooded sections of Florida, Texas and other gulf states.

Ibises are gregarious, but unlike the herons and cranes are almost silent birds. Their food is chiefly animal matter, such as frogs, crawfish and minnows. Their large beak is well adapted for extracting and crushing crawfish.

The flight of the white ibis like that of the white pelican is picturesque. They move in close ranks alternately flapping and sailing, all birds moving the wings simultaneously. As they pass through the sunlight the plumage glistens, and the black markings on the wing show in marked contrast to the otherwise immaculate plumage.

A Study of the Cuckoo

By Clara Kern Bayliss

Scores of writers on the Cuckoo assert that only the European species imposes its eggs upon other birds. Only two writers that I know of state the contrary. Ridgway, in *Illinois Ornithology,* says that the Yellow and the Black-billed impose upon each other and, rarely, upon other species. And in *Nests and Eggs of North American Birds,* David Davie states that they occasionally deposit their eggs in nests of the Robin, Cardinal Grosbeak, Mourning Dove, Catbird, and Waxwing.

On July 24, 1916, I found a Yellow-billed Cuckoo's nest, with the bird incubating, ten feet from the ground on the horizontal branch of a small elm. Not having my "periscope" (an adjustable mirror at the end of a bamboo pole) with me, I assisted a little girl who had accompanied me, to climb the tree, and she reported that the nest contained three green eggs, one of them smaller and darker than the other two. As seen through the mirror next day I should describe the smaller as bluish-green, almost as dark as a Catbird's egg, and the others as greenish-blue.

July 29th, at 6:30 P. M. the eggs were there as usual and the bird remained on the nest until I was almost under her, giving me an opportunity to see her yellow bill and her graceful, horizontal flight as she slipped noiselessly into another tree. The following day was Sunday and was exceedingly hot, as was Monday forenoon. In the afternoon of Monday, July 31, there was a severe storm, and the nest was not visited until the forenoon of August 1st, when there were three young birds in the nest, all black as ink, the two larger with black hairs and the smaller with white hairs on the body. They were certainly one day old and may have hatched on July 30th. When jarred, they made a faint hissing or buzzing like that of a bee.

On this morning I had invited Professor C. W. Hudelson to accompany me, and we had taken a camera and a step-ladder, expecting to photograph the nest and eggs. Finding the young birds, he strapped the camera to the trunk of the tree and took the accompanying picture.

Thinking the little white-haired birdling might be crowded off the frail platform, I took one of the larger birds home with me; and of that I will speak later.

At sunset August 2nd, on my approach, a male Nighthawk, uttering his *peent, peent,* flew down from the tree to a dead limb on the ground where he tarried a moment, shuffling his long wings and complaining; then he spread them and sailed away. I feared that he might have been bent on mischief; but both the birds were in the nest. Toward evening August 4th, they were still there, though the white-haired one was crowded to the edge of the nest with the big one lying partly over it. At sundown August 6th, only the black-haired one was there, no trace of the other being discernible.

The remaining one was now larger and farther developed than his mate at my home and by this time, had a few white quills on his back. He moved about uneasily, and seemed to have his eyes open, but of that I could not be sure, looking through the mirror. He pushed himself to the edge and voided excreta upon the weeds below the tree where, contrary to the observations of Jean Stratton Porter, there were seven or eight droppings.

On the evening of August 8th the nest was empty. The old bird was near, but manifested less rather than more of her customary anxiety, if so calm and dignified a bird can be said ever to exhibit anxiety. She called no more than usual and gradually worked her way farther from the tree instead of remaining near enough to keep an eye on my movements. It scarcely seemed probable that the young one could have been able to leave the nest even if, after the way of his species, his feathers had burst into bloom all in one day. He was eight and a half, and may have been nine and a half days old, and it is barely possible that he may have departed without protest and without tragedy.

The voice of the parent was heard in the vicinity for three or four weeks longer. Among the sticks of the shallow platform which had served him for a cradle were small bits of the shell that had encased him, now faded almost to robin's-egg blue.

The bird I took home to study was as ugly a specimen as could well be; black from tip to toe, except the dark wine-colored under and edges of the upper mandible, big-bodied, stupid in the morning and voracious in the afternoon, voiding instantly after swallowing, making that faint hissing and a little *quirt, quirt,* sleeping with head laid flat before him like an aligator, and occasionally moving it from side to side in serpent-like manner; utterly ugly except his mouth which, when wide open was cup-shape and red, with cream-colored knobs in it making it look like a red flower with sessile yellow stamens. The legs were black, the toes were black, two of them standing forward, two back, like the toes of a woodpecker. The wings were little flat, crooked sticks such as might be sawed out of a black shingle; and he let them hang down like legs, even using them to prop himself up, and two or three times fairly standing on "all fours." When he ate he sat up as straight as a Penguin, resting on the back part of his body, tarsi flat out in front of him and toes clutching the flannel cloth in the bottom of his box, to balance himself. When he raised his head there was a perpendicular line from the tip of his bill down the under part of his body to the box in which he sat.

After about three days he began to fold his wings to his sides and now and then to stretch and even to flap them. The hissing gradually merged toward the hungry cry of young birds when being fed. The cilia on the edges of his wings and tail became bristles and then tiny, white-tipped feather-cases; and from his chin down each side of his bare under-body, curving upward to the tail came three or four overlapping rows of minute white quills or cases, making his look, when he sat up, as though he had on a cutaway coat. These began to show

August 3rd, when he was four, possibly five days old. He uttered his little *quirt* and the buzzing sound without opening his mouth. The former he ceased to make on August 4th and 5th, but the latter became louder and was uttered when he ate and whenever his box was touched, whether he raised his head or not.

He lacked regurgitated food and brooding, and every morning was so dumpish that I feared he was about to die. But toward night he became as lively and as hungry as ever. Yet he was not thriving as well as the one in the nest and it was my plan to exchange the two—but he circumvented me.

At first he was fed on the large caterpillars from a laurel oak; later, on berries and the larvæ from cabbages. He did not seem to relish water or the white of egg and worked his bill and his black-tipped tongue as if trying to spit it out. Flies were his specialty, so I secured a quantity which had been scalded and emptied out of a trap. They were dry and hard, but after wetting them I gave him all he wanted, which was as much as a large tablespoonful. That was an unwise thing to do, but he was voracious. Next morning, August 6th, he was only slightly more inert than usual, but could scarcely swallow a cabbage worm. When given a little juice from blackberries, much to my surprise, he lay over on his side and died.—And he had never opened his eyes on the troubles of this world.

Fulvous Tree-Duck (*Dendrocygna bicolor*)

Range: Breeds from central California, middle-western Nevada, southern Arizona, and central Texas south to the Valley of Mexico and Michoacan; winters from central California and central Texas to southern Mexico.

The tree-ducks are tropical species, two of which, the black-bellied and the fulvous tree-duck, extend their range into the United States. In this country at least there is little to warrant the name of tree-duck, as the bird is no more arboreal, if as much so, than the wood-duck. No doubt it alights in trees in wooded districts, and very probably it occasionally nests in hollow trees, as do several others of our ducks; more often, however, it nests on the ground for the sufficient reason that much of the territory it inhabits is practically treeless. The only place in which I ever saw this species was Washoe Lake, Nevada, and there its habits are so similar to other ducks that frequent shallow lakes that at first I hardly recognized it. It is much more numerous in southern California than in Nevada, but migrates farther south in winter. This duck is credited with laying an unusually large clutch of eggs, from fifteen to thirty, but very probably the larger number is the result of two or more females laying in the same nest on a cooperative basis.

Birds' Names

Some birds get their names from their color, such as the bluebird, the blackbird, the green finch, the oriole (which means the golden bird) and the flamingo (which means the flame-colored bird). The Baltimore oriole is so called because his colors are the same as those of the coat of arms of Lord Baltimore, the governor of Maryland, a state where the bird is found in numbers. The jay gets his name from the French word "gaie," referring to his bright plumage.

The cries or songs of some birds give them their names. The chick-a-dee, the whippoorwill, the bob-o-link and the cuckoo get their names in this way. The catbird gives a cry that sounds like a cat meouing. The mocking bird mimics the cries of other birds, and the owl gets its name from the Latin word ululo, meaning to wail mournfully.

Various characteristics give other birds their names. There is a small bird that builds an oven-shaped nest and is therefore called the oven bird. The tailor bird is named because of a way he has of stitching leaves together to build his nest, and the weaver bird gets his name from the way he weaves together straws and grasses for his home.

The swift is a quick flying bird. The chimney swallow is a bird that builds in chimneys. The horn-bill, the boat-bill and the spoonbill get their names from the shapes of their bills, and the diver, the sandpiper and the woodpecker get theirs from their habits.

The wry-neck gets its name from a curious way it has of twisting its neck over its shoulder, and the white ring around its neck gives the ring dove its name. Some pigeons will always return to their homes, even if they are taken miles away, and so they are called homing pigeons.

The skylark gets its name from its habit of singing when it is high up in the air. The wagtail gets his from the incessant wagging of his tail. The scissors-tail is a South American bird, whose tail opens and shuts, attracting insects when the bird is flying.

From the Latin words murus, a wall, and tenco, which was shortened into murten, we get the name "martin," for the bank swallow. From the French pluvier, to rain, we get the name plover. The bird is so called because he looks as if he were speckled with raindrops.

Many birds get the names from their native countries. The Bantam, the Guinea fowl and the Canary are among these. Our friend the turkey did not originally come from Turkey, as you might suppose. He gets his name from the sound he makes when he gobbles.

The lyre bird's tail is in the shape of a lyre. The secretary bird has a tuft of white feathers on each side of his head so that he looks as if he had stuck pens behind his ears.

Penguins are birds with short wings, which look as if they were tied or pinioned to their sides—the old word for pinioned was pinwinged, and from this the birds get their names.

The name albatross comes from the Arabic "al cadros," a bucket—it refers to the pouch in the necks of birds of this family in which they were supposed to carry water to their young in the desert.

Donda, a Portuguese word meaning simpleton, is the origin of the name of the bird dodo. The loon is said to get its name from its clumsy walk and its stupidity—so you see that you have to mind your manners even if you are a bird.

To the Robin

By Thomas Baird

(Suggested by hearing a robin singing in an Oak Park back yard at dawn on the first day of spring. With apologies to Shelley).

Robin pouring gladness
On the dawn of spring,
Driving out my sadness
By the song you sing.
Before your cheerful matin, my doubts have taken wing.

Songster of the morning
In the chestnut tree
Close beside my cottage,
Trilling merrily.
What an inspiration is your melody to me!

Where, my joyful teacher,
Did you learn your song?
No such hopeful preacher
As you, has lived among
Us dull-witted mortals amid the human throng.

That "melodious madness"
In your morning lay
Weaves a note of gladness
In our somber day—
An echo of the music that's flung along our way.

The American Barn Owl

By W. Leo Dawson

Synonym.—MONKEY-FACED OWL.

Description.—*Adult*: General color of upper parts ochraceous yellow; this lightly overlaid or mottled with gray, the typical mottled gray feathers having dusky centers and white tips; indistinct dusky bars on wing-quills and tail-feathers, clearest centrally; entire under parts white, usually more or less washed with fulvous or tawny, and sparingly but sharply speckled with dusky; facial disk white or whitish or tinged variously with ochraceous-buff, dark brown, or even claret; the edges of the disk rusty and dark brown on the tips of the feathers; bill light; feet light, nearly naked. The folded wing extends to or beyond the end of the tail. *Nestlings* are covered with fluffy white down. Length 14.00-18.00 (355.6-457.2); wing 12.25-14.00 (311.2-355.6); tail 5.25-7.50 (133.3-190.5); tarsus 2.25-3.25 (57.2-82.6); bill along culmen 1.00-1.25 (25.4-31.8).

Recognition Marks.—Crow size; light colors, especially below; strongly marked facial disk; top-heavy appearance.

Nest, in hollow trees or in crevices about towers, pigeon-houses, earth-banks, etc., lined scantily with sticks and trash. *Eggs,* 5-11, white, ovate. Av. size, 1.70 x 1.30 (43.2 x 33).

General Range.—United States, rarely to the northern border, and Ontario, southward through Mexico; northern limit of breeding range about latitude 41°.

AS late as 1880 only five records of the appearance of this bird, within the state were known to Dr. Wheaton, and none had ever been seen in Indiana. Soon after that there was a notable increase in numbers north of the Ohio River. Mr. Charles Dury, of Cincinnati, discovered a small colony in the town hall at Glendale, Ohio, October 18, 1883, and concluded they must have nested there the previous season. Some idea of the birds' usefulness in the community was conveyed by the "pellets," or little spheres of indigestible matter ejected by the Owls from time to time. "They covered the floor several inches deep in places. I examined many of them and found them made up entirely of the hair and bones of the smaller rodents, mostly mice. There must have been the debris of several thousand mice and rats." Captain Bendire is certain that the captures of a single pair of Barn Owls, during the nesting season, exceed those of a dozen cats for the same period.

The species has lately been reported from various points all over the state, including several along the Lake Erie shore; but the only region where it is yet called common is in the lower Scioto Valley. Rev. W. F. Henninger, at Waverly, mounted ten specimens brought in to him at various times from 1898 to 1901. He says the birds are known locally as "White Owls," and that they frequent the bottom lands adjoining the Scioto River, breeding most commonly in the large sycamores which line that stream.

AMERICAN BARN OWL.
(Life size.)

The Barn Owl, as its name indicates, often passes the day in barns or outbuildings, being drawn thither solely by the abundance of mice which such places afford. It is said to be a very quiet, peaceable bird, offering no violence to the poultry, not even to the pigeons which often share its quarters. When disturbed during its slumbers it makes a hissing noise, or clicks its mandibles in a threatening way. It has besides a "peevish scream," and some querulous notes hard to characterize further. Its very odd appearance arouses in the average farmer's boy who discovers him a curiosity which is too seldom satisfied until the old musket has been discharged and the best mouser in seven counties is reduced to a mere heap of feathers.

Of the breeding habits, Captain Charles Bendire says: "The Barn Owl, strictly speaking, makes no nest. If occupying a natural cavity of a tree the eggs are placed on the rubbish that may have accumulated on the bottom; if in a bank they are laid on the bare ground and among the pellets of fur and small bones ejected by the parents. Frequently quite a lot of such material is found in their burrows, the eggs lying on and among this refuse. Incubation usually commences with the first egg laid, and lasts about three weeks. The eggs are almost invariably found in different stages of development, and young may be found in the same nest with fresh eggs. Both sexes assist in incubation and the pair may sometimes be found sitting side by side, each with a portion of the eggs under them."

The Barn Owl should appeal to man because of two characteristics,—first, its singular and almost weird beauty, and, second, its very great economic value and almost total lack of harmful qualities. If it were a bird that was more frequently seen its beautiful soft plumage of white and gold would attract the lovers of color, but, being nocturnal in its habits, it is not often observed; indeed, even where it is common, when one is shot its strange appearance leads the local newspaper to publish a ridiculous account of a new and grotesque animal, part monkey and part Owl. Like all other Owls, it still bears the weight of the superstitions of over two thousand years; consequently the hand of man is yet against it. Shortly after sundown this "pretty aerial wanderer of the night" commences flitting to and fro "on wings so soft and silent" that it is scarcely heard. During all its nightly wanderings it is working for mankind, its only enemy, while gathering food for itself and perhaps a hungry brood of callow young. Then it is that its peculiar screaming cry is heard, which no doubt is the basis of many of the strange and uncanny stories related of Owls. In Europe this species is the Owl of the ivy-covered tower and the ruined castle, and by its nightly wailings and wanderings peoples the ruins with ghostly tenants.

The late Major Bendire, in his "Life Histories," states: "The Barn Owl, strictly speaking, makes no nest. If occupying a natural cavity of a tree, the eggs are placed on the rubbish that may have accumulated at the bottom; if in a bank, they are laid on the bare ground and among the pellets of fur and small bones ejected by the parents. Frequently quite a lot of such material is found

in their burrows, the eggs lying on and among the refuse. Incubation usually commences with the first egg laid, and lasts about three weeks. The eggs are almost invariably found in different stages of development, and downy young may be found in the same nest with fresh eggs. Both sexes assist in incubation." One of the best methods of studying the food habits of Owls is to gather the pellets which they disgorge. These consist of the undigested refuse of their food, hair, bones, feathers, etc. Sometimes enormous quantities of this refuse is found in the nesting place of the Barn Owl, one recorded instance being two or three cubic feet. When the tired farmer is buried deep in slumber and nature is repairing the waste of wearied muscles, this night-flying bird commences its beneficial work, which ceases only at the rising of the sun. All that has been written regarding the food of the Barn Owl shows it to be of inestimable value to agriculture. Mr. W. H. Hudson, of England, says of the Barn Owl: "It is surprising that at the present day any one should think it necessary to write a fresh plea for this bird—a bird that has been a favorite of our ornithologists for the last hundred years and whose praises may be read in a hundred volumes on our library shelves! The feathered cat has been minutely and lovingly described by all his biographers! 'He who destroys an Owl is an encourager of mice,' says one writer; and his value as a mouse-killer, and his beauty and singularity are points that are invariably dwelt upon." Major Bendire says: "Looked at from an economic standpoint, it would be difficult to point out a more useful bird than this Owl, and it deserves the fullest protection; but, as is too often the case, man, who should be its best friend, is generally the worst enemy it has to contend with, and is ruthlessly destroyed by him, partly on account of its odd appearance and finely colored plumage, but oftener from the erroneous belief that it destroys the farmer's poultry." Dr. A. K. Fisher, of the United States Department of Agriculture, the greatest living authority on the food of Hawks and Owls, presents in 'Science, N. S. Vol. III, No. 69, pp. 623-624,' the following emphatic brief, showing the undeniable value of the Barn Owl.

"In a work on 'The Hawks and Owls of the United States,' published in 1893, I recorded the results of the examination of 200 pellets or 'rejects' of the Barn Owl taken from one of the towers of the Smithsonian Institution, Washington, D. C., June 28, 1890. Since that time 475 more have been collected—125, September 14, 1892, and 350, January 8, 1896, making in all a total of 675 'pellets.' Thus abundant material has been carefully examined and found to contain the remains of 1,821 mammals, birds and batrachians, as shown in the following table:

1,119 Meadow Voles	2 Sora Rails
4 Pine Voles	4 Bobolinks
452 House Mice	3 Red-winged Blackbirds
134 Common Rats	1 Vesper Sparrow
1 White-footed Mouse	10 Song Sparrows
20 Jumping Mice	4 Swamp Sparrows

1 Rabbit	1 Swallow
33 Short-tailed Shrews	1 Warbler
21 Small Short-tailed Shrews	6 Marsh Wrens
1 Star-nosed Mole	2 Spring Frogs
1 Brown Bat	

A glance at this list will demonstrate to any thoughtful person the immense value of this useful bird in keeping noxious rodents in check. Moreover, judging from the species in the list, it may be seen that the Barn Owl hunts almost exclusively in open country, such as cultivated fields, meadows and marsh lands, where such pests do most damage.

In the West the food of the Barn Owl consists very largely of pouched gophers, a specially destructive mammal, also ground squirrels, rabbits and insects. In the southern states large numbers of cotton rats are destroyed, a fact which should be appreciated by every planter.

Florida Gallinule (*Gallinula galeata*)

Range: Breeds from central California, Arizona, Nebraska, Minnesota, Ontario, New York, and Vermont south through the West Indies and Mexico to Chile and Argentina, and in the Galapagos and Bermuda; winters from southern California, Arizona, Texas, and Georgia southward.

Although in no proper sense of the word a game bird, the Florida gallinule looks so much like a rail or a coot, and moreover so commonly frequents the same general localities as these birds, that it is frequently mistaken by the gunner and shot. Although it inhabits the Florida swamps, it is by no means restricted to that State, but possesses a wide range westward to the Pacific, northward as far as Massachusetts, and south well into the tropics.

The gallinule's habits are a combination of duck, coot, and rail, and the bird is most at home amid the tangle of vegetation that grows on the borders of freshwater ponds, where it is careful to keep well concealed during the hours of daylight. After dusk gallinules feel safe in the open, and then may often be seen swimming across broad stretches of open water. The gallinule has little to commend it for the table, and as it is absolutely harmless, sportsmen will do well to acquaint themselves sufficiently with its appearance to avoid shooting it by mistake.

The Owl Parrott (*Strigops Habroptilus*)

By Joseph Grinnell

Length: About 22 inches.

Range: New Zealand.

The Australian continent and New Zealand, as everybody knows, are the countries where everything goes by contraries. And it is here that one parrot group has developed some of its most curious offshoots. One would imagine beforehand that no two birds could be more unlike in every respect than the gaudy, noisy, gregarious Cockatoos and the Somber Nocturnal Owls. Yet the New Zealand Owl Parrot is a lory which has assumed all the appearances and habits of an owl. A lurker in the twilight or under the shades of night, burrowing for its nest in holes in the ground, it has dingy brown plumage like the owls, with an undertone of green to respect its parrot origin; while its face is made up of two great disks, surrounding the eyes, which succeed in giving it a most marked and unmistakable owl-like appearance. Why should a parrot so strangly disguise itself and belie its ancestry? The reason is not difficult to discover. It found a place for itself ready-made in Nature, New Zealand, a sparsely-stocked island, peopled by various forms of life from adjacent but still distant continents. There are no dangerous enemies there. Here, there was a great opportunity for a nightly prowler. The owl parrot, with true business instinct, saw the opening clearly laid before it, and took to a nocturnal and burrowing life, with the natural consequence that more forms survived which were dingy in color. Unlike the owls, however, the Owl Parrot, true to the vegetarian instincts of the whole lory race, lives almost entirely upon sprigs and mosses and other creeping plants. It is thus essentially a ground bird; and as it feeds at night in a country possessing no native beasts of prey, it has almost lost the power of flight, and uses its wings only as a sort of parachute to break its fall in descending from rock or tree to its accustomed breeding ground.

OWL PARROT (NEW ZEALAND).
(Strigops habroptilus)

The Sparrow

By Abbie Farwell Brown

Little bird of dusty brown,
Why do you stay here in town,
In the noise and dirt and heat
Hopping in the dusty street?
Other songsters choose to go
Where the grass and clovers grow,
Where the dew is on the hill
And the shady woods are still;
Where the baby rivers skip,
And the cool green mosses drip.
There tomorrow I shall be!
Sparrow, do you envy me?

Saucy bird, alert and quick,
Lingering on stone and brick,—
Little children linger, too,
Who perhaps are fond of you;
Pale and pitiful to see,
Sick and sorry, too, maybe.
They can dream but never go
Where the ferns and daisies grow.
All the sultry summer through
They will hear no bird but you,
Cheap and common, sharp and shrill,
Chirping, chirping, chirping still,
Picking bugs and crumbs and things.
Yet—*you* have the gift of wings;
They can see you dart and fly
Free and high to tree and sky,—
Only little comrade given
Who can bring them news of heaven!

Sparrow, when I go away,
Is that why you choose to stay?

—*From St. Nicholas.*

The Field Sparrow (*Spizella pusilla*)

By I. N. Mitchell

Description.—*Adults*: Crown dull chestnut with a slight admixture of ashy gray; auriculars bordered with chestnut; nape gray; feathers of back rufous with black central streaks and buffy edgings; wings dusky, the primaries edged with whitish and the rest with rufous, the middle and greater coverts tipped with white, forming two inconspicuous bars; tail fuscous; below ashy gray, unmarked save for slight brownish suffusion of breast and flanks; bill pale reddish; feet pale. Length 5.25-5.75 (133.3-146.1); wing 2.57 (65.3); tail 2.05 (67.3); bill .36 (9.1).

Recognition Marks.—Warbler size; crown *not* bright chestnut; bill uniform pale reddish; unmarked below. This bird has few positive marks, and is oftenest "sensed," or determined by elimination.

Nest, in low bushes or on the ground, a neat but simple structure of dried grasses, sometimes, but rarely, lined with horse-hairs. *Eggs,* 3-5, white, bluish- or pinkish-white, with numerous small spots of reddish brown, generally distributed or gathered loosely about larger end. Av. size, 70 x .51 (17.8 x 13).

Range.—Eastern United States and southern Canada, west to the Plains, south to the Gulf States and Texas. Breeds from South Carolina, southern Illinois, and Kansas northward.

OF plainer appearance even than the Chipping Sparrow, this humble wayside bird excels in song. Its trill is generically related to that of the other bird, but its notes are purest music. *Tew, tew, tew,*—the first three or four notes come full and clear, but then comes a rapid accelerando through which they swiftly pass into a delicious trill, and so fade out. The tones are tender and sweet, and possess a subtle spiritual quality which lifts them out of the realm of common things. One never quite gets over wondering at the excessive plainness of the singer in contrast with the exalted sentiment he utters. It is as though a clod took voice and a soul escaped in song.

Within certain pretty clearly defined limits the Field Sparrow's song is capable of great individual variation. Thus it becomes comparatively easy to distinguish a half dozen birds in a field by their songs alone. In some the opening notes are prolonged, as, *Heew, he-ew, he-ew, he-ew, hew, hew, hew, heheeeeee.* In others they are distinctly doubled and have the accent transferred to the second syllable, *Tu-eet , tu-eet , tu-eet , tu-eet , weet, weet, weet,* TR. One individual heard in August differed from all others in the neighborhood in having such a double note, *Cher-ie, cher-ie, cher-ie, tew, tew,* etc. The following spring the singer returned to the same station, and two others about a hundred yards away developed the same peculiarity. It is fair to suppose that these last were children of the first.

A bushy pasture or undergrowth flanking the woods affords a suitable ref-

FIELD SPARROW

uge for the Field Sparrow, or else it finds lodgment along over-grown fences and in the ephemeral sprouts which line the road. The bird is rather shy and retiring, neither seeking the haunts of men nor courting observation in its bushland haunts.

According to Dr. Howard Jones, "The nests seem to be about equally divided between the ground and the bushes. When in the former position a little depression is chosen and the structure is neatly fitted into it with the rim about level with the surrounding earth. When in the latter position it is placed in any arrangement of twigs that will support it; it is not built about and cabled to them as is the nest of the Summer Warbler, but it is simply loosely arranged upon the stems or wedged in among them so that it will not topple over, and nearly always it can be lifted out without tearing it in the least. It is seldom if ever over five feet from the ground, and commonly is within two or three." Occasionally a nest is taken from the growing grass, which is so complete in itself and so little adjusted to its surroundings that it looks as if it might have been dropped there by a careless hand.

In construction the nest is simple, but loose or compact according to the skill of the owner. The illustration shows one of the best quality, compactly built and plentifully supplied with horse-hair lining. Another taken the same season from a clump of "suckers" seven feet high on the trunk of an apple tree, was as flimsy as a Grosbeak's, a mere wisp of twisted grasses which held up four eggs to easy inspection from below.

The field sparrow is a small unobtrusive bird scarcely more than five inches in length. It is grayish brown with some black above and grayish brown beneath. It is not conspicuous, and therefore may be easily overlooked. It prefers the stubble fields and pastures.

There are nearly forty species of sparrows more or less abundant and easily confused by beginners in bird study. From one-eighth to one-fourth of their food consists of insects. They are notably seed eaters devouring large quantities of seeds with a hard covering. Considerable numbers of snout-beetles and weevils and various larvae are destroyed by these little birds. Many ants and wasps are eaten also, during the summer months. In the winter their food consists almost exclusively of weed seeds which they consume at the rate of about one-quarter of an ounce per day. Small as they are, they render invaluable service to farmers. They nest in deserted fields in briars and weeds. Usually there are from four to five white eggs marked with brown.

The common name is misleading, and perhaps it would be more appropriate to call this bird the Bush Sparrow, a name by which it is frequently known. Instead of the field it seems to prefer the pasture, with its weeds and bushes. It will also frequent the shrubby thickets that follow the removal of a forest. This shy bird has a somewhat extensive range, which includes the eastern United States and Southern Canada. It passes the winter months chiefly in those states south of the Ohio river.

The Field Sparrow when frightened does not retreat to the cover of foliage, as does the Song Sparrow, but flies to an exposed position on top of bush or low tree, where it can watch and await developments. In the fall they frequently gather in small flocks. If disturbed all will fly to the nearest bushes, and in perching will cluster close together.

The Field Sparrow is all the more interesting because of its shyness. Mr. Keyser speaks of it as "a captivating little bird, graceful of form and sweet of voice, singing his cheerful trills from early spring until far past mid-summer. The song makes me think of a silver thread running through a woof of golden sunshine, carried forward by a swinging shuttle of pearl." Mr. Chapman says: "There is something winning in his appearance; he seems such a gentle, innocent, dove-like little bird."

Humming Birds

By W. L. McAtee

Hummingbirds are popularly supposed to live upon the nectar of flowers, and unquestionably this substance forms an important part of their food. Close observation has shown, however, that these little birds do not visit flowers wholly for the purpose of gathering honey, nor do they obtain all their food from flowers. The writer has observed them hovering in front of a cobweb, picking off insects and, perhaps, spiders entangled in the net. They have also been observed to capture their food on the wing, like flycatchers. Stomach examination shows that a considerable part of their food consists of insects and spiders, with sometimes a very little vegetable matter.

Only one species of hummingbird inhabits the eastern part of the United States. This is the ruby-throat (*Archilochus colubris*) (fig. 5), which is more or less common almost everywhere in that region. The writer has seen 100 of these tiny creatures hovering about the flowers of a buckeye tree, and this number was maintained all day and for many days, though the individuals were going and coming all the time.

In order to obtain definite knowledge as to the food of hummingbirds in general, and the ruby-throat in particular, 59 stomachs of this species were examined. Although the humming birds are the smallest of the avian race, their stomachs are much smaller in proportion to their bodies than those of other birds, while their livers are much larger. This would indicate these birds live to a considerable extent upon concentrated sweets, as stated above, and that the insects,

spiders, etc., found in the stomachs do not represent by any means all their food. The quantities of food found in these tiny stomachs are so minute and the insects comprising them are so small that identification is very difficult and uncertain, but it is believed that the following statements do not contain any serious errors.

The animal food formed 94.32 per cent of the whole, and what was taken for vegetable matter made up the remainder, 5.68 per cent.

The principal item of insect food was small Hymenoptera ,of which a large proportion are probably parasitic species. They amount to 36.32 per cent of the food, and next to spiders are the largest constituents of the animal diet. Hemiptera stand next to Hymenoptera among the insects eaten and amount to 8.88 per cent of the food. Many of these appear to be minute leaf hoppers (Jassidæ) or members of some closely allied family. Diptera (gnats) were found in only a few stomachs. They amount to only 2.57 per cent of the food. The largest component of the ruby-throat's food, however, is spiders, which amount to 43.46 per cent of the stomach contents.

Four stomachs held what was thought to be fruit pulp, one contained plant hairs felted into a solid mass, one held what appeared to be pieces of seed, and one contained a few bits of rubbish. Altogether, vegetable food amounts to 5.68 per cent of the whole, and it is doubtful if any of it is taken intentionally.

As a representative of the western members of this family, the Anna hummer (*Calypte anna*) has been selected. Of this species 111 stomachs were examined, and in some respects the food was found to differ noticeably from that of the ruby-throat. The largest item of animal food is Diptera (gnats or small flies), which amount to 45.23 per cent and replaces the spiders so characteristic of the ruby-throat's diet. Hymenoptera, on the other hand, are nearly the same (35.03 per cent) as in the other species. Hemiptera (bugs) amount to 17.30 per cent, or nearly double what the ruby-throat had eaten. The Anna hummer had eaten spiders to the extent of only 2 per cent. A few bits of beetles were found in both species; also a few fragments of what was supposed to be the skin of caterpillar. Only a trace of vegetable matter, presumed to be fruit pulp, was found in the stomachs of the Anna.

The Swallow-Tailed Kite (*Elanoides forficatus*)

By Joseph Grinnell

Description.—*Adult*: Head and neck all around, rump, basal portion of tertials, and entire under parts including lining of wings, white; remaining plumage *black*,—lustrous, with purplish reflections on back and scapulars, with a glaucous or chalky cast on contiguous portions, bronzy or various elsewhere; tail deeply forked, graduated; bill bluish-black; edges of mandibles, cere, and feet pale blue; claws light. *Young*: Similar, but black not so lustrous; wing and tail-feathers tipped with white; head and neck streaked narrowly with blackish shaft-lines. Length 20.00-26.00 (508.-660.4); wing 15.50-17.75 (393.7-450.9); tail (outer feathers) 11.00-14.50 (279.4-368.3); bill from nostril .76 (19.3).

Recognition Marks.—Not readily comparable in size. Black and white in masses; long wings and forked tail; exceedingly graceful flight.

Nest, at great heights in trees, near extremity of branch, composed of sticks and abundant green moss. Eggs, 2-4, white, greenish- or yellowish-white, spotted, marbled, or clouded with hazel, chestnut, or mahogany. Av. size, 1.85 x 1.46 (47. x 37.1).

Range.—United States, especially in the interior, from the Carolinas and Minnesota southward, throughout Central and South America; westward to the Great Plains. Casual eastward to southern New England, and northward to Manitoba and Assiniboia. Breeding range irregularly coincident with general distribution in the United States. Accidental in England.

NOTHING can compensate us for the loss of this exceedingly graceful and highly beneficial bird, or atone for the criminal stupidity which has decreed the extermination of it simply because of its size and hawk-like appearance. Poultry raising is an important business, and requires rigid protection, but more ornithological crimes have been committed in its name than in that of any other, save fashion. The Swallow-tailed Kite feeds largely upon snakes, lizards, toads, and insects—the latter caught almost exclusively upon the wing. In the South it renders inestimable service through the destruction of the cotton worm. On the other hand, it has never been known to molest poultry, although its chance appearance above a chicken coop naturally causes indiscriminating fowls some needless alarm.

Described by Wilson as abundant on the extensive prairies of Ohio and the Indian Territory, it has rapidly decreased in numbers until now it is only "accidental."

The wing development of the Swallow-tailed Kite and the everglade kite is remarkable. Like the frigate bird and swifts, the wings extend far beyond the tail. The Mississippi and white-tailed kites, two other American forms, have less wing development, and their flight is more suggestive of the ordinary falcon. In Europe the name kite is applied to birds which resemble our common hawks.

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SWALLOW-TAILED KITE.
⅓ Life-size.

The swallow-tailed kite was formerly found as far west as the great plains, and northward to southern Canada. They winter in Central and South America. Always of local distribution, their range is becoming even more restricted.

The food of this hawk consists largely of insects, hence it is beneficial, it also eats small reptiles. It captures its food, devours it and drinks while on the wing. Kites migrate in flocks. In the last twenty years several migrating flocks have passed through the Great Lakes region near Chicago in spring and fall. This would indicate that the birds were either on an extensive hunting expedition, or resorted to some remote section of the country to breed. However, little material is available regarding their habits, aside from that furnished by Florida and Texas ornithologists.

During the last fifteen years these birds have been found breeding in Texas and the isolated pine regions of Florida, being about the only sections still inhabited with any certainty by this fleet-winged raptor. In Florida the nests are placed in the tops of the tallest cylindrical pines, usually in wet portions of the state where the nests are accessible only during dry seasons. In several scientific expeditions undertaken to procure the nest and eggs of this species, it was found necessary to kill the male kite before ascending the tree to the nest, as the bird boldly darted at the head of the collector, dislodging his head piece, and striking him with its talons until several deep wounds were inflicted.

Hollyhocks

By Millie Noel Long

What are you guarding, Hollyhocks grand,
Standing seemingly hand in hand,
Each one touching the next in line,
Erect, magnificent, stately and fine?

Your beautiful cups of satiny sheen
Like ears alert for the things unseen—
Are they taking wireless messages fleet,
That you stand so quiet, with rooted feet?

In startling beauty you greet the sight,
So fine and flawless, so pure and bright,
You lift the thoughts from the common view
To the things eternal, the high and true.

The Marbled Murrelet (*Brachgramphus marmoratus*)

By James M. Macoun

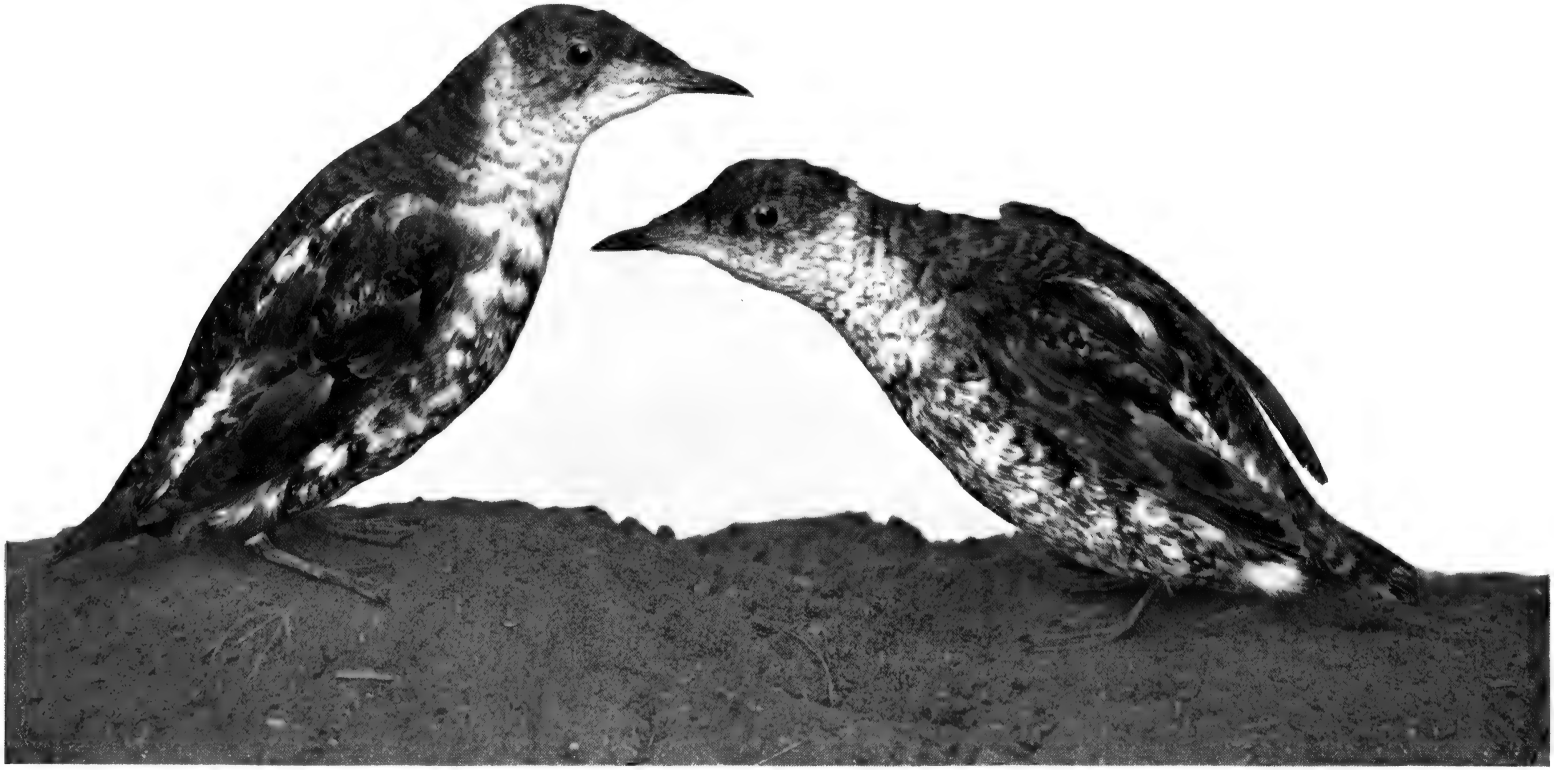
Length: About 9 inches.

Range: Along Pacific Ocean islands, mostly north of Vancouver. Sometimes seen in the Alentian Islands, and near Unalaska. Quite common alon gthe coast of British Columbia. They breed on Vancouver Island and on some of the smaller islands of Gulf of Georgia. Common in the bay at Douglas, B. C. Marbled Murrelets, as the name implies, are diminutive Murres. These several varieties all make their homes on the Pacific ocean, usually on the islands. Large numbers of this species are observed at Sitka, Alaska, and they inhabit the Alentian Islands, where they reach their northern limit at their breeding grounds in this chain of remote islands, while the southern range is as far southward as Vancouver Island and the coast of British Columbia. They fly rapidly and swim and dive like grebes, but seldom alight except in rocky places, where it is possible for them to launch into the air and eventually return to the water, for the legs of these birds are set so far back upon the body as to make them extremely awkward on land. The eggs are deposited in holes made in the turf or sod, over-hanging the brow of a cliff. One, and sometimes two eggs, are laid.

Dowitcher (*Macrorhamphus griseus*)

Range: Breeding range unknown, but probably northern Ungava; winters from Florida and the West Indies south to northern Brazil.

The dowitcher, or brown-back, as it is known in many places, is one of our most important shorebirds, both by reason of its great numbers, its excellence for the table, and the sport it furnishes. If we include under the name "dowitcher" the western form, with its longer bill and other slight differences, the bird may be said to visit all parts of the United States in its migration. It is, however, far more common on the coast than in the interior, and formerly it visited the Atlantic shore in mulitudes. The brown-back, however, is one of the most unsuspicious of our shorebirds, and comes to wooden decoys with the utmost readiness. Even after a flock is decimated and the dead and dying cover the ground, the survivors will return again to the fatal spot. No wonder that the multitudes spoken of by many earlier writers no longer visit our shores. There is every reason to believe that the absolute prohibition of the shooting of this bird for a term of years will do much toward rehabilitating the species. Then, with the prohibition of spring shooting and with a small bag limit, it may be possible to retain the brown-back on the list of game birds. But sportsmen may rest assured that anything short of drastic measures will be followed by the extermination of this important wader.



MARBLED MURRELET.

The Chipping Sparrow

By John James Audubon

Few birds are more common throughout the United States than this gentle and harmless little finch. It inhabits the towns, villages, orchards, gardens, borders of fields and prairie grounds. Abundant in the whole of the middle States during spring, summer and autumn, it removes to the southern parts to spend the winter, and there you may meet with it in flocks almost anywhere, even in the open woods.

So social is it in its character that you see it at that season in company with the Song Sparrow, the White-throated, the Savannah and the Field Sparrows, and almost every other species of the genus. The sandy roads exposed to the sun's rays are daily visited by it. There, or among the tall grasses of our old fields, it searches for food, seeking seeds, small berries and insects of various kinds. Should the weather be cold it enters the barnyard, and even presents itself in the piazza. It reaches Louisiana, the Carolinas and other southern districts in November, and returns about the middle of March to the middle and eastern States where it breeds.

Early in May the Chipping Sparrow has already formed its nest which it has placed indifferently in the apple or peach tree of the orchard or garden, in any evergreen bush or cedar, high or low, as it may best suit, but never on the ground. It is small and comparatively slender, being formed of a scanty collection of fine dried grass and lined with horse or cow hair.

The eggs are four or five, of a bright greenish-blue color, slightly marked with dark and light brown spots, chiefly distributed toward the larger end. They are more pointed at the small end than is common in this genus. Although timorous, these birds express great anxiety when their nest is disturbed, especially the female. They generally raise two broods in the season south of Pennsylvania and not unfrequently in Virginia and Maryland.

The songs of this species, if song it can with propriety be called, is heard at all hours of the day, the bird seeming determined to make up by quantity for defect in the quality of its notes. Mounted on the topmost branch of any low tree or bush, or on the end of a fence-stake, it emits with rapidity six or seven notes resembling the sound produced by smartly striking two pebbles together, each succeeding note rising in strength, although the song altogether is scarcely louder than the chirping of a cricket. It is often heard during the calm of a fine night or in the warmer days of winter.

These gentle birds migrate by day, and no sooner has October returned and mellowed the tints of the sylvan foliage than flitting before you on the road you see family after family moving southward, chasing each other as if in play, sweeping across the path or flocking suddenly to a tree if surprised, but almost

instantly returning to the ground and resuming their line of march. At the approach of night they throw themselves into thickets of brambles, where, in company with several other species, they keep up a murmuring conversation until long after dark. Their flight is short, rather irregular, and seldom more elevated than the height of moderate-sized trees.

With the exception of the Sharp-shinned Hawk, the Marsh Hawk and the black snake, these birds have few enemies, children being generally fond of protecting them. Little or no differences is perceptible between the sexes, and the young acquire the full plumage of their parents at the earliest approach of spring.

The Things Divine

By Jean Brooke Burt

These are the things I hold divine:
A trusting child's hand laid in mine,
Rich brown earth and wind-tossed trees,
The taste of grapes and the drone of bees,
A rhythmic gallop, long June days,
A rose-hedged lane and lovers' lays,
The welcome smile on neighbors' faces,
Cool, wide hills and open places,
Breeze-blown fields of silver rye,
The wild, sweet note of a plover's cry,
Fresh spring showers and scent of box,
The soft, pale tint of the garden phlox,
Lilacs blooming, a drowsy noon.
A flight of geese and an autumn moon,
Rolling meadows and storm-washed heights,
A fountain's murmur on summer nights,
A dappled fawn in the forest hush,
Simple words and the song of a thrush,
Rose-red dawns and a mate to share
With comrade soul my gypsy fare,
A waiting fire when the twilight ends,
A gallant heart and the voice of friends.

—*The Outlook.*

Some Beneficial Birds and Their Protection

By J. P. Gilbert

The most important enemies to crops are undoubtedly the insect and rodent pests. Insects with their poorly constructed digestive organs eat enormous quantities of food but really digest only a small part of what they eat. It is said to cost the farmer twice as much to feed our insect foes as it does to run our public schools. Mice, rats and other rodents gorge themselves upon grasses and grains, and often cut to pieces and waste far more than they eat. Rats alone are said to destroy one hundred million dollars' worth of property in the United States each year, and mice of all kinds, perhaps, do even more damage than do the rats. These rodents all multiply with alarming rapidity and if not held in check might almost bring on a national calamity.

It is doubtful if anything else is so important as hawks and owls in checking outbreaks of destructive rodents. To keep up their high body temperature and to produce the immense amount of energy needed on their hunting expeditions, birds of prey must devour surprisingly large quantities of food. With but very few exceptions, this food is made up of mice, rats, gophers, shrews and other rodents. If this food runs out, an occasional hawk learns to eat poultry or birds. This, however, is the exception rather than the rule. All the common land hawks in Illinois, except two species, and all the owls seem to prefer these rodents for food. This very necessary work cannot be done by cats, as some people believe. If the cat is a mouser at all, she must sit down where mice and rats congregate about the house or barn and there sit down, "like Micawber," and wait for "something to turn up." When rodents come within reach she springs upon them. But this same cat would be useless in a broad field where rodents are scattered. To successfully rid a field of meadow mice and other rodents, etc., requires the services of birds of prey which can quickly fly over the broad fields and on noiseless wing steal upon the pests while they are out of their hiding places. This very necessary service is performed by hawks during the day and by owls in the twilight and by night.

Only two common land-hawks in Illinois do notable injury, as a rule. Two slaty gray hawks with black bars on tail and wing are noted poultry and bird thieves. They are the little sharp-shinned hawk and his "big brother," the Cooper's hawk. The latter bird is almost twice as large as the former.

All other hawks of importance are decidedly beneficial. The sparrow hawk eats large numbers of grasshoppers, beetles, caterpillars and mice. He is known everywhere by his quick, ringing 'Killy! Killy! Killy!" as he wheels about buildings and parks or hovers upon beating wings above some spot in the field or meadow until he locates the coveted insect or rodent upon which he so speedily descends at the first opportunity. Because of his boldness, this beautiful little hawk is frequently shot by those who do not understand his real value. The large marsh hawk flies low over fields, meadows and lowlands, preferably near wood-

lands or streams. When his sharp eyes detect some destructive rodent beneath him, he raises his long wings vertically over his back, quickly descends and, with outstretched talons, seizes the coveted prize. He may also be known by the large white area above the base of the tail. The red tailed hawk and the red shouldered hawk are both large and are both unfortunately known as "hen hawks" or "chicken hawks." Only an occasional specimen is known to destroy poultry, and perhaps none of either species would do so if the poultry were kept properly housed or penned up.

Owls even have a better record than hawks. As soon as hawks are driven to roost by the darkness, owls begin their nightly search for nocturnal rodents and insects. These large, bright-eyed birds are so quiet and so "mysterious" in their habits that their wild cries or "cold hooting calls" make superstitious people shudder. Unlike other birds, owls see us with both eyes at once. This gives them something of a "human expression" and makes them look wise. But their large eyes serve the owl most effectively in the darkness. By means of them he locates and captures almost fabulous numbers of mice, rats, shrews, meadow mice, insects, etc.

The screech owl is especially fond of insects and mice. When his tremulous cry is heard at night it is "high time" for mice and rats to hunt their holes, for owls will get them "if they don't watch out." The long-eared owls are also famous mousers. More than a hundred pellets thrown out of the mouth (regurgitated) by a pair of these owls contained fur in every instance, while not one pellet contained feathers. This pair certainly preferred rodents to birds or poultry. The short-eared owls have much the same record as the marsh hawk and may be found in similar situations, hunting much in the same way as the marsh hawk, particularly on dark, cloudy days. Barred owls are said to do more good than harm, while the curious looking "monkey faced" or barn owl is the best one of all. A. K. Fisher gathered up the pellets dropped near the nest of a pair of barn owls in the tower of the Smithsonian Institution and found in them 454 skulls of small animals. These skulls represented 225 destructive meadow mice, 179 house mice, twenty rats, twenty shrews, six jumping mice, two pine mice, one star-nosed mole, and one vesper sparrow. Certainly such a record gives the barn owl a right to live. Only the very large "great horned owl" is ever charged with any notable injury, and such charges are very rare. Most people would place him in the class which are neither decidedly beneficial nor harmful. Under the beneficial class Fisher groups the marsh hawk, red-tailed hawk, red-shouldered hawk, sparrow hawk, barn owl, long-eared owl, short-eared owl, barred owl, screech owl, snowy owl and several others of less importance.

Under the heading "Harmful Hawks and Owls," Fisher places the sharp-shinned hawk, Cooper's hawk and three others of less consequence in Illinois. But he does not name a single owl as belonging here. He should have left the word "Owls" out of this heading, I believe, since none are really "harmful."

Dr. C. Hart Merriam estimated that each hawk and owl in Pennsylvania is

worth at least twenty dollars to the farmer. Certainly, if these birds are so valuable in Pennsylvania, they are much more valuable in a great agricultural state like Illinois, where rodents and insects are so very destructive. It seems unreasonable, as Fisher and others have pointed out, that many people will fondle and protect a disease-spreading, bird-eating, poultry-stealing cat, and make war upon our beneficial birds of prey which so effectively do the work for which some people pretend to keep cats. Again, it seems inconceivable that so many people, who get more of the rapid-breeding cats than they want, will haul them out and drop them along the roadside, there almost invariably to go hungry and cold until they learn to catch the beautiful and valuable birds. It is cruel to treat cats thus, while it would be humane to chloroform the surplus stock. This latter procedure applied to the surplus stock and to any cats found eating poultry or birds would very greatly lessen the enormous destruction of valuable birds.

School teachers and their pupils can slowly but surely and permanently put an end to the destruction of valuable birds by teaching in every community the real benefits we derive from them. Many people believe that all birds of prey are bad, just because an occasional individual acquires a perverted appetite. No one would punish all boys in school because one bad boy did wrong. No one would shoot all dogs because one dog in the neighborhood killed sheep. But to punish good and bad boys alike, or to kill good and bad dogs alike, is no more foolish or wrong than to shoot good and bad hawks and owls indiscriminately. The rare offender should be destroyed, but the great majority of beneficial birds of prey should be protected lest we bring on a scourge of destructive rodents.

If space permitted I might show how woodpeckers are also too generally misunderstood. With their chisel-like beaks and their extensible, barbed, horny tipped tongues they expose, spear and extract numberless destructive grubs and borers in forest and fruit trees. Only the sap sucker does notable injury, and that very rarely in Illinois.

Woodpeckers, robins and many other valuable birds are frequently charged with serious destruction to cherries and other small fruits. I am convinced that where such occasionally occurs it is pretty largely our own fault. I have a tree of black mulberries in my yard ripening when my cherries are mature. Birds are numerous about the place, and while on this town lot we usually pick from 100 to 200 gallons of early Richmond cherries, we do not lose one per cent of the crop to the birds. But while the ripening cherries are hanging near by and scarcely a bird may be seen in the cherry trees, the mulberry tree is swarming with many species of birds and a few squirrels literally filling themselves upon the more desirable mulberries. The planting of a few mulberries or wild fruits for the birds to feast upon will usually save the cultivated fruits from injury by the birds.

All the birds in Illinois are protected by law with the exception of the English sparrow, sharp-shinned hawk, Cooper's hawk, great horned owl, crow blackbird, crow, bluejay and sap sucker. Boys and girls especially should see to it that the others are protected and encouraged. Bird nests, especially, should not be

molested, and everybody should make nesting places for the wrens' at least. Bad English sparrows get into "Jenny Wren's" nest while she is out eating insects, and when she returns she does not have a fair show to fight the intruder and run him out. You can make a nest which "Jenny Wren" will like very much and into which the sparrow cannot go. This may be done as follows: Take an old tomato can or corn can and lay a quarter of a dollar down on the end which was not cut open. With pencil, mark around close to the quarter. Now with a pocket knife cut on this mark until the piece the size of the quarter is almost cut out. Bend this piece down for a lighting board. Now nail the opposite end of this can firmly under the eaves of a house, barn, or outbuilding, or on a tree or post high enough that robber cats cannot disturb, and you have a most excellent wren house. Nail up a half dozen such cans, some in the shade and some in the sun, for "Jenny Wren" seems "fickle" in her choice of a nest. Once having obtained a pair of these fine little birds, they will return to you year after year. It will give you a great deal of pleasure to observe the interesting habits of wrens, and to hear their sweet songs, particularly when you think that these songs are made out of the destructive caterpillars which "Jenny Wren" obtains from the gardens, orchards and fields.

The Migration of Birds

One of the most special appointments of the Creator, as to birds, and which nothing but His chosen design and corresponding ordainment can explain, is the law, that so many kinds shall migrate from one country to another, and most commonly at vast distances from each other. They might have been all framed to breed, be born, live and die in the same region, as occurs to some, and as quadrupeds and insects do. But He has chosen to make them travel from one climate to another, with unerring precision, from an irresistible instinct, with a wonderful courage, with an untiring mobility, and in a right and never-failing direction. For this purpose, they cross oceans without fear, and with a persevering exertion that makes our most exhausting labors a comparative amusement. Philosophy in vain endeavors to account for the extraordinary phenomenon. It cannot discover any adequate physical reason. Warmer temperatures are not essentially necessary to incubation, nor always the object of the migration; for the snow-bunting, though a bird of song, has the same taste or constitution for the chilling weather which the majority recede from. We can only resolve all these astonishing journeys into the appointment of the Creator, who has assigned to every bird the habits as well as the form, which it was His good pleasure to imagine and to attach to it. The watchful naturalist may hear, if not see, several migrations of those which frequent our island, both to and fro, as spring advances, and as autumn declines; but as they take place chiefly at night or at early dawn, and in the higher regions of the atmosphere, they are much oftener audible than visible to us on the surface of the earth.—*Turner's Sacred History.*

Nashville Warbler (*Vermivora rubricapilla rubricapilla*)

Range: Breeds in Canadian and Transition Zones from southern Saskatchewan, northern Ontario, central Quebec, and Cape Breton Island south to Nebraska, northern Illinois, northern Pennsylvania, northern New Jersey, and Connecticut; winters from Vera Cruz and Chiapas to Guatemala.

As Wilson never saw but three individuals of the Nashville warbler, all taken near Nashville, Tennessee, he not unnaturally named his new discovery for that city, apparently believing it to be a local species. Far from being so, however, it is now known to inhabit most of the eastern United States. Without doubt the bird is much more common than it was in Wilson's time, perhaps due to the fact that second growth and areas of low woods, its preferred haunts, have largely replaced the denser forests of the early part of the nineteenth century. One cannot wander far afield in Massachusetts in summer time without hearing its song or songs, since it is not only a frequent and vivacious songster, but has a number of ditties in its repertoire, including a flight song.

I never found but one nest, and this was on a little pine-wooded knoll in a small depression in the earth, only partially concealed by thin grass. I should never have found it but for the fact that the bird flushed from between my feet. So far as known, the Nashville always nests on the ground. Its preference for the ground as a nesting site is the more remarkable, since the bird rarely or never hunts there, but prefers to seek its insect food among the foliage, often of the tallest elms and chestnuts and other giants of the forest.

The Calaveras warbler (*Vermivora rubicapilla gutturalis*) is a form closely allied to the Nashville, but confined chiefly to the Pacific coast, extending eastward to eastern Oregon and northern Idaho. Fisher is quoted by Chapman as saying: "The Calaveras warbler is a characteristic denizen of the chaparral and is found on both slopes of the Sierra Nevadas about as far south as Mount Whitney. It frequents the belts of the yellow, sugar, and Jeffry pines, and ranges up into the red-fir zone. During the height of the nesting season, while the female is assiduously hunting among the dense cover of bushes, the male is often singing in a pine or fir, far above mundane household cares."

The Crested Curassows (*Crax globicera*)

By G. O. Shields

An interesting race of birds, known as the Curassows, has its range throughout that part of South America, east of the Andes mountain range and north of Paraguay. All the species are confined to this region except one, which is found in Central America and Mexico. This is the bird of our illustration (*Crax globicera*).

The Curassows belong to the order of gallinaceous birds and bear the same relation to South America that the pheasants and grouse bear to the Old World. They are in every respect the most important and the most perfect game birds of the district which they inhabit. In all there are twelve species placed under four genera. As the hind toes of the feet are placed on a level with the others they resemble the pigeon and are unlike many of the other gallinaceous birds.

The Curassows are very large and rather heavy birds and some of them are larger than our turkey. They have short wings and a strong bill. At the base of the upper mandible and on the upper side there is a large tubercle-like excrescence which is of a yellow color and quite hard. Upon the head there is a gracefully arched crest of feathers which is made of curled feathers, the tips of which are white in some of the species. This crest can be lowered or raised at the will of the bird. The plumage of the species illustrated is a beautiful and velvety black, except the white on the lower portion of the body. It is said that their motions are much more graceful than are those of our common domestic turkey. "They live in small flocks, and are arboreal in their habits, only occasionally descending to the ground, while roosting and building their nests on the branches of trees." The nests are large and made of twigs and willowy branches held in place by the stems of grasses, which are neatly interwoven between them. The nest is lined with down, feathers and leaves.

It is said that they are easily domesticated and that in some parts of South America they may be found in large flocks around the homes of the plains. One authority states that at about the beginning of the present century a large number of Curassows were taken from Dutch Guiana to Holland, where they became thoroughly domesticated, breeding as readily as any other kind of domestic poultry. Though a tropical bird, it would seem that they might be acclimatized. They would certainly form a valuable addition to the list of our farm fowls, for their flesh is said to be "exceedingly white and delicate."

The female is not as large as the male and is usually reddish in color. Their food consists almost entirely of fruit and insects.

About the middle of the eighteenth century Eleazar Albin wrote "A Natural History of Birds," in which he gives a very interesting account of the Curassow and an excellent illustration of the bird. He says: "I took a pourtray of this bird at Chelmsford in Essex; it was very tame and sociable, eating and drinking with any company. The Cock I had of a man from the West Indies. They are generally brought from Carasow, from whence they take their Name. They are called by the Indians Tecuecholi, Mountain-Bird or American Pheasant."

CRESTED CURASSOW.
(Crax globicera.)
1/5 Life-size.

About a Sparrow

By H. S. Keller

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

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

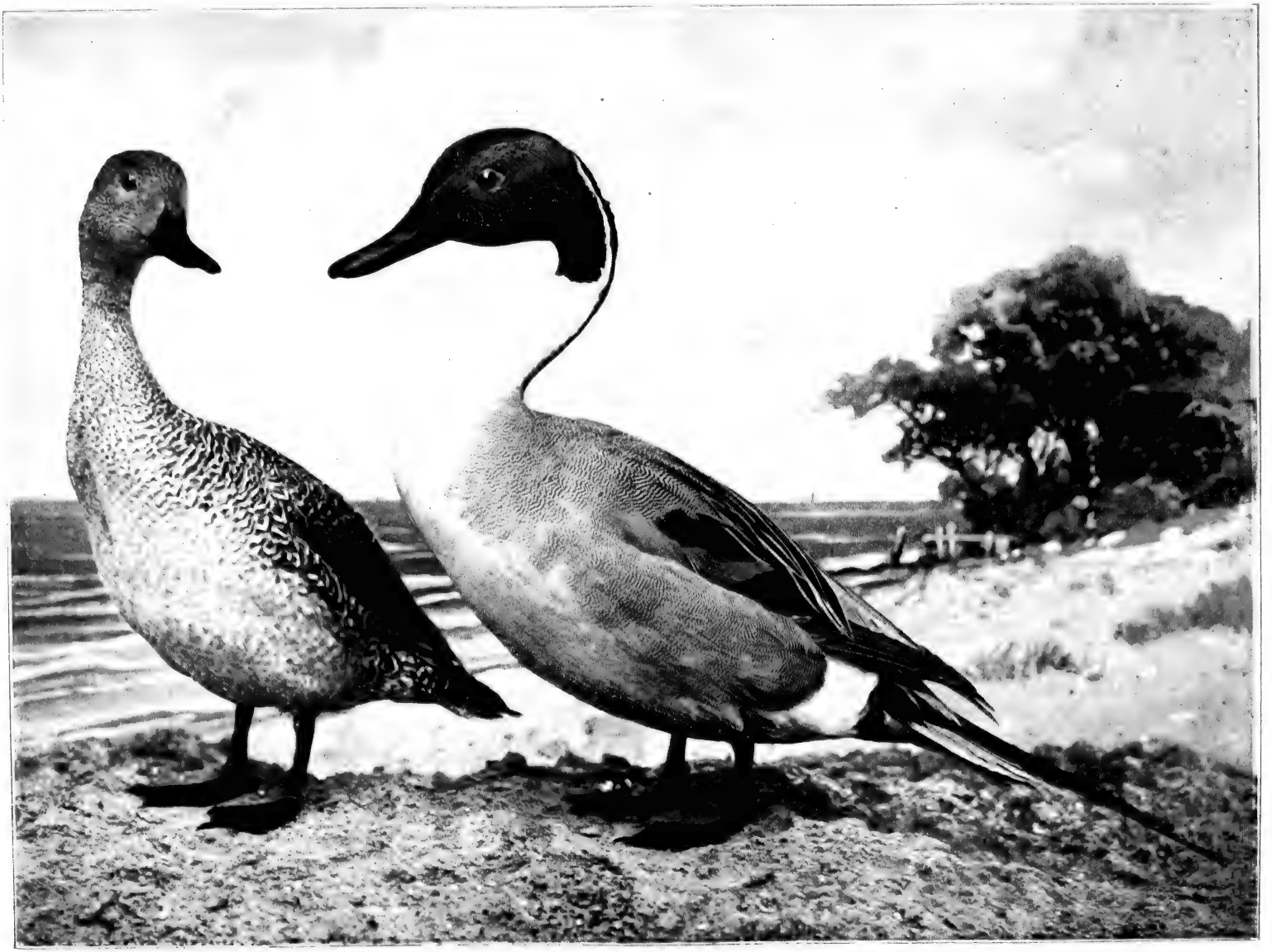
The Pintail (*Dafila acuta*)

By Theodore S. Van Dyke

Range.—Breeds on Arctic coast from Alaska to Keewatin and south to southern California, southern Colorado, northern Nebraska, northern Iowa, and northern Illinois; winters from southern British Columbia, Nevada, Arizona, southern Missouri, southern Wisconsin, southern Ohio, and Delaware south to Porto Rico and Panama.

The pintail, one of our most beautiful ducks, is easy of recognition owing to its long slender neck and elongated pointed tail. The latter has caused it to be known locally in England as the "sea pheasant." It is no longer common in the Eastern States but continues to exist in considerable numbers in the West. It is swift of wing, and an old pintail coming down wind will tax the nerve and skill of the most experienced sportsman. In California I once witnessed a life and death race between an adult male pintail and a prairie falcon. The duck covered a half mile at its topmost speed, but notwithstanding its swiftness, the falcon outmatched it, and would have dined on duck that October day had not the fowl, apparently realizing the extremity of its danger, swerved in a half circle toward me, the interested spectator, when the falcon, too distrustful of man to follow, gave up the chase in disgust. Most wild ducks are fond of berries, and Nelson states that in far-off Alaska in August the pintail fattens on berries and becomes the most delicious waterfowl of the region. The pintail is one of the few ducks that braves the long two-thousand-mile trip from the Aleutians to the Hawaiian group apparently for the pleasure of wintering in those sunny islands.

Description.—*Adult male*: Head and upper neck hair-brown, darker or warmer brown on top of head, with faint greenish or wine-purple iridescence on sides of occiput; a narrow white stripe from occiput obliquely backward and downward to join white of breast; enclosed space on hind-neck blackish; foreneck, breast and belly white, faintly dusky-barred on lower belly; hind-neck, back, sides of breast, and sides finely wavy-barred dusky and white; posterior scapulars and tertiaries lanceolate, heavily striped, broadly with black, more narrowly with buffy white, light brownish gray, and fuscous; rump and behind with mesial brownish dusky and obscure wavy-barring of fuscious and whitish; central pair of tail-feathers much elongated, blackish or with metallic reflections; crissum white, separated from belly by dull white area and broad flank patches; wing-coverts plain brownish gray, the posterior row tipped with cinnamon-rufous; speculum dull bronzy green or faintly glossy with dusky on either side, and bordered behind by black and terminal white; axillars white with a little mottling of light grayish brown; lining of wings mottled brownish gray and white; bill black, edged with grayish blue; feet and legs grayish blue; iris brown. *Adult females:* Obscurely colored; pale ochraceous or whitish on belly; ochraceous-buff or brownish buff on remaining under parts; much darker, nearly cinnamon-brown on



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PINTAIL DUCK.
(Dafila acuta.)
¼ Life-size.

crown; head and neck finely streaked with dusky, except occasionally on upper throat; breast variously spotted and streaked; sides with large irregular U-shaped markings of brownish dusky; upper parts dusky or greenish fuscous, lightly or heavily marked and striped with dull ochraceous or ochraceous-buff; wing much duller than in male, altho pattern traceable; wing-coverts fuscous narrowly white-edged and tipped; the tips of posterior row scarcely broader, white; speculum dusky with faint purplish and greenish gloss; axillars more heavily mottled with grayish brown. *Adult male in breeding plumage*: Similar to adult female, but wing as in ordinary plumage (Ridgw.). *Young male*: Like adult female but more ochraceous below and more uniformly streaked; slightly transverse-barred above, and wing early showing adult characteristics. *Young female*: Similar to adult, but more heavily tinged below, and more heavily streaked and striped above; *speculum light brown* dappled with dusky. Adult male length 26.00-30.00 (660.4-762.); wing 10.60 (269.2); tail 6.25-9.50 (158.8-241.3); bill 2.10 (53.3); tarsus 1.70 (43.2). Females average smaller; tail 4.00-5.00 (101.6-127.).

Recognition Marks.—Mallard size or less; lengthened tail-feathers of adult male; head hair-brown; fore-neck and below white (adult male). The female and young of this bird present difficulties. Look first for the wedge-shaped tail, and top of head suffused with cinnamon-brown and heavily streaked with blackish; then eliminate other species by careful attention to speculum and wing-coverts.

Nesting.—*Nest,* on the ground, usually in a bunch of tall grass not far from water. Eggs, 8-12, pale greenish gray or buffy white. Av. size, 2.20 x 1.48 (55.9 x 37.6).

Each in Its Own Way

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

—Selected.

Maytime

By Millie Noel Long

Do you hear the bees a-humming?
Do you hear the frogs a-strumming
  In the shaded pool?
May is here in all her brightness,
Leaves are stirred with fairy lightness
  By the breezes cool.

Lambs are frisking o'er the meadow
And their mothers, in the shadow
Watch with tender eyes;
All the world is new in seeming,—
From the earth, refreshed and teeming,
  Subtle perfumes rise.

Earth is full of love and gladness,
There's no place for gloom or sadness
  'Neath the Maytime skies;
Let us make a joy of duty,
While from souls refreshed by beauty,
  Grateful praises rise.

Protection of Birds a Farm Asset

By C. C. Clute

If one-tenth of all the agricultural products raised annually in the United States were scattered over different sections of the country where most needed, would it help fight the high cost of living? Statistics show that annually there is a loss of between $800,000,000 and $900,000,000 in the agricultural products of the United States, all due to the ravages of insects.

This fact was cited recently by a leading Chicago paper, and it was further cited that the loss might be materially lessened were birds protected as they should be. When one of the leading metropolitan newspapers of the land advocates that every available plot of ground be turned into a garden spot and cultivated, and when in the same issue that same paper urges that birds be protected that they might destroy insects, it is surely time for everyone to consider what part he is to do in the work, and insofar as possible lend a hand in doing his mite. One

insect destroyed in the spring means the destruction of hundreds, and in some cases thousands, ere the summer is over.

Government statistics and personal observation show over and over again that the birds are the farmers' best friends, which, in return for their services, ask only protection that they may bring forth more enemies of insects?

Just how is this protection to be given? Happily the time is passed, or nearly so, when the farmers think that the birds must be destroyed because of the fruit they eat. In comparison with the amount of good they do, the amount of fruit eaten by birds during the summer is an infinitestimal matter—a mighty good form of insurance for the farmer.

But there is another way in which the birds require protection, and that is protection during their nesting season. Not only should prowling cats be restrained and egg collectors either be made to see the folly of their heartless whims or else be summoned before the law, but provision should be made for the nest. Birds like company. Even the bluejay, usually termed a rascal but at heart a boon companion of the farmer, likes to have his nest near a dwelling. The robin appreciates forked sticks placed in trees forh im, and the wren, bluebird, and purple martin enjoy the companionship of man as soon as they learn that he is their friend.

The best way to get on amicable terms with birds is to build and put up bird-houses and see that such are not destroyed by boys or preyed upon by cats. Put up a single bird-house this summer if you are a skeptic and watch the wren, or bluebird, or purple martin, as it feeds its young, taking note of the kind of feed it uses and the number of trips made per hour. Keep a record of this for a few hours, estimate the good done in a day, in a week, in a month, and in a nesting season, and you will be wiser the followingyear.

I know one farmer in particular who lost, during one summer, three rows of corn forty rods long. The corn grew next to a fence row heavily sodded with blue grass, which produced swarms of grasshoppers. For the sake of experiment alone, for this farmer was a skeptic, last spring he put up twenty-one bird-houses, placed two rods apart on the fence along the forty rods. The houses were some that he and the boys had made during the winter months, from dry-goods boxes obtained in town. Thirteen of the twenty-one houses were inhabited during the following summer, six by wrens, four by bluebirds, and three by colonies of purple martins.

The grasshoppers that summer made a rich living for the birds, and when the fall came, that farmer had the satisfaction of gathering twenty-three bushels of corn from the three rows that grew next to the fence, right where there was no corn at all the year before. With corn selling at fifty-five cents per bushel, it represented a saving of $12.65 for that year alone, and with the same insurance for the following year with no outlay at all. Does it pay? Boys, get busy. Get your fathers to figure with you how much corn growing next to a fence row is destroyed by insects, and then see if your fathers will let you put up bird-houses and pay you the difference for the first year.

The Story of the Wren

By Clara Kern Bayliss

The little rusty brown Wrens are known as *troglodytes,* or cave dwellers, on account of their propensity to creep into a hole. The House Wren never builds in the open. It finds a hole in a post, a crack in a building, an old pair of shoes, a box, or a garment on some back porch.

This year, 1916, a pair built in a coat hanging on a porch; not in a pocket, but by a lapel and against the wall. How they made anything stay there was a puzzle to everyone who saw the nest; and fearful that the wind would destroy it, the former proprietor of the garment nailed the bottom of the coat to the house. Otherwise the amount of material which the industrious builders carried in must have fallen of its own weight without the assistance of the wind. One-half grown birdling did fall to the floor, and, though returned to the nest by human hands, the bump was too much for him and presently he perished. Yet in this singular habitation the pair succeeded in rearing four healthy youngsters who took their departure in good spirits on the 8th of July.

Several years ago a pair built in a small keg fastened above the grape trellis. There was no place for them to alight except the bung hole, and to this they clung and had to turn every twig endwise to get it into their chosen castle. But a wren is not to be discouraged by difficulties, and endwise they did turn a great mass of sticks, some of them nine inches long, filling their keg half full before they were satisfied. They left a little tunnel at the back of which was a soft, hair-lined cradle for their nestlings.

About the time that the pair began to build in the coat, or, to be exact, on May 26, we noticed some Wrens flitting about a wren house in the poplar in front of the lawn. They carried in several sticks and then, with a fickleness common to them and Bluebirds and other bipeds, feathered and unfeathered, they left that box and went to one in the osage tree twenty-five feet away. It may be that the larger opening in the latter made it easier to insert the sticks, though they carried in less material than most Wrens do even in smaller quarters.

Possibly the thickening foliage of the poplar was not to their liking; for though the Wren creeps into a hole, he is not at all secretive. Far from it. He is open and above board in all that he does. He wants his nest in a dark place, but he wants broiling sunshine all around it, and nothing pleases him so much as a box on a post with no foliage near. They did not confide to me the reason for the change, and I can only surmise it. But by June 9th, and probably by the 6th, there were four eggs in the soft grass and down of the nest, and on June 18th the happy father did tell me very distinctly that there was at least one pink, grub-like bird in his home. No human father ever was more delighted or found it harder to keep away from the cradle. He was simply tickled; pleased doesn't express his fluttering ecstacy. He peeked in at the door, hung on the perpen-

dicular side of the box and sang, peeped in again, clung to the side and nearly split his throat with the excess of his jubilation. Next day he did the same again, and we judged that by this time all four of the eggs were hatched.

Up to this time the favorite stage for the vocal exhibitions of the male had been the telephone wire between the tree and the house, and one morning at five o'clock, all unbeknown to him, a tally was made of the number of warbles he gave per minute, and the record runs like this: 9, 7, 9, 9, 8, 2—7, 6—10, 5, 8, 2—8, 7, 7—10, 10, 7, 6. Sometimes he paused for a brief flitting. But more than three hundred times an hour for three hours every morning and evening he uttered his cheerful trill, besides singing so often all through the day that you never noticed he had stopped at all.

But alas! for this happy family! On the morning of June 25th a squirrel visited this and the neighboring tree and thereafter the parents were troubled, never leaving the nest without sitting in the door for several minutes, looking up into the tree and all around to see if that foe of birds was near. It was not until four days later that the blow fell; and to this day no one but the birds knows just what the blow was. During our absence on the 29th the top of the box was thrown to the ground, the nest torn out, and mother and young had disappeared. The same day two eggs had been taken from a Robin's nest near by, and the nest of a Brown Thrasher across the street on the Normal campus had been torn down. Workmen who left at five o'clock had noticed no disturbance and whether the mischief had been done by the squirrel or by a prowling cat or a boy we shall never know.

Silence reigned in Wrendom for a while.

Then on July 8th a male Wren took possession of an old birch bark nest on a post near to the osage tree, and we thought and still believe he was the bereft father and husband. The birch house had once been a thing of beauty. It was round, and there had been a cute steeple-attic above the ceiling of the main room. For two successive summers prior to this, two broods of Wrens had been reared in it. But wind and rain had demolished the steeple, English Sparrows had pulled and pecked at the doorway, tearing off strips of bark till the opening was large and ragged. The glory of the tiny castle had departed; but it suited this chastened widower and in it he decided to dwell as befitting to one who, like it, had seen sad days.

He hovered lovingly about it, singing and carrying in sticks. Sometimes he sang on the top of it; sometimes on the doorstep; oftener from the peach tree beside it. Whenever we went near, he protested, telling us plainly that his sign of "No trespass" must be respected. If we went up on the step ladder and looked in, and even when we tied a piece of sand-paper over part of the double doorway made by the Sparrows so that these omnipresent creatures could not enter,—even then he complained at us and, most suspiciously and discourteously, went into the house and all around it before we were out of sight to see if we had robbed it or displaced any of his treasures.

Day after day he spent most of his time shouting out to all the world at the top of his voice that he had a house and wanted a housekeeper. From time to time he carried in a twig or two, scratched around inside, and threw out any building material which did not meet his needs. Once we saw him push out a twig nine inches long which must have reached from floor to the ceiling on the opposite side.

After three weeks of singing no mate had come, but he still went occasionally into his battered castle to see that all was right.

One day from a cherry tree there came squeals like those of a young bird when caught or injured. Hastening to the rescue, we discovered a cat under the tree looking eagerly up,—the same cat against which we have laid a tentative indictment for the murder of our two mother Wrens and the brood of one of them. The squeals continued after the cat was driven away, and we thought they certainly came from a fledgeling that had escaped from the cat's claws. We peered among the branches wondering if we could get the injured bird and care for it along with a supposed Cowbird we were rearing. But no; the cries came from our own widowed Wren, and he continued to make them several times after he had flown to another tree. But a Wren is such an indomitable optimist that he presently recovered his spirits, and hopping to a higher limb, sent forth his cheerful twitter.

But this was a new kind of cry for a Wren. Never before heard by us in all the years of our intimate acquaintance with *Troglodytes ædon*. This gives him a fourth number to his repertoire; his baby cry for food, his song, his scold, and this cry of dire distress. A Wren's courage is truly comical, it is so out of all proportion to his size; but this was not a defiance; it was a wail. Why did he not fly away from the tree and the cat instead of remaining and shrieking in terror? Had the cat charmed him? Or did he recognize the despoiler of his former happy home? About that time it seemed to occur to him that neither his house nor the peach tree afforded a sufficiently elevated rostrum from which to proclaim his desires, and he took to singing from a dead twig in the very top of a tall pear tree, clinging there with one foot above the other and standing straight up, head in the air, while he informs the wide world that "Barkis is willin'."

Beside his singing, he has one other pressing duty to perform. He must defend his castle. On two different days a strange Wren, larger, ruddier, and with longer bill—probably Berwick's Wren—came to inspect the castle, and was promptly invited to go about his business and not be trying to jump the claim of another. And by the first of August his inveterate foes, the English Sparrows, had finished gleaning the grain fields and had returned to the habitations of men. And they pester him; pester him beyond endurance. They peer into his house, walk around it, pull out his building material, and pry into his affairs with unbearable impertinence. What if these ill-natured gossips should find out that he has no wife in the little house?

It is really funny to see how intense is his sense of dominion, when all he

has is an air-castle. In fancy, he sees a spouse and young ones in this castle, but all he has there is a little pile of sticks. This is no home—nor does he sleep here. Yet no famed hero ever "struck for his altars and his fires" more valiantly than he. Was there ever another such a case of living in the imagination? He is still sending out his charming appeal today—Aug. 15th—as he has been doing for a month and more. Now what would he do with a mate should Jenny come at last? Would he try to rear a brood this late in the season? Perhaps he knows of that other Wren two blocks down the street who has four young ones that will not leave the nest till August 24th, and wishes to outdo him. Or is it true, as some believe, that Wrens, Bluebirds, Song Sparrows, Meadowlarks, Thrashers, Flickers and Catbirds, mate for life; and does he merely want her to come and look into the castle to see if it will suit her for next summer, and then go south with him on a honeymoon with the comfortable assurance that there is a home ready for her when they return in the spring? What will he do with her should she come? We hope he will not have to take the long journey alone.

Blue Grosbeak (*Guiraca caerulea and subspecies*).

Length, about 7 inches. Distinguished by its larger size from the indigo bird which alone resembles it.

Range: Breeds in the southern United States north to northern California, Colorado, Nebraska, southern Illinois and Maryland and south to southern Mexico; winters in Mexico and Central America.

One seldom sees the blue grosbeak at short range or under circumstances which make identification easy, as the bird is rather shy and frequents brushy thickets and viny tangles much as does the indigo bird. The low warbling song of this grosbeak may be compared with that of the purple finch, but it is neither so loud nor so well sustained. Under the name of "blue pap" the grosbeak used to be a favorite cage bird in Louisiana and other southern states, and no doubt is so today, despite protective laws. In the matter of diet it shows a marked preference for insect food over vegetable, the proportion being about 67 to 33 per cent. The vegetable matter includes many weed seeds, as foxtail and bindweed, also corn, the taking of which makes a black mark against its record. As, however, the bird consumes twice as much animal matter as vegetable, the balance is much in its favor and it accordingly earns protection as well by its economic service as by its beauty and song.

The Caspian Tern (*Sterna caspia*)

By W. Leon Dawson

Description.—*Adult in spring*: Top of head and nape uniform lustrous black; upper parts pearl-gray, whitening somewhat on rump and posteriorly; wing-quills not especially different, the silvery gray nearly concealing dusky on exposed portions; inner webs plain grayish dusky; tail slightly forked for about one-fifth of its length,—folded wings considerably exceeding; remaining plumage white; bill very stout,— the depth at base being nearly equal to one-third the length of culmen,—bright coral-red slightly tinged with dusky at tip; feet and legs black. *Adult after the breeding season and in winter*: Similar, but black of crown speckled or streaked with dull white. *Young*: Black cap of adult represented by spotting on top of head (on grayish white ground), increasing in density until nearly uniform on hind head; above dull pearl gray, sparingly spotted or barred with brownish dusky; primaries darker than in adult; tail pearl-gray with dusky subterminal spots, or indistinct barring; remaining plumage white, bill orange-red; feet brownish black. Length 20.00-23.00 (508-584.2); wing 16.25 (412.8); tail 5.00-6.50 (127.-165.1); bill 2.75 (69.9); depth of bill at base .80-.95 (20.3-24.1); tarsus 1.80 (45.7).

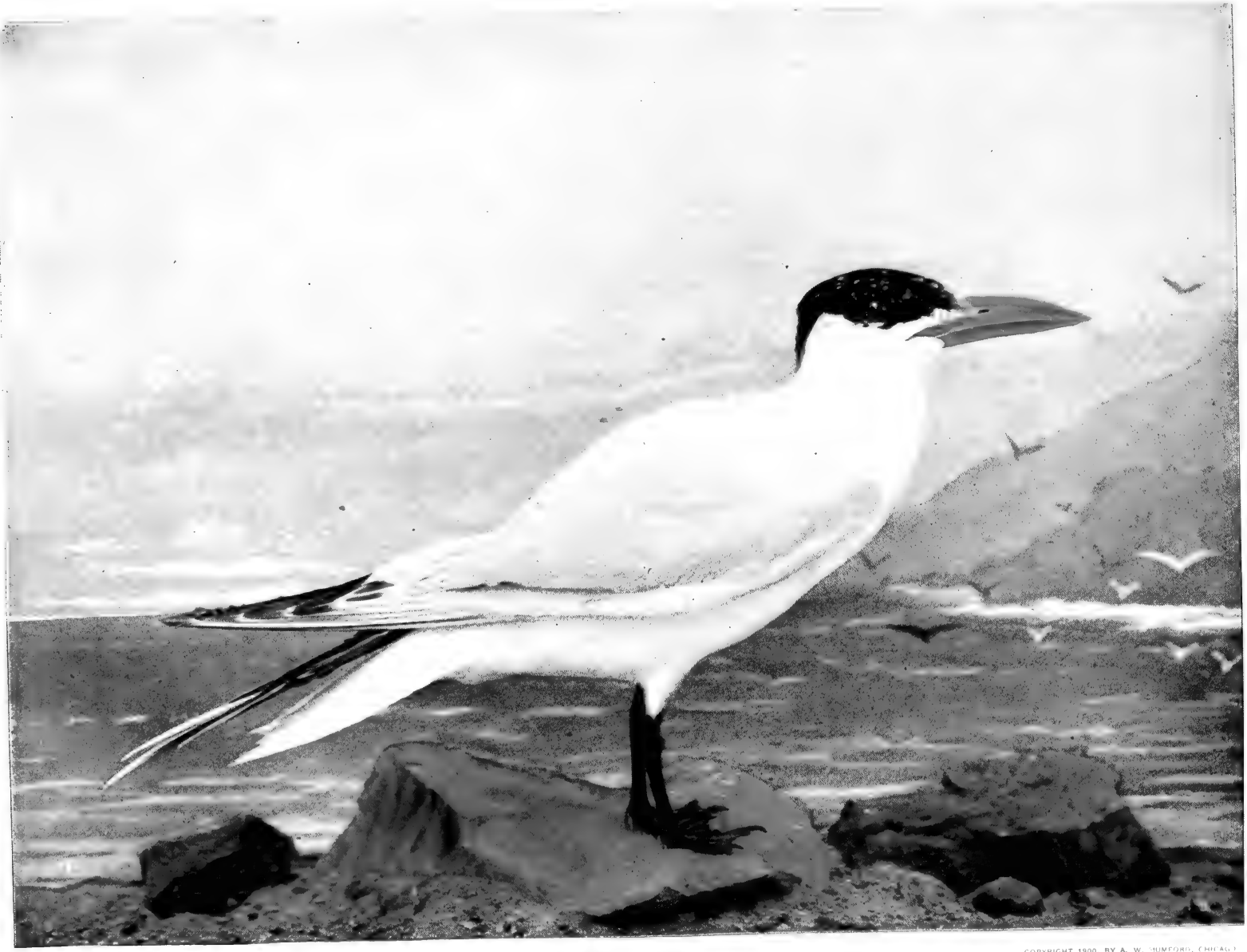
Recognition Marks.—Largest of the Terns; of conventional coloration, black-capped, and mantled with pearly blue; bill large, stout, bright red; the stouter bill presents the chief field difference from the Royal Tern (*S. maxima*), but this bird is somewhat larger every way, and lacks the definite white on the inner web of primaries.

Nesting.—*Nest,* on the ground, usually in sand. *Eggs,* 2 or 3, buffy white or greenish buff, spotted and blotched with chocolate and lilac. Av. size, 2.70 x 1.80 (68.6 x 45.7).

General Range.—Nearly cosmopolitan; in North America breeding southward to Virginia, Lake Michigan, Texas, Nevada and California.

LITTLE can be said of the occurrence of this Tern within our borders, except that it is a bird of striking appearance, easily recognizable because of its large size. There is no reason yet to suppose that it breeds in Ohio, the few specimens seen having been, in all probability, *en route* to or from more northern breeding grounds. The Caspian Tern has a wide distribution both in this country and in the Old World; but it is reckoned common only in restricted and widely separated localities.

Of the nesting of this species, Mr. Ridgway says: "Unlike most other Terns, and conspicuously unlike the almost equally large Royal Tern (*S. maxima*), the Caspian Tern appears to breed in isolated pairs instead of large colonies, its nest being usually far removed from that of any other bird, and consisting merely of a shallow depression scooped in the sand, in which its two eggs are laid, with little if any lining, though a few grass, or sedge, blades or other vegetable substances are sometimes added. It is very bold in defense of its eggs or young, darting impetuously at the intruder, uttering meanwhile hoarse barking or snarling cries."



CASPIAN TERN.
¼ Life-size.

To a Sea-Bird

By Bret Harte

Sauntering hither on listless wings,
  Careless vagabond of the sea,
Little thou heedest the surf that sings,
The bar that thunders, the shale that rings—
  Give me to keep thy company.

Little thou hast, old friend, that's new,
  Storms and wrecks are old things to thee;
Sick am I of these changes, too;
Little to care for, little to rue,—
  I on the shore, and thou on the sea.

All of thy wanderings, far and near,
  Bring thee at last to shore and me;
All of my journeyings end them here,
This our tether must be our cheer,—
  I on the shore and thou on the sea.

Lazily rocking on ocean's breast,
  Something in common, old friend, have we;
Thou on the shingle seek'st thy nest,
I to the waters look for rest,—
  I on the shore, and thou on the sea.

The Magpie (*Pica ludsonia*)

By J. G. Wood

Length: 20 inches.

Range: Western North America, east to the plains and north to Alaska.

This handsome member of the crow family is sure to attract the attention of all who may see him. He is very pert in all his actions, both in trees and on the ground, and is always ready for mischief. In high wind their long tail often makes traveling a laborious operation for them, and such times they usually remain pretty quiet. They are very impudent and always on the lookout for something to steal; they are also very noisy and forever scolding among themselves.

The Magpie notes are a loud "cach, cach," and an endless variety of whistles and imitations.

Its nest is a large, globular heap of sticks placed in bushes or trees from four to fifty feet from the ground. The entrance is to one side and the interior is made of grass and mud. Eggs, four to six.

Who does not know the Magpie, the pert, the gay, the mischievous? What denizen of the country is not familiar with his many exploits in the way of barefaced and audacious theft, his dipping flight, and his ingenuity in baffling the devices of the fowler and the gunner? What inhabitant of the town has not seen him cooped in his wicker dwelling, dull and begrimed with the daily smoke, but yet pert as ever, talkative, and a wonderful admirer of his dingy plumage and ragged tail? The food of the Magpie is as multifarious as that of the crow or raven, and consists of various animal and vegetable substances. It is a determined robber of other birds' nests, dragging the unfledged young out of their homes, or driving its bill through their eggs, and thus carrying them away.

When tame, it is a most amusing bird, teaching itself all kinds of odd tricks, and learning to talk with an accuracy and volubility little inferior to that of the parrot.

The plumage of this bird is remarkably handsome in both color and form. The head, neck, back, and upper tail-coverts are deep black, with a light green gloss in certain lights; and the same colors is found on the chin, the throat, the upper part of the breast and the base, tips, and outer edges of the primary quill feathers.

MAGPIE.

A Bird Calendar by the Poets

By Ella F. Mosby

JANUARY

This is not the month of singing birds.

"Silently overhead the hen-hawk sails
With watchful, measuring eye, and for his quarry waits."

—*Lowell.*

FEBRUARY

Sometimes a flock of strange birds descends upon us from the north—the cross-bills. There is an old tradition that the red upon their breast was caused by the blood of our Saviour, as they sought to free Him with their bills from the cross.

"And that bird is called the Crossbill,
Covered all with blood so dear,
In the groves of pine it singeth
Songs, like legends, strange to hear."

—*Longfellow.*

MARCH

No birds are more closely associated with early spring than the swallows.

"Gallant and gay in their doublets grey,
All at a flash like the darting of flame,
Chattering Arabic, African, Indian—
Certain of springtime, the swallows came.

Doublets of grey silk and surcoats of purple,
Ruffs of russet round each little throat,
Wearing such garb, they had crossed the waters,
Mariners sailing with never a boat."

—*Sir Edward Arnold.*

APRIL

"Winged lute that we call a Bluebird,
You blend in a silver strain,
The sound of the laughing waters,
The sound of spring's sweet rain.

"The voice of the wind, the sunshine
And fragrance of blossoming things.
Ah, you are a poem of April
That God endowed with wings."

MAY

This is the month of the Bobolinks.

"Merrily, merrily, there they hie;
Now they rise and now they fly;
They cross and turn and in and out,
And down the middle and wheel about,
With 'Phew, shew, Wadolincoln; listen to me, Bobolincoln!'
Happy's the wooing that's speedily doing,
That's merry and over with bloom of the clover,
Bobolincoln, Wadolincoln, Winterseebee, follow me."

JUNE

"Then sings the Robin, he who wears
A sunset memory on his breast,
Pouring his vesper hymns and prayers
To the red shrine of the West."

JULY

The full tide of song is on the ebb, but you still hear in the shadowy woods the silvery notes of—

"The wise Thrush, who sings his song twice over,
Lest you should think he never could recapture
That first fine careless rapture."

—*Browning.*

AUGUST

The humming bird.

"When the mild gold stars flower out,
As the summer gloaming goes,
A dim shape quivers about
Some sweet rich heart of a rose.

"Then you, by thoughts of it stirred,
Still dreamilly question them,
'Is it a gem, half bird,
Or is it a bird, half gem?' "

—*Edgar Fawcett.*

SEPTEMBER

There is something wistful in the notes of the birds preparing to depart. In the woods we see—

"A little bird in suit
Of sombre olive, soft and brown,

With greenish gold its vest is fringed,
Its tiny cap is ebon-tinged,
With ivory pale its wins are barred,
And its dark eyes are tender starred.
'Dear bird,' I said, 'what is thy name?'
And thrice the mournful answer came,
So faint and far and yet so near—
'Pewee! Pewee! Pewee!' "

—*Trowbridge.*

OCTOBER

This brown month surely belongs to the sparrows.

"Close beside my garden gate
Hops the sparrow, light, sedate."
* * * "There he seems to peak and peer,
And to twitter, too, and tilt
The bare branches in between
With a fond, familiar mien."

—*Lathrop.*

NOVEMBER

In cold weather the little gray Chickadee cheers us with his "tiny voice"—

"Gay and polite, a cheerful cry,
Chick-chickadedee! Saucy note,
Out of sound heart and merry throat!
This scrap of valor, just for play,
Fronts the north wind with waistcoat gray."

—*Emerson.*

DECEMBER

The sleep of the earth has begun under the white, thick snow. The Owl is abroad by night—

"A flitting shape of fluffy down
In the shadow of the woods,
'Tu-wit! tu-whoo!' I wish I knew;
Tell me the riddle, I beg—
Whether the egg was before the Owl
Or the Owl before the egg?"

The Yellow Rail (*Porzana noveboracensis*)

By Lynds Jones

Description.—*Adult:* Prevailing color ochraceous-buff, clearest on breast; upper parts heavily striped with dark brownish anteriorly, and with black posteriorly; feathers of back and scapulars, and inner quills with very narrow subterminal bars of white, some of the feathers twice or three times crossed with white; edge of wing white; wing-quills light fuscous, the inner secondaries broadly tipped with white; a dark brown spot on lores, produced indistinctly to include auriculars; axillars and lining of wings white; sides and flanks dense ochraceous to dusky, narrowly barred; middle of belly whitish. Length 6.00-7.75 (152.4-196.9); wing 3.30 (83.8); tail .51 (13); tarsus .92 (23.4); middle toe and claw .95 (24.1).

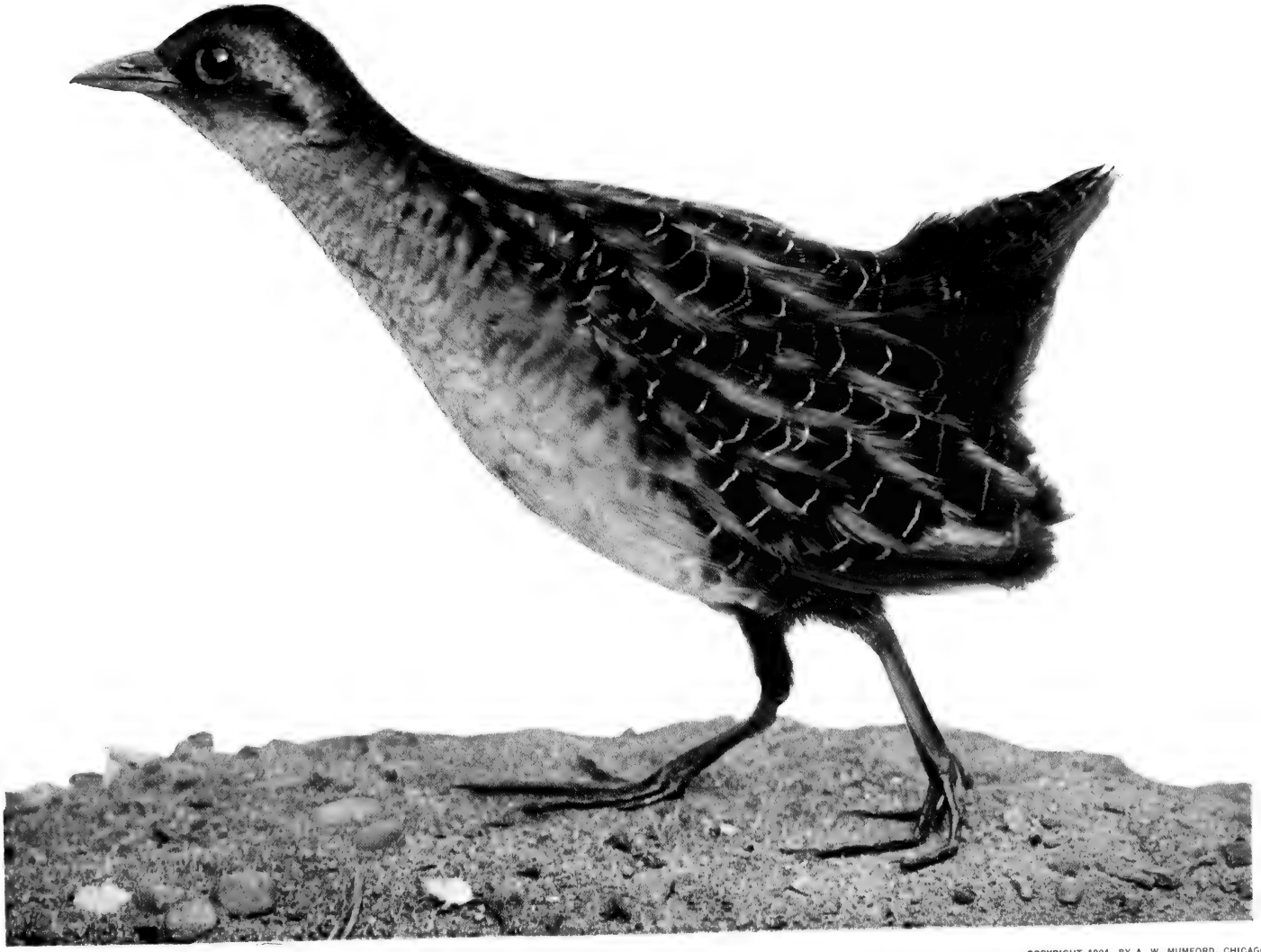
Recognition Marks.—Sparrow size; marsh-skulking habits; ochraceous coloration.

Nest, of grasses, on the ground in marsh. *Eggs,* 6 or more, creamy buff, densely sprinkled and speckled on larger end with rusty brown. Av. size, 1.12 x .83 (28 x 21.1) (Ridgw.).

General Range.—Chiefly eastern North America, north to Nova Scotia, Hudson Bay, etc.; less commonly west to Nevada and California. No extralimital records except for Cuba and Bermuda.

This little Rail possesses most of the common traits of the three preceding species, but adds to them an even greater reluctance to take to wing, and is on this account little known. It is said to frequent upland meadows as well as reedy swamps, but such is its fleetness of foot and ingenuity in threading the wilderness of bristling grass stems that even here it takes a clever dog to raise it. Probably the only efficient method by which to study this bird is to learn its call notes and so entice it to the edge of some secluded swamp opening. It is said to be quite pugnacious, and to respond readily to the supposed challenge of another bird. Mr. Nuttall speaks of their "abrupt and cackling cry, *krek-krek, krek, krek, kuk, k'kh,*" and likens it to the sound of a croaking tree frog.

Dr. Howard E. Jones has attained a special facility in the study of the Yellow Rail, and the reports of his success indicate that the bird ought to be found not uncommonly throughout the state.



FROM COL. CHI. ACAD. SCIENCES.

YELLOW RAIL.
(Porzana noveboracensis).
About Life-size.

The Warblers

By Helen M. Bacon

Said to be"the most numerous, the most beautiful, and the least known" of our song-birds.

Don't you hear them coming, coming,
With gay wings softly humming?
Up from the vasts of far-off Brazil,
From lake and forest and jungle still;
Winging their way across gulf and sea,
With flight so swift and sure and free;
With pauses short for hunger's call,
On, on, to far Northland, hastening all.

Myriads, flashing blue, yellow, or red,
Gay spots on wing or on tail or on head;
Dainty black bill and bright beady eye,
Flitting and glancing as onward they hie.
Smaller than sparrow—more beautiful far—
Brilliantly spotted with streak or with bar,
Delicate structure of legs and of feet
Tucked into breast while the wings are so fleet.

An army of weaklings, yet now they defy
Great stretches of sea and of land, tho' they die.
Their goal—a soft nest in a far Northern tree,
With home-keeping ties and love's jubilee,
As tireless they speed o'er sea and o'er land.
Oh! pause to consider this brave dauntless band.
Look up! as they pass us in May, and be glad
To see them in beauty and brightness thus clad.

Silently flitting to far-away home,
Let us "bag them with eye-beams" as onward they roam,
Only pausing a bit on limb or on bush
Before once again on their journey they push.
They are coming soon from their far winter rest
In search of a mate and a happy home-nest.
With gay wings softly humming,
Don't you hear them coming, coming?

The Western Willet (*Catoptrophorus semipalmatus*)

By F. E. L. Beal

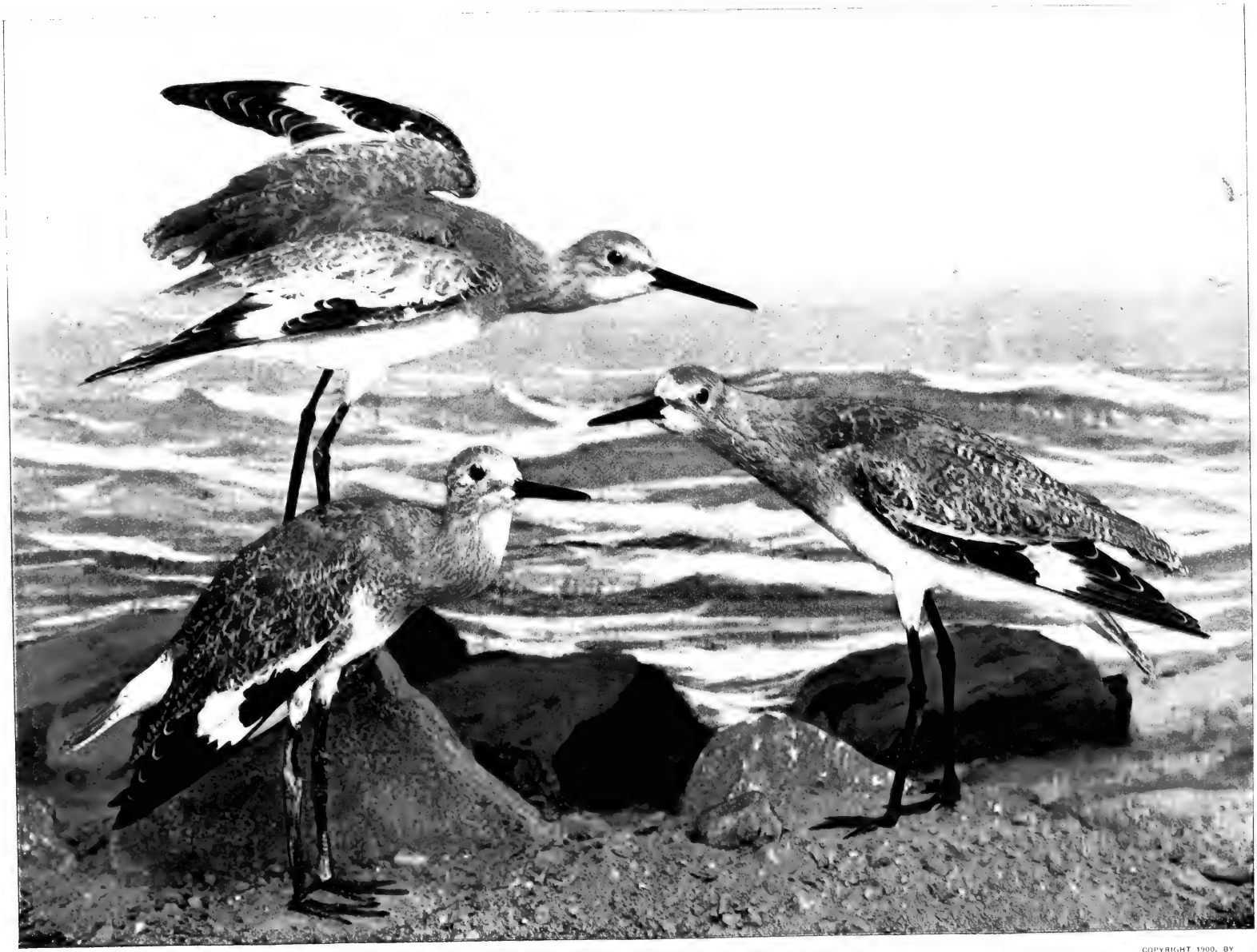
Length: 15 inches.

Range: Breeds from Virginia (formerly from Nova Scotia) south to Florida and the Bahamas; winters from the Bahamas to Brazil and Peru.

The willet, including under this name both the eastern and the western forms, ranges widely over the United States and formerly bred in suitable localities over much of our territory. On the Atlantic it nested from Nova Scotia to the Gulf of Mexico, and probably small numbers yet nest on some of the sandy islands southward. At first thought it may seem strange that a bird so abundant and so widely distributed as the willet should have been so reduced in numbers, but the real wonder is that any remain after the treatment the species has been subjected to. The bird is wary enough, and when alarmed informs the whole neighborhood by its loud outcries of the presence of danger. Yet as the result of being shot in season and out of season the species has at length been brought within measurable distance of the end. This statement applies more particularly to the eastern bird. The western form has escaped better, and in fall many of the western-bred birds visit the Atlantic coast. The process of exterminating our eastern willet was accelerated along the coast by the quite uniform practice of robbing the nests for the large and palatable eggs. Under the circumstances, no prophet was needed to foretell the inevitable end. To what extent the willet will be affected by the present Federal regulations remains to be seen. The essential facts regarding the willet and the fate that awaits it are known to many sportsmen, but it is to be feared that the destruction of this and other species may be hastened by the feeling among them that if the residents of one particular State or locality do not get the few remaining shorebirds others will.

Description.—*Adult in summer*: Above brownish gray, the head and neck streaked with dusky, the feathers of back, etc., with irregular bars, or central patches, or dusky, and further varied with some obscure buff; primaries and secsecondaries white, the former broadly tipped and the latter slightly tinged with dusky; upper tail-coverts white, or with a few dusky bars; central tail-feathers ashy gray, indistinctly barred with blackish; the remaining feathers white mottled with ashy; lower parts white, tinged with grayish on fore-neck, and with buffy on sides; the fore-neck heavily streaked, the breast and sides heavily barred with brownish dusky; belly sometimes faintly barred; axillars and lining of wing dusky; bill dusky; feet and legs dark bluish. *Winter plumage*: Above ashy gray, lighter on neck; below white unmarked, the fore-neck gray tinged. *Immature*: Like adult in winter, but feathers of back edged with pale ochraceous; below tinged or faintly mottled with brownish gray on neck, chest and sides; otherwise unmarked.

Recognition Marks.—Curlew size; extensive white on wing with large size distinctive; semipalmate feet.



WESTERN WILLET.
(Symphemia semipalmata inornata.)
¼ Life size.

Considerable interest attaches to the willet, both on account of its large size and general distribution, and from the fact that its breeding range includes the Southern and Middle States. The effect, therefore, of civilization may be easily noticed in the case of this bird; and that effect, as we might expect, has been disastrous. There are no recent notes of its appearance in Ohio, and it is probably upon the vanishing point here and hereabouts.

The willet is described as an excessively noisy bird, filling the air with its shrill cries of *"pill-will-willit, will-willit, pill-will-willit"* at all hours of the day and often at night. Except during the breeding season it is quite wary, and difficult to approach even by stealth. While nesting, however, it becomes silent and nearly impassive, except when its nest or young are immediately threatened, in which case it throws reserve to the wind and summons its neighbors to join with it in the boldest denunciation of the intruder.

Altho formerly quite generally distributed in the interior, it is now more abundant coastwise, and enjoys some measure of protection in a few favored spots along the Atlantic coast, notably at Cobb's Island, Virginia.

Martyrs of the Woods

By George Klingle

Would we miss them, you and I,
Would we care if soon should die
Every single singing bird
You and I have ever heard?
Would we miss them from the grass,
Through the tangled, deep morass;
From the bushes and the trees—
Robin, wren and chickadees—
Birds of blue and crimson wing;
Would we miss the notes they sing;
Would we miss the call and cry;
Chattering talk as we go by;
Nests amid the reeds and grass,
Nests swung high above the pass?
Do we care that birds must die,
Slaughtered daily as they fly?
Men will kill while people choose
Wings of birds to buy and use;
Soon the woods must quiet be;
Scarce a bird for minstrelsy.

The Pileated Woodpecker (*Ceophloeas abieticola*)

By W. Leon Dawson

Synonym.—Logcock.

Description.—*Adult male*: General plumage sooty black, lusterless save on wings and back; whole top of head and lengthened crest bright red; red malar stripes changing to black behind, and separating white spaces; chin and upper throat white; also a white stripe extending from nostrils and below eye to nape and produced downward and backward to shoulder; a narrow white stripe over and behind eye; lining and edge of wing, and a large spot (nearly concealed) at base of primaries, white; black feathers of sides sparingly white-tipped; bill dark plumbeous above, lighter below, save at tip; feet black. *Adult female*: Similar but black on forehead, and black instead of red malar stripes. Length 15.50-19.00 (393.7-482.6); wing 8.50-10.00 (215.9-254.); tail 5.85-7.40 (148.6-188.); head 4.50-5.50 (114.3-139.7); bill 1.75-2.65 (44.5-67.3).

Recognition Marks.—Largest size; black, white and red on head in stripes; body mainly black.

Nest, high in trees. *Eggs*, 4-6, white. Av. size, 1.29x.94 (32.8x23.9).

General Range.—Formerly the heavily wooded regions of North America south of about latitude 63°, except in the southern Rocky Mountains. Now rare or extirpated in the more settled parts of the Eastern States.

IF the "curse of beauty" be added to that of large size, the destruction of a bird is foredoomed in this age of automatic shot-guns and unappointed game wardens. This magnificent black Woodpecker, once common throughout the heavily timbered areas of our own and adjacent states, has almost disappeared before the industrious axe and the all-conquering gun. The bird has been recently reported only by Robert J. Sim, of Jefferson, and in "Middle Southern Ohio," by Rev. W. F. Henninger. In an interesting communication, to which I am indebted for an account of the bird's habits, Mr. Sim states that the Pileated Woodpecker is almost always to be found in the vicinity of Jefferson. An extensive area of primeval forest, near at hand, has afforded it asylum for many years past, but the tract is even now being reduced by lumbering interests; and the day of the passing of the Logcock is not far distant.

In the spring of 1902, according to Mr. Sim, a pair of these birds nested within a mile of town. The nesting cavity was dug in a beech tree, at a height of about thirty feet, and within two feet of the broken-off top, and the work was completed by the middle of April. Chips were strewn liberally over the ground below, and many showed the characteristic chisel marks of the bird's powerful bill. During the nesting season the parent birds remained pretty closely in the neighborhood of the home tree, drumming, calling, and searching for food.

"The drumming song is a series of about twelve taps, increasing in rapidity and growing less in strength to the end. It may be heard for a long distance. I

PILEATED WOODPECKER
(Ceophloeus pileatus).
½ Life-size.

have heard this Woodpecker give three *vocal* songs or calls. One is an exultant, ringing laugh given in high clear soprano. The first note and the last are lower and less loud than the rest. At a distance this call sounds metallic; but when at close range it is sent echoing through the forest, it is full and clear, and is the most untamably wild sound that I know among bird-notes. Another call might be suggested by the syllables *cow-cow-cow* repeated indefinitely, but some times intermittently. When two birds approach each other they often carry on a wheedling conversation which is not unpleasant to hear. It seems to be analogous to the *wichew* note of the Flicker, but is given more slowly and has a peculiar quality which would lead one to believe that the birds have their bills closed while making the sound."

In its search for food the Logcock strikes deliberately but with force, often giving the head a powerful twist to wrench off a piece of wood. Sometimes quite a large fragment is thrown back by a toss of the head. Much time is also spent about fallen tree-trunks, where in addition to grubs and other insect larvæ, it subsists largely upon ants.

The food of the Pileated Woodpecker does not interest the farmer or horticulturist, for it is obtained entirely from the forest or the wild copses on its edge. This bird does not visit either the orchard or the grain field, and all its work in the forest helps to conserve the timber. Unfortunately the bird is so scarce in many places that it is an object of curiosity, and the man or boy with a gun never lets pass a chance to shoot one, although its flesh is unfit for food. In fall and winter it may often be seen in the market in Washington, and probably in cities farther south. Maj. Bendire relates that once when short of provisions he attempted to eat one, but found it extremely unpalatable. Its killing should be strictly prohibited at all times.

Woodpeckers signal each other by hammering upon a dead and hollow limb or trunk of a tree, or upon the metallic cornice of a building. The pileated is an adept at such telegraphing, and its tattoo on a particularly resonant piece of timber can be heard for more than a mile.

The Harlequin Duck (*Histrionicus histrionicus*)

By Lynds Jones

Length: About 16 inches.

The Harlequin Duck is the sole representative of the genus to which it belongs. The generic and the specific names (*Histrionicus*), which unfortunately the strict rules of scientific naming require in the case of this bird to be the same, are from the Latin word meaning harlequin. This word, meaning a buffoon, is especially appropriate, for the arrangement of the colors on its head, neck and back give the bird a peculiar appearance, especially during the mating season. At this time, too, the drollery of their actions is very noticeable.

Harlequin is not the only name by which this bird is known. In the New England States and northward along the Atlantic coast it is frequently called the "Lord and Lady," because of the white crescents and spots of its plumage and the proud bearing of the male. It is also called the Rock Duck, the Mountain Duck and the Squealer.

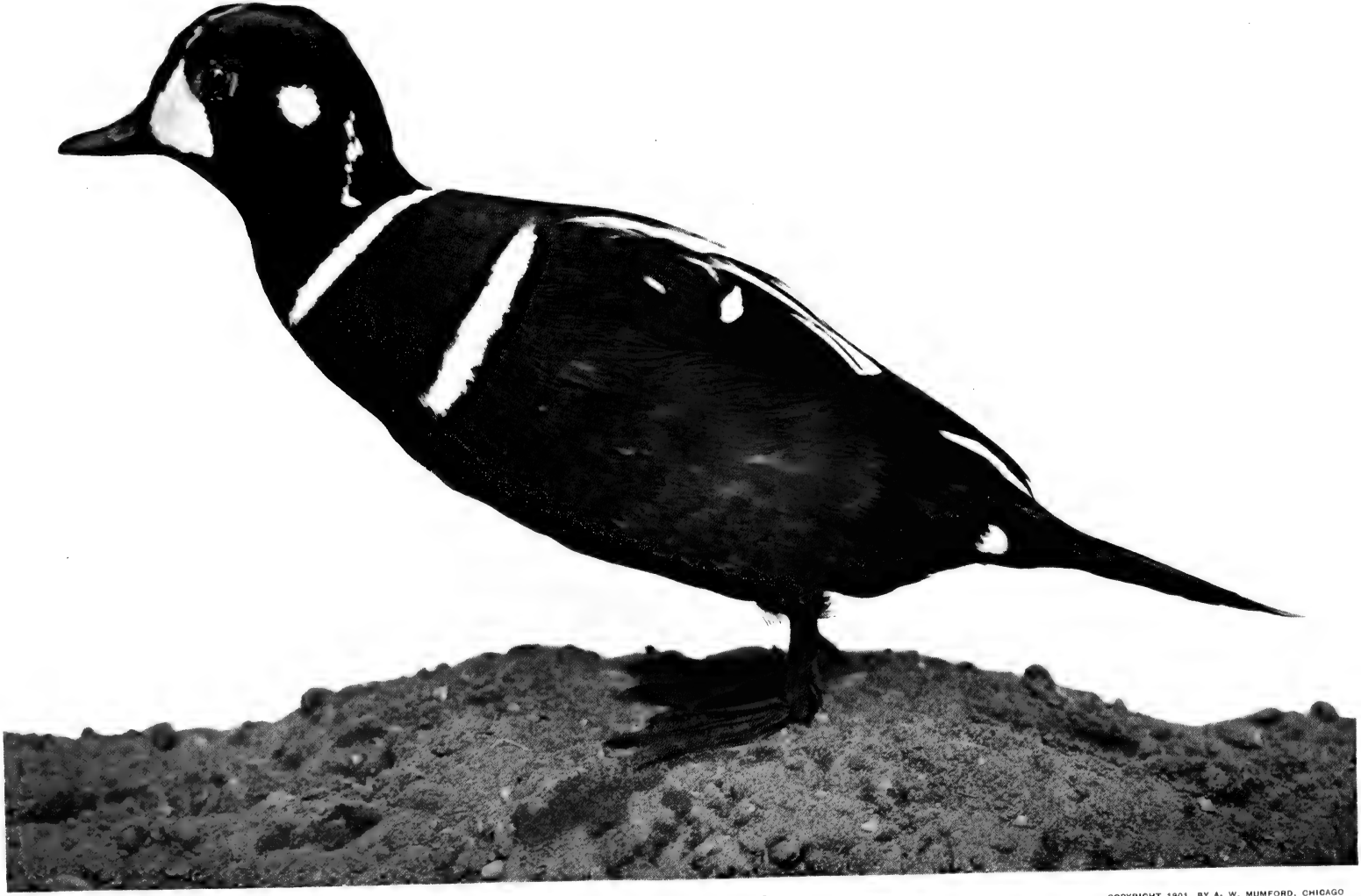
Its range covers the northern portion of North America, Europe and Asia. "It is not common wherever found. In many parts of the Old World it is only a rare or occasional visitor; this is the case in Great Britain, France and Germany." In the United States, during the winter, it passes southward into Illinois, Missouri and California. It breeds only in the northern part of its range.

It is a mountain duck and "frequents swiftly running streams, where it delights to sport among the eddies below water falls or in the brawling rapids." It is not only an adept in the art of swimming and diving, but it also flies swiftly and to a great height. During the winter it frequents northern sea coasts and exhibits the characteristics of other sea ducks, and is occasionally found far out at sea. It is known that the Harlequin will lead a solitary life, and it is sometimes observed in pairs or even alone on streams of remote and unfrequented localities.

The sexes vary greatly. While the male, which is the sex of the bird of our illustration, is brightly colored, the female is much more somber. The young resemble the adult female.

The food of the Harlequin consists almost entirely of the parts of aquatic plants and the smaller crustaceans and mollusks. The food is obtained by diving, frequently through several feet of water. Mr. Chapman tells us that the sea ducks in diving to obtain food, will "sometimes descend one hundred and fifty feet or more."

Its nest, though usually placed on the ground, is sometimes built in the hollow of a tree or a hollow stump, though always near a body of water. The nest is usually a simple structure made of the stems of water plants, twigs and grass thickly lined with the downy feathers from the breast of the duck. The eggs are



HARLEQUIN DUCK.
(Histrionicus histrionicus).
½ Life-size.

occasionally laid on the grass, and no effort is made to build a nest. The female thoroughly covers the eggs when she leaves the nest.

The number of eggs varies from six to eight, though ten have been recorded. They are of a "yellowish buff or greenish yellow" color.

This duck is considered an excellent food and is much sought for by the natives of those regions which it frequents.

Pine Warbler (*Dendroica vigorsi*)

Range: Breeds in Transition and Austral zones from northern Manitoba, northern Michigan, southern Ontario, southern Quebec, and New Brunswick south to east-central Texas, the Gulf States, and Florida; winters from southern Illinois and coast of Virginia to Florida, eastern Texas, and Tamaulipas.

Few of our birds are so aptly named as the pine warbler, which first, last, and all the time, except in migration, resorts to pine woods. It summers in them in the north and it winters in them in the south. Even its feathers often bear conclusive evidence of its predilection for pines, being often besmeared with their gum. Among its bright-hued relatives the pine warbler cuts but a poor show with its somber green and brown coat, which, at least in Florida, is often dingy and smoke-begrimed from contact with burnt timber.

Though distinctly a warbler and not a creeper, the pine warbler is more deliberate in its motions than most of its kind and, somewhat in the manner of the creeper, moves among the branches or over the trunks in search of its insect food. For a warbler it is an early migrant and reaches the latitude of Massachusetts soon after the middle of April. Indeed, its nest contains eggs or young while the late migrants are still passing north. Its song has little variation, but while monotonous is pleasing and sweet, far sweeter than the trill of the chipping sparrow, which it recalls. Naturally the pine warbler nests in pines, usually rather high up, either on a horizontal limb or among the twigs at the extremity of a limb.

Helping the Robins to Nest

By Winthrop Packard

In a *Bird-Lore* census, taken not long ago, it was estimated that the robin was the most numerous American bird, the house sparrow coming next. The robin, in one form or another, nests practically all over the continent of North America and the bird is one of the most friendly that we have. The poet Wordsworth once referred to the English robin as

"Honest Robin, who loves mankind both alive and dead,"

and the words might apply equally to the American robin, for the bird loves to nest not only in our gardens but in our cemeteries and upon our very houses.

Often a robin will select a corner of the porch, a nook under the eaves, or even go inside of the building itself. Recently one is reported to have flown in at the open window of a church during service and to have begun to build his nest on a cornice just over the pulpit. The window was left partly open from that time on and the family of young robins was successfully reared in this admirable sanctuary.

The nesting robins may be assisted by providing nesting sites; a shelf up under the eaves will often tempt them, or a sheltered platform set on the limb of a tree. If there is a trellis in the garden on which a rambler rose-bush or honeysuckle climbs, one of these sheltered shelves set at the top of it forms an admirable site for a robin's nest. One can assist also by putting out nesting material. In the case of the robin the first requisite is mud—good, plain, old-fashioned, black sticky mud, for the robin makes the foundation of his nest invariably of this. In sandy countries and dry weather the birds often have considerable difficulty in getting mud for their foundation. In one of her books Olive Thorne Miller tells of a robin that wet his feathers, then rolled in the dust and went to the nesting site, where he picked the resultant mud from his plumage and used it for the foundaion of his nest.

Most of us nowadays have a bird bath in the yard and it is an easy thing to put a dish of clay or loamy soil beside this and moisten it to the right consistency. The robin will come and take it by the mouthful—poor chap, he has no other meansof g ettingi t—and begin the nest,, perhaps on the porch, but more likely on the near-by shade tree. Usually the mud is built up like a shallow cup and then soft grasses—dried grasses of the previous year's growth—are embedded in it and killfully built around until the completed structure is mud below, but softly lined and built up with these grasses. From that time until the eggs are hatched the less human oversight and interference the better, although the brooding mother bird will be very fearless as the process of incubation continues, but after the young are hatched out a gentle friendliness wisely offered will be well received and appreciated.

The task of feeding a nestful of young robins is a great one. Every one of them will eat at least its own weight in insect food daily. Earthworms, rolled in grit, are well liked by the youngsters. Cutworms, inchworms, mealworms—almost any soft-bodied, non-hairy caterpillars may be given freely. Nor need one have any fear that the family will be pauperized by any such charity. This feeding will help the youngsters to grow up with very friendly feelings toward the human family and in no other way can you so readily gain the confidence of the parent birds.

Oftentimes disaster overtakes a robin family; for some reason the parent birds do not return to the nest and then the human neighbors must take charge of the young.

The Eggs of Birds

By Gene Stratton Porter

Perhaps the most fascinating phase of Nature is the way in which she cares for her children during the early part of their lives. The story of seeds and eggs has not been half told. Think of the tiny thistle-fluff which soars away, borne on the lightest breath of air; of the great cocoanuts in their husks, so hard that they will turn the edge of a knife; of the burrs which ever patiently reach out for some passing creature to carry them to a distant home; of the cones of the forest, whose seeds may be transported by birds, or dropped to the ground only to smother in the shadow of the parent tree.

In that "mother of life," the sea, the wonder of the first beginnings holds us spellbound. We see the tiny hydroids, those animal plants, flowering and budding on their waving stalks, and presently setting free their "seeds"—jelly-fish—throbbing with life, drifting away on ocean currents. Again observe these jellies scattering behind them an untold host of eggs, as a rocket marks its path with a myriad sparks. Think of the salmon seeking her spawning grounds in the uppermost reaches of rivers, or the cod boldly playing for her offspring the chance in the lottery of life in the open ocean. Of her nine millions of eggs, will one survive?

How strange is the four-tendriled, purse-like cradle of the baby shark; how delicate the forms and patterns of butterflies' eggs! And was there ever a more model parent than that frog which holds its eggs in its mouth until the tadpoles grow up?

The white leathery eggs of turtles and lizards bring us to our subject. Leading all in beauty and interest are the eggs of birds. Precious stones have always exerted a great fascination over mankind, and in appearance birds' eggs may be compared with gems; indeed, the shell itself is almost wholly composed of mineral matter. But, far from being an inanimate crystal, an egg shelters one of the marvels of the world—an embryo bird. The gaudy sea-shell cloaks a slimy snail, but from the beautiful egg of a bird emerges a greater beauty.

Reptiles lay white eggs whose shells are not brittle, but, when broken, curl up like celluloid film. Some of these reptilian eggs are oblong in shape, but most are spherical and the great majority are deposited in the ground, or under bark, and are hatched by the heat of the decaying vegetation, or by the direct rays of the sun. Thus we see that there is little need for variation in shape or color. Among birds, however, we find very different conditions.

That which adds the greatest interest to anything is the *why* of it, and a vast collection of eggs, beautiful though they are, yet, if ignorantly looked at, is worse than useless. Why one bird lays twenty eggs and another but two; why one bird's eggs are white, another's of varied colors, we will never learn from blown

museum specimens. Not until we have the patience and skill to watch and to find the most deadly enemies which threaten the nests and eggs of birds, their number and modes of attack, can we hope for successful solutions to the thousand and one problems which offer themselves. What we know in respect to eggs is fragmentary and rests on so slight a degree of proof that every theory is attacked and reattacked in turn.

Supposing that the eggs of the early forms of birds were round—that being the most typical form of a single cell—we find many variations in shape among the eggs of living species. Many of the eggs which are laid in hollow trees still retain the primitive spherical form, perhaps an advantage in keeping the eggs in a close group in the center of the floor of the cavity.

So characteristic of the eggs of birds is the pear shape—one end blunt and narrowing to the other—that they have given to it its name—oval. In the eggs of certain sea birds which breed on the narrow ledges of perpendicular cliffs this oval shape is carried to an extreme, and apparently for an excellent reason, mechanical, but of inestimable value to the birds. Eggs laid in such positions are of course especially exposed to danger from the wind or from some sudden movement of the birds, which generally nest very close together. Were it not that the eggs, on account of their peculiar shape, describe an arc of very small diameter when they roll, doubtless a far greater number would roll off and be dashed down upon the rocks below. Among the plovers, sandpipers and phalaropes we again find a peculiarly pronounced pyriform shape of egg, serving in these instances a very apparent and useful end. These birds almost invariably lay four eggs, which are of large size in comparison with the birds, and their shape allows them to be fitted closely together, each forming one of the four segments, their points all but meeting in the center. Thus the little body of the parent is large enough to cover them all, which would be impossible were the eggs arranged at random. The eggs of grebes are peculiar in having both ends alike.

The number of eggs which a bird lays has been found to bear a definite relation to the amount of danger to which the species is exposed; but when we come to the water birds—the rails, gallinules, ducks and geese—we find an extensive group whose nests average a dozen eggs in each set. Explanations are ready for this; the birds themselves are exposed to unusual peril, from weather as well as from active enemies, since they mostly emigrate to the extreme North and nest in the edges of marshes, where the sitting birds, eggs and young are all subjected to freezings, floods and countless marauders that depend largely upon them for food during the Arctic summer, so that a heavy annual recruiting must be made to repair losses. Few birds are liable to so many misfortunes and mishaps as the water fowl, except perhaps the big and pugnacious swans, who can take better care of themselves, and lay only five eggs or fewer. The long-legged wading birds also, such as the storks, ibises, herons and the like, are fairly safe in breeding season, because they nest in trees, as a rule, and consequently we here find only two to four young in the annual brood; so with the snake birds.

This brings us to the game birds—the world-wide tribes of partridges, pheasants, grouse, turkeys, jungle fowls, peacocks and the like—which are of large size, run about on the ground, and are of interest to sportsmen and epicures. With few exceptions these must put forth a large complement of eggs (eight to twenty) in order to bring to maturity enough young to replace the yearly mortality, for the ground-built homes and huddling chicks encounter a multitude of dangers to which birds in trees, or even the small-sized ground-nesters, are not exposed. One exception here singularly favors the rule. The Thibetan Peacock Pheasant inhabits the heights of the Himalayas, where it has to contend with only three or four nest-robbers, instead of the countless foes that infest the lower jungles; hence its ample breast warms but two eggs.

The doves and pigeons lay only two eggs, and a few lay but one; but this seems to be due to the fact that their extraordinary powers of flight render them, as adults, unusual immunity from capture and famine, rather than to any special safety pertaining to their method of nidification.

Hawks and owls in general have four or five eggs, and as this is about the average number of the small birds on which they largely prey, it seems evident that their chances of life and the difficulty of sustaining it are, on the whole, no less than are met with by their victims. The owls, however, vary much among themselves in this respect; the snowy owls, whose home is in the snowy north, where a nest in the tundra moss is accessible to every marauder, and the burrowing owl, whose underground homes are constantly robbed, being obliged to lay twice as many eggs as the remainder of the family in order to overcome the high percentage of casualties due to these unfortunate situations.

An odd feature in the nidification of some of the Arctic-breeding owls, where the nesting must take place at an unreasonably early and cold date in order to give the fledglings time to reach mature strength before the succeeding winter assails them, is that these birds deposit their eggs at intervals of a week or ten days. In this way the mother can envelop in her plumage and keep thoroughly warm one egg and a callow fledgling at a time, and is assisted, in respect to the latter eggs and fledglings, by the warmth of the older young in the nest.

This brings us to tribes of little singing birds, with which we started, whose average is about five; but a few interesting exceptions may be noted. Our whip-poor-wills and nighthawks, for instance, lay only two eggs. These are placed on the ground in the woods surrounded by no nest, and are so precisely the color of the dead leaves that nothing but the merest accident would lead to the discovery by the eye alone. The same is eminently true of the bird itself. None of the almost uncatchable humming-birds needs to lay more than two eggs in order to recruit the ranks of its species to the full quota permitted it in the numerical adjustment of bird life.

I have gone into this matter somewhat at length, though by no means exhaustively, because I am not aware that the matter has ever been exploited, and because it embodies a general law or principle. Thus we see that the nest comple-

ment of eggs of any bird is in exact proportion to the average danger to which that species is exposed. I believe that this factor is fairly constant for species of tribes of similar habits, and that exceptions indicate peculiarities of circumstances which in many cases we can easily perceive, because I believe that Nature is strictly economical of energy, allowing no more eggs to be laid, and consequently young to be produced, than the conditions justify in each case. Thus the uniformity of avine population—the balance of bird life—is maintained.

When a bird's nest and eggs are destroyed she will often lay another setting, and some birds raise two and even three broods in a season under normal conditions. If the eggs of a bird are removed as fast as they are laid the bird will sometimes continue to lay, one of the most remarkable instances of this in an uncaged bird being a Ficker, which laid seventy-one eggs during the space of three and seventy days. A tiny African Waxbill in captivity has been known to rear fifty-four young in the course of a year, during the same period laying an additional sixty-seven eggs. The domestic hen has become a veritable egg-laying machine, thanks to careful breeding in the past, since the wild Red Jungle Fowl, from which all varieties of poultry are descended, lays only one nestful of seven to twelve eggs once a year.

Many birds still hold to the old style of nesting in hollow trees and such concealed places. Whether they hunt around until they find a cavity ready-made by the elements, or whether, like the woodpeckers, they proceed to excavate a home in a dead branch, or, kingfisher-like, to tunnel deep into a sand bank, their eggs are almost invariably white. Many indeed have such glossy, highly polished shells that, were they laid in exposed situations, their shining surface would be a sure guide to hungry egg-eaters.

Among such birds may be mentioned the owls, woodpeckers and parrots, trogons, motmots, kingfishers and puffins, besides many others which hide their eggs in domed nests. On the other hand, we find a number of birds laying spotted eggs in concealed nests, and white eggs in open places; so that no universal law can be framed to account for the varied coloring. This is not surprising when we think of the great difference of conditions under which each species lives. Take for example the two species of marsh wrens, which live so happily among the reeds of the marshes of our Eastern States. Both birds build globular mouse-like nests, both hide their treasures deep in the interior, but the eggs of the long-billed species are dark chocolate brown, while the short-bill's eggs are like pearls. We do not know why this difference exists, but that need not deter us from accepting the facts to which the majority of eggs seem to point—that eggs which are concealed, having no need for coloring, are white like those of reptiles. If, as many writers have suggested, the colors of eggs are only meaningless by-products, there is no reason why these hues should not run riot upon each egg or nestful of eggs, as is the case in one or two interesting isolated cases to be mentioned shortly.

Perhaps the most marked exceptions to the theory of the protective coloration of eggs is to be found in doves and pigeons, which lay white eggs in open nests;

with the exception, curiously enough, of the Rock Dove, the wild progenitor of our domestic birds, which places its nest in inaccessible caverns in the face of cliffs. The almost total extermination of the Passenger Pigeon has been instanced as an example of a "mistake" of Nature in allotting to it white eggs, the absurdity of which statement is apparent when we consider that the havoc was wrought upon the *adult birds,* and by man.

Wallace has suggested that the nests of doves are so loosely and so flimsily built—being in reality mere platforms of sticks—that, looking up at them, the eggs simulated the color of the sky beyond and so became inconspicuous; but unfortunately that argument is so decidedly suggestive of human presence that it loses much of its value when we remember that egg-hunters among the mammals and birds do not stand on the ground to take observations, but either climb the trees in search of nests or fly low above the branches.

The eggs of ducks and grouse are white or very light colored, and are laid in open nests upon the ground. The mother duck's plumage is the very essence of the mottled light and shadows among reeds, and when she leaves her eggs she backs carefully away, drawing over them at the same time a coverlet of beautiful down, the protective coloring of which is ample to shield the eggs. Ordinarily this coverlet is rolled up at the edge of the nest. It is to such a habit that the eider-down hunters owe their supply. A grouse does not pluck the down from her breast, but in devotion and ability to remain close upon the eggs she has few equals. It is rare indeed to find the nest of a grouse unguarded, and the mother bird will all but wait until your hand is upon her before leaving her eggs exposed.

The many species of humming-birds lay the whitest of eggs, but here it is the nest which is protected—fashioned of dull-hued plant down, with beams and rafters of cobwebs, covered outside in our Eastern species with lichens exactly like those which are growing upon the limb to which the tiny air-castle is attached. The nests of vireos, also, are much like their surroundings.

Many of the more isolated cases of exposed white eggs are to be explained, I think, by the fact that the habits of birds often change rapidly, while their structural adaptation follows more slowly. For example, let us take the group of owls. The majority of these birds nest in hollow trees, but even these occasionally make uss of an open hollow or a very shallow one, and individual, radical departures from the conventional owl habitation are doubtless not uncommon. But these exposed eggs are soon destroyed; for no crow, jay or squirrel could ever resist the opportunity to avenge himself for the wrongs inflicted by this ancestral enemy, the owl. But when, urged on by that impulse which ever tends to make birds vary their habits in all directions, some owl, such as the Short-eared, finds good feeding on marshes and open, treeless plains, it naturally takes to nesting on the ground in nests but partly concealed by the overhanging grasses.

At one time the sandpipers and plovers were classed as wading birds, and the gulls and terns in an order placed at a remote distance in the scheme of classification from the former birds; no one suspecting that the two groups were in any

way related. The striking resemblance which their eggs showed, however, suggested an affinity which was later perfectly confirmed by anatomists and embryologists.

If we walk in the woods in June and happen to flush a night-hawk from the ground the most careful scrutiny of the place where the bird rose will often fail to reveal to our sight what at last our fingers detect—two eggs—their shells imbued with the colors of the forest floor. I have led persons to a spot on a beach of shells and sand, told them that there were twenty-one good-sized eggs within a radius of fifteen feet and seen them utterly baffled. The olive-gray, blotched shell of a tern's egg rests among dark pebbles, or more often upon a wisp of seaweed, into whose irregularities the hues of the eggs melt and mingle perfectly. The Black Skimmer, that most interesting bird of our coast, lays its eggs upon the bare sand among, or sometimes in, the large clam shells which the storms throw up in windrows. Against man's systematic search their wonderful assimilative coloring is of course often useless, but sharp as is the eye of passing crow or beach-patroling bear, the eggs to them would appear but bits of sand and shadow.

And thus we might go on with many other examples of protection derived from the pigment on the shells—protection which in a hundred instances might prove futile, but which in the great summing up and balancing of Nature's profit and loss is of inestimable value to the race.

The color of the eggs have been carefully examined with the stereoscope and are found to consist, chemically, of seven pigments—a brownish red, two delicate blues, two clear yellows, a peculiar brown hue, while the seventh is a rather indefinite shade known as lichenixanthine, most interesting of all as being identical with a color substance common in plants and especially in lichens and fungi. These substances somewhat resemble those found in the blood and the bile. They are deposited on the shell while the egg is passing down the oviduct, and it is to the circular or erratic motion of the egg that the curious scrawls and blotches upon some eggs are due.

Pictures of Yesterday

By Millie Noel Lang

Brown leaves rustled by passing feet
On a shaded walk of an old-time street,
An old-time fence of palings tall
And over there an old stone wall
With brambles growing over it
And woodbine leaves that cover it,—
Beyond, a meadow, yellow-brown,
And then a grove outside the town
All colored bright by Nature's brush,
Deserted by the lark and thrush,
But peopled by the blackbirds quaint,
Repeating their sweet, tender plaint,—
An old gray house upon a hill,
A straw-stack and a tall wind-mill—
A few late butterflies a-wing,
And autumn's haze o'er everything,—
These were the beauties cheered my heart
That perfect day I walked apart,
Rejoiced, the old-time things to see,
The quaint old scenes so dear to me.

Tennessee Warbler (*Vermivora peregrina*)

Range: Breeds in Canadian Zone from upper Yukon Valley, southern Mackenzie, central Keewatin, southern Ungava, and Anticosti Island south to southern British Columbia, southern Alberta, Manitoba, northern Minnesota, Ontario, New York (Adirondacks), northern Maine, and New Hampshire; winters from Oaxaca to Colombia and Venezuela.

The Tennessee warbler is by no means as local as its name would imply, but is likely to be found in migration almost anywhere in eastern United States, although it is much more numerous in the Mississippi Valley. Unpretentious both in dress and character, this little bird seems to possess no very salient characteristics. It is, however, not likely to be mistaken for any other species save the Nashville, which it resembles rather closely. During spring migration the Tennessee is apt to be overlooked, since it is prone to keep in the tree-tops. In fall, however, it is found lower down, usually in company with flocks of other warblers, among which it becomes conspicuous by reason of its very inconspicuousness and in contrast with its more gaudy fellows.

Its song has been variously described and may be said to be a simple trill not unlike the chippy. It appears to be certain that the Tennessee, like the Nashville, nests on the ground, but apparently the nesting habits of the bird are comparatively unknown, or at least have not as yet been very fully recorded.

The Double Yellow-headed Parrot (*Amazona oratrix*)

By Dwight D. Stone

Length: 13 inches.

The Double Yellow-headed Parrots inhabit Mexico. The forests of their range abound in trees of many kinds bearing nuts and fruits, upon which they feed. Not infrequently these Parrots will also visit corn fields, for they seem to be very fond of the kernels of corn. In the fields they are frequently caught by the owners and sold, but the adult Parrots caught in this manner rarely become fully tame in captivity, and do not learn to talk well. This Parrot to become a good mimic of the human voice and a good talker, must be raised from the nest by the hand of its keeper. It is said that by the time it is able to eat alone, and if it has been friendly with its keeper, it will have learned to repeat some words and possibly a few sentences. These Parrots are hardy birds and become easily acclimated in other places than their natural habitat. They do not resort to water courses to any extent, for in their habitat the dews are heavy and the leaves become saturated with water. These the Parrots suck at their roosting places before they leave in search of food. In captivity, however, they should be furnished with water. In some places abroad, it has been thought that these Parrots can live without water and it was not furnished to the captives for a long time. It was soon demonstrated, however, that the birds suffered, and unless they were given water, did not remain active and died quite soon.

It is said by the observers of these Parrots that they do not build a nest, but that deep hollows in high tree trunks are selected by the females. At the bottom of these hollows their two eggs are laid. The Parrots are wise birds, and not only are their eggs laid in places where they are free from usual dangers but the birds are also very careful not to betray the locations of their nests by their actions. The forests frequented by these Parrots are also the homes of many species of birds which are beautiful because of their richly colored plumage. It is said that there are nearly thirty species of parrots which range from Mexico southawrd through Central America, and also from the West Indies southward to Bolivia and Paraguay.

The Double Yellow-headed Parrot inhabits a wild and picturesque region of swamps, jungles, and savannahs and is greatly admired by those who frequent such localities. By many this species is considered one of the best of the talking parrots found in the Americas. The parents, while feeding their young, utter clucking sounds which are answered by the young birds.

It seems strange that in spite of the abundance of this species of parrots as well as the large number of individuals of many of the species, that so little has been published regarding their wild habits. It is said that the live birds of the species we illustrate will net the hunters about twenty dollars each when captured and sold.

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DOUBLE YELLOW-HEADED PARROT.
½ Life-size.

Worm-Eating Warbler (*Helmitheros vermivorus*)

Range: Breeds mainly in the Carolinian Zone from southern Iowa, northern Illinois, eastern and western Pennsylvania, and the Hudson and Connecticut River valleys south to southern Missouri, Tennessee, Virginia, and mountains of South Carolina; winters from Chiapas to Panama, in Cuba and the Bahamas.

He who would make the acquaintance of the worm-eating warbler must seek it in its own chosen home, far from which it never strays. It is a bird of shaded hillside and dark thickets along watercourses. Though nimble in its movements and an active insect hunter, it is an unobtrusive little warbler, garbed in very modest colors, and is likely wholly to escape the notice of the unobservant.

There seems to be an unusual degree of jealousy among the males, and a pair, the hunting and the hunted, are often seen pursuing a rapid, zigzag flight through trees and bushes. I imagine that in such cases the pursuing male, whose angry notes show how much in earnest he is, is asserting the right of domain over his own hunting grounds, and driving from his preserves an intruder.

Like several of our terrestrial warblers, the worm-eater has caught the trick of walking, perhaps borrowing it from his thrush neighbors, and he rarely or never hops. In his case the term "terrestrial" must be modified by the statement that to a certain extent he is a connecting link between the arboreal members of the family, as the black-throated green and Tennessee, which descend to the ground only casually, and such species as the Connecticut and the Swainson, which seek their food chiefly on the ground. Of the musical ability of the worm-eating warbler little is to be said save that his song is so very feeble that one must listen carefully to hear it at all, and that it much resembles that of our familiar "chippy" when heard a long distance off. This warbler nests on the ground, often on a hillside or in a shallow depression, and the pairs seem so much attached to their old home that they may confidently be looked for in the same place year after year.

The Bohemian Waxwing (*Bombycilla garrula*)

By W. Leon Dawson

Description.—*Adults:* A conspicuous crest; body plumage soft, grayish-brown or fawn-color, shading by insensible degrees between the several parts; back darker, passing into bright cinnamon-rufous on forehead and crown, and through dark ash of rump and upper tail-coverts into black of tail; tips of tail feathers abruptly yellow (gamboge); breast with a vinaceous cast, passing into cinnamon-rufous of cheeks; a narrow frontal line passing through eye, and a short throat-patch velvety black; under tail-coverts deep cinnamon; wings blackish-ash, the tips of the primary coverts and the tips of the secondaries on outer webs, white; tips of primaries on outer webs bright yellow, whitening outwardly; the shafts of the rectrices produced into peculiar flattened red "sealing-wax" tips; bill and feet black. Length about 8.00 (203.2); wing 4.61 (117.1); tail 2.56 (65.); bill .47 (11.9).

Recognition Marks.—Chewink size; grayish-brown coloration. As distinguished from the much more common Cedar-bird: belly *not* yellow; white wing-bars; under tail-coverts cinnamon.

General Range.—Northern portions of northern hemisphere. In North America, south in winter irregularly to Pennsylvania, Ohio, Illinois, Kansas, southern Colorado and northern California. Breeds north of United States; also possibly in the mountains of the West.

Perhaps we shall never know just why these gentle Hyperboreans spend their winters now in New England, now in Wisconsin, now in Washington, or throughout the northern tier of states at once. Their southward movement is doubtless dictated by hunger, and the particular direction may be determined in part at least by the prevailing winds. Years have passed since any have been seen in Ohio, but they are likely to reappear any winter. Usually they appear in flocks of several hundred individuals, and it is asserted on what seems to be good authority, that millions were once seen on the Powder river in Wyoming in flocks rivalling in extent those of the wild pigeons.

The Northern Waxwing is a bird of unrivalled beauty, even surpassing that of the Cedarbird, which it closely resembles in appearance and habits. When with us it feeds by preference upon the berries of the mountain ash and the red cedar, and more rarely upon persimmons. Its life history is as yet imperfectly known, although it has been found breeding near the Yukon and Anderson rivers. It has even been surmised to breed irregularly in the mountains of the United States.

If we were to accuse any bird of wearing a tailor-made gown, it would be this trim, dainty waxwing. The modest, unruffled beauty of the plumage makes it a general favorite. Can you imagine a softer or prettier combination of browns? How tastefully its sober tones are picked out here and there by brilliant bits of color! The scarlet tips of the wing feathers, the yellow edging

BOHEMIAN WAXWING.
(Ampelis garrulus).
About Life-size.

of the tail, the touch of white under the eye and the black bar through it. Could old Polonius, in Hamlet, have hit off better the dress of the waxwing than he did the attire to be preferred by his son Laertes?

"Costly thy habit as thy purse can buy;
Yet, not expressed in fancy; rich, not gaudy."

The conspicuous crest of the waxwing, slightly raised in the picture, together with the black and white about the eye, give him an animated, wide-awake appearance, yet he is not noisy nor active nor quarrelsome. On the contrary, he is a genteel bird, as quiet, moderate and well-behaved as he is well dressed. Occasionally they seem to overdo the "after you, my dear Alfonso" act as is shown by the following observation narrated by Mabel Osgood Wright in *Birdcraft*.

"Last May a flock of fifty or more lodged for a whole morning in a half-dead ash tree near the house, so that seated at ease I could focus my glass carefully and watch them at leisure. They were as solemn as so many demure Quakers sitting stiffly in rows; once in a while they shifted about, and seemed to do a great deal of apologizing for fancied jostlings. Their movements interested me greatly, until finally, to my surprise, I saw an illustration of the old story of their extreme politeness in passing food to one another, which I had always regarded as a pretty bit of fiction. A stout, green worm (for they eat animal as well as vegetable food) was passed up and down a row of eight birds; once, twice it went the rounds, until half way on its third trip it became a wreck and dropped to the ground, so that no one enjoyed it."

The waxwings live in flocks except during the breeding season. They live chiefly on wild fruits. In winter they are most commonly seen in the mountain-ash trees feeding on the berries. They are fond of the buds of the elm and often the walk under a feeding flock is sprinkled with the bud-scales that they have rejected. The young are fed on insects, during the breeding season; therefore, the waxwings are valuable assistants on the farm as bug-exterminators. They are expert fly-catchers. Taking up a position on some commanding limb or tree-stub, they dart off into the air after a passing insect, returning to the same perch time after time, after the fashion of the pewee and phœbe.

The waxwings know as well as the farmer when the early cherries are fit to eat and they help themselves so freely that they have earned the unfortunate name of cherry-bird and with it the farmers' ill-will. The name is unfortunate because people who know him by that name only would naturally think him to be a bad bird, whereas his habit of eating injurious insects makes him one of the desirable birds.

As the waxwings do not seriously harm the late cherries, but prefer the wild ones and other wild fruits then in season, it would seem that they take the early ones not so much from choice as from necessity. Perhaps they feel about the wild cherry as Mr. Henry van Dyke feels about "That concentrated essence of all the pungent sweetness of the wildwood"—the wild strawbery; "doubtless God could have made a better berry, but doubtless God never did."

Your Bird Friends

By Edward B. Clark

If birds are sure of decent companionship and a cup of cold water they never will refuse an invitation to be among those present. Bird thoughts on decent companionship include other birds, men and women who are not disturbed by song and who are not overfond of cats and English sparrows.

A city man with a bit of a garden back of his house can have three or four families of American birds of cheerful habit as his summer neighbors if he cares to pay for good company with a trifle of labor. The suburbanite ought to have six or seven bird families about him, while the man in the country can have as many as he wants and chooses to protect. It is only necessary to do a little fixing up of things round the place and then to whistle a welcome. The birds will come.

The more bird neighbors, the fewer mosquitos, flies, ants and pestiferous things generally. On the house, in the house, and round the house—and this is literal—the songsters will preëmpt places to live. It is best to give some of them lodgings, and all of them a bathroom and a drinking place. You may safely leave the rest of the preparations to your guests.

The first written bit of advice, so far as I know, about how to get bird neighbors, was this: "Kill the cat." In two senses this is capital advice, but if you are fond of your cat and do not care to part with it or to tempt trouble with your neighbor by killing his cat, try the effect of a little training on your own pets and suggest the wisdom of a like course to the man next door. Birds hate cats, but cats love birds. Man kills more hundreds of thousands of his feathered friends every year and the cats go man some hundreds of thousands better. So if you like matins and vespers as only birds can sing them, you first must answer this cat question straight.

The city man can have white-bellied swallows twittering about his roof and snapping up mosquitos and flies outside of his screened windows all summer long if he cares to take the trouble to make a round hole midway of the end of a starch box, and then fasten the box securely to the ridgepole or just under the eaves. He can have bluebirds and wrens in his yard if he will provide tenements for them, and it may be, if he has a thick bush or two, syringa preferred, a catbird will agree to stay and to sing just as well and just as often as he sings in the gardens of the country.

The man of the suburbs can have with him—and ought to have with him from spring till fall—the white-bellied swallow, the purple martin, the wren, the bluebird, the catbird, the chipping sparrow, the phœbe, and maybe the oriole. The man further afield, the farmer, or any country dweller who has a farmer's garden, ought to entertain all the birds thus far named and, in addition, the yellow warbler, the warbling vireo, the brown thrasher, the song sparrow, the rose-breasted grosbeak, the flicker, the jay—if he wants him—and the red-headed woodpecker, which is as handsome a creature as Nature ever put feathers on.

When the birds once come, get settled and show a liking for their surroundings and their host, it takes a lot of snubbing to drive them away. Home love is the growth of a day with the birds, and they are averse to breaking domestic ties. It takes a combination of cats, predatory small boys and coolness in a once warm entertainer to force the summer guests to decamp.

How to get the birds and how to hold them are questions easily answered. I think that the average human will take quickly and kindly to the companionship of the white-bellied swallow and the purple martin. The swallow will stay with you for a long time after you have begun to treat him as no friend should be treated.

Here is a brutal story of the way I once abused the patience and the hearts of a pair of white-bellied swallows. I was a boy and I didn't know any better; moreover I was easing my conscience with the thought that I was doing something "for scientific purposes"—an excuse which has made many a youngster usually with his parents' consent, a nest robber and a slayer of helpless innocents.

I put a starch box with a hole in the end of it on the roof of the parental homestead. Within a week a pair of white-bellied swallows had made in it their fine, feather-lined nest. In another week there were five eggs in the nest. I took them. The swallows still hung about the place and in a few days there were four more eggs in the nest. I took these too. Then another wait, and four more eggs were laid. I took them also. Another week went by and there were three eggs in the nest. These I left. The devoted swallows finally led forth three healthy young ones. That was my last nest-robbing experience. It gives perhaps some idea of what some birds will stand rather than desert a place where they have made a nest and which they quickly have learned to call home.

The white-bellied swallow is a great insect eater. It likes mosquitos and flies as well as a boy likes watermelon. This bird is frequently and properly called the tree swallow, for along the banks of rivers which overflow in the spring it nests in great colonies in holes in flood-killed trees. The feathers of its back when the sun strikes them are a glittering green; its under parts are snow white. It likes the companionship of man, and there is no reason why man should not claim it as a neighbor each succeeding year. A starch box, or any box of the same size, with a doorway hole in the end the size of a silver half-dollar, makes an ideal home for this swift-winged bird.

The purple martin is credited, like the kingbird, with holding eternal hatred of the crow and the hawk. A year or two ago on an Indiana farm I found a colony of martins nesting in a palace of a house on the top of a post midway between the chicken coop and the cornfield. I asked the farmer's wife why she wanted the martins for neighbors. She replied, "They are cheerful and pretty; they eat insects and they won't let a crow or a hawk come near the place." These be reasons enough perhaps for making friends of the martins.

A martin house can be made of any size with assurance that if the surround-

ings are congenial the birds will occupy it. It should be placed on the top of a stout post, certainly twenty-five feet high. The house should be divided into compartments, each seven by eight by ten inches, and the entrance hole should be nearly as large as a silver dollar. The martins like the open, and their home should be built a little apart from the trees.

The house wren is a tuneful and most curiously interesting summer companion. This bird will nest in a stovepipe hat if it is hung up in a tempting place. The hat should be nailed to the side of the barn or the house or the porch pillar, with the top outward. A hole just the size of a quarter of a dollar in the center of the crown of the hat makes a proper doorway, big enough for the wren to go in and out, and small enough to keep the English sparrow from invading.

Wren houses can be made beautiful enough to be an ornament to the garden. But the wrens don't care for beauty; they look for comfort and protection, and they will leave a bijou box of a house vacant to take up quarters in a tomato can, provided the can has the better site.

The English sparrows drive the wrens away, although the house wren has a fighting spirit all out of proportion to its size. The sparrow overcomes it, but only by sheer force of numbers. One wren can thrash ten sparrows, but he can't thrash a hundred. The small hole in the nesting box is the salvation of the wren and its housekeeping.

It has been said that the house wren is a curiously interesting bird to watch. While the female is covering her eggs the male frequently busies himself with building, or partly building, make-believe nests. He will give over perhaps five minutes of every hour of his eating time to the labor of carrying small twigs and straws into various nooks and corners of the piazza or of the wood pile. No one knows just why the bird does this, but it seems to amuse him and he tries to be as secretive about the operation as if it were really the intention of himself and his wife to make use of the dozen holes which he has stuffed full of material. Marsh wrens, which are cousins of the house wrens, have been known actually to complete two or three nests before they decide definitely which one they ought to occupy for housekeeping purposes.

The bluebird is a beauty. It was a trifle amusing last winter to hear that early spring was certain because bluebirds had been seen in Maryland and in Pennsylvania late in January. There are bluebirds in Maryland and in Pennsylvania and in other states of the same latitude all the winter through.

The bluebird's natural nesting-place is a hole in a tree or in a decayed stump. It takes kindly, however, to the house which man prepares for it, and if the English sparrows are not too many for it, it will nest in a box nailed under the piazza, under the eave trough of a low roof, or placed in a tree or on a post in the garden. The bluebird's song is said to be the only true love song in Nature. It has one song for spring and another for autumn, and each has an appealing quality which no man yet properly has been able to sense in words. It is a mannerly bird, affectionate and confiding.

The bluebird box should be at least ten inches deep, eight inches high and eight inches wide. The hole at the end should be midway between the top and the bottom, and it should be fully the size of a silver half-dollar. The English sparrow is just about the size of a bluebird, and for some reason this alien is particularly spitefully disposed toward the native. It is possible because the American songster wears the colors of its country—red, grayish white and blue. Sentinel duty over cats and English sparrows is the price one must pay to secure and hold the bluebird as a summer companion.

All the homes which money and labor can put up will not attract bird neighbors unless there is water near at hand. The birds want water to drink and water to bathe in. They drink constantly and "tub it" at least two or three times a day. Sink a tin or an earthernware dish about three inches into the turf of the lawn, making the edge of the dish even with the top of the ground, and into it twice a day pour fresh water. It is the most potent attraction for all kinds of birds, and you will find that not only your own friends but others from a distance will come to bathe or to drink. An Illinois man who watched his water pan daily through the summer had on September first a list of seventy-five species of birds which had accepted his hospitality.

The catbird, the rose-breasted grosbeak, the robin, the oriole and other birds which like man's companionship, do not build in houses; but they will make their nests in the trees and shrubbery of the yard if the conditions of safety are such as to appeal to them. It is not necessary to feed the birds in summer, although food on occasion is gratefully received. Water and protection are the needful things.

The catbird will build in the syringa bush, the robin in the maple, the phœbe on the top of the pillar under the porch, the oriole will swing its cradle in the elm or in any other tree if there is no elm; the song sparrow will build on the ground in the neglected corner which should be a part of every well-regulated country garden; the scarlet tanager and the rose-breasted grosbeak easily may be tempted to nest within the zone of friendship, and with these and others the song circle and the color scheme will be nearly enough complete to satisfy him who loves the out-of-doors and its people.

The Rose-Breasted Cockatoo (*Plictolophus leadbeateri*)

By Gerard Alan Abbott

Length: About 12 inches.

Range: Australia.

The Rose-breasted Cockatoos are natives of Australia and frequent the larger portion of that continent. They are gregarious birds though the flocks are never very large. It is said that they dislike the strong and hot rays of the sun and during clear days frequent the tops of trees where they are shaded by

the foliage. They are very careful of their plumage, when in the wild state, and spend much time in preening their feathers. Their habits are exceedingly interesting as they are graceful in their motions and playful. Dr. W. T. Greene says, regarding the habits of this Cockatoo: "He is quite a gymnast too, and the way in which he swings himself round and round on his perch, with expanded wings and tail, is no less amusing than interesting. The love-making again of a pair is a sight to be seen. What a series of bows and capers, what tender, self-contained warbling! To hear him 'coo' to his lady-love, you would never suppose him to be the pink fiend, whose piercing shrieks but just now drove you from his presence with your fingers in your ears." When dissatisfied or hungry these Cockatoos are very noisy, but when in a satisfied mood their notes are much more quiet and less unpleasant.

While the notes of Mr. Greene apply more particularly to these birds when in captivity they are also noisy in their native haunts, but their utterances do not seem as harsh and grating. In this connection Mr. Greene has said: "A flock of Rosy Cockatoos playing among the branches, or seeking their food among the long kangaroo-grass of some untilled plain, or disporting themselves by the margin of a pond, or creek, afford one of the prettiest sights it is possible to imagine; their noisy outcries are not so noticeable then, but mingle rather harmoniously as the altos in the great concert of nature, in which the cicadas, or locusts, take the treble parts."

While the Rose-breasted Cockatoos show a decided fondness for shade during the period of midday heat, some of the other cockatoo species will ascend in large flocks to such heights, even though the heat of a tropical noon is very great, that they are hardly visible to the unaided eye. None of the cockatoos do much in the way of nest building. Their eggs, varying from two to four in number, are usually laid upon the refuse which has gathered in the hollow of a tree. The Cockatoo, which we illustrated, though it usually nests in the hollow branches of the gum trees of the forests in the area which the birds of this species inhabit, is said also to nest at times in the hollows of rocky ledges. Two or three white eggs are laid which are hatched in about twenty-one days.

The food of these Cockatoos, and also of related species, consists of fruits, seeds, larvæ and adult insects. As they are gregarious, it is said that sometimes flocks will do great damage while feeding in freshly planted grain fields, and for this reason are greatly disliked by agriculturists of the regions they frequent and are destroyed in large numbers. This may be done easily, for they are neither shy nor watchful birds.

The elegant and brightly colored plumage and the graceful movements of the Rose-breasted Cockatoos would make them very desirable pets were it not for their loud and discordant notes or, perhaps more properly, screams. They are also much more noisy than some of the other species. While they are easily tamed when young, a cage never seems to become a pleasing habitation and their piercing voice is frequently heard in protest.

ROSE-BREASTED COCKATOO.
(Psittacus roseicapillus).
½ Life-size.

The Canada Jay (*Perisoreus canadensis*)

By John Macoun

Length: 11½ inches.

Range: Eastern North America, from northern United States northward.

Common all the way from Missinabi, on the Canadian Pacific railway, down the Moose river, and through Ungava to Ungava bay in 1896, and in 1904 north to Cape Henrietta Maria on the west coast of Hudson bay. (*Spreadborough.*) An abundant resident in Nova Scotia. (*Downs.*) A common winter resident in Cumberland county, N. S.; very fearless, coming about the buildings for scraps; I saw birds with grass in their bills late in March; they evidently nest in April. (*C. H. Morrell.*) A few observed at Baddeck, Cape Breton island. (*F. H. Allen.*) A common resident at Sydney, Cape Breton island, but could find no one who had ever seen a nest. (*C. R. Harte.*) Not uncommon in back districts in Nova Scotia. (*H. F. Tufts.*)

With mingled sound of horns and bells,
A far-heard clang, the wild geese fly,
Storm-sent, from Arctic moors and fells,
Like a great arrow through the sky,
Two dusky lines converged in one,
Chasing the Southward-flying sun;
While the brave snow-bird and the hardy Jay
Call to them from the pines, as if to bid them stay.

—*John Greenleaf Whittier.*

Audacious, extremely bold, fearless, cunning, destructive, greedy, amusing, and a thief, are all terms which may be applied to the Canada Jay. It is so well known to the campers throughout its range and so various are its habits that it has been given a number of common names. It is known as Whisky Jack or Whisky John, names which sound like its Indian name Wiss-ka-chon or Wis-ka-tjon, and are corruptions of it. Some of its other names are meat bird, venison hawk, grease bird, moose bird and caribou bird. It has no more appropriate name, however, than that of camp robber, a name by which it is known throughout the length and breadth of its range. That this name well fits this impudent bird is shown by the following quotation from *The American Field:* "He will eat anything from soap to plug tobacco. His appetite and capacity to stow away food is beyond belief. One day we had a dozen large salmon trout hung up to dry, but being absent from camp for a few hours we returned to find four whisky Jacks had totally annihilated our fish. They would fly off with pieces half as large as themselves and in a few minutes return for more. It is not possible they could have eaten it all. I have fed them small bits until they

could hardly fly enough to get in a tree. Our pork, soap, tobacco and other provisions were unsafe in their sight and reach. Our Indians used to say: 'Him eat moccasins, fur cap, matches, anytink.' I once snared two of them and put them in a cage made of birch bark and tamarack roots. Half an hour after their capture they would eat greedily from my hand. He is well named 'Whisky Jack,' as I never saw a more insane, drunken-acting creature in my life." One observer of the habits of this Jay relates the following account: While eating his lunch he laid a bag of crackers on the ground by his side. A Canada Jay, noting this action, flew down to the bag and entering the open top began to help itself. The observer quickly grasped the top of the bag, and closing the opening, caught the Jay. Regarding the food of this, the boldest of all our birds—possibly excepting the chickadee—it may be said that they will devour, or at least take and hide, everything that can be eaten.

While one writer has said that the Canada Jay does not "possess a single good quality excepting industry," and even though its thieving propensities make it a consummate nuisance, it has, perhaps, some redeeming features in its lack of character. Throughout its range, which extends from northern New England, northern New York, northern Michigan, and northern Minnesota, northward to the Arctic regions of America, the Canada Jay is the constant companion of the trappers, hunters and lumbermen who camp in its environment. Its antics and the varied phases of its habits serve as entertainment for them. It commands attention, for its peculiarities are well worth studying. One never knows what it will do next. As it does not seem to fear man, it easily becomes tame. Mr. Ernest E. Thompson, who has had the companionship of the Canada Jay at numberless camps in the winter woods of the Northwest, and has had an excellent opportunity to study its habits, says: "I have fed it with scraps placed in such situations that its courage would be sorely tried before it could secure the dainties. Once I laid a piece of meat on the snow between myself and my companion. After one or two approaches the bird rushed in and seized the morsel. Then I laid a piece between myself and the fire, some six feet away; this also was taken. Finally I stuck a piece on the end of the pot stick, which is a stout stick propped up so that it affords support to a kettle over the fire; and although by so doing the bird had to fly down within six inches of a hot clear fire, without hesitation it dashed in and secured the prize. Long experience has taught it that a camp is a sure place for a feast, and as soon as the ax is brought into play to prepare the fire-wood it is usual to hear the responsive *'tay tay'* of the Wiskachon approaching from some distant part of the timber."

Though the Canada Jay does damage many pelts obtained by the trapper, by eating holes in them, and is constantly pilfering all the eatables of the camp within reach of its bill, these are, perhaps, not its worst sins. It is well known that this Jay will destroy the eggs and young of other birds. Mr. Edward A. Samuels says: "I once knew of a single pair of these birds destroying the young

CANADA JAY.
(Perisores canadensis)
⅞ Life-size.

in four nests of the common snowbird (*Junco hyemalis*) in a single day. I found these nests in an old abandoned lumber-road on the morning of June 20th; in the afternoon, when I returned through the same path, every nest was depopulated; and a pair of these Jays were lurking in the trees, shouting defiance at us, while surrounded by the afflicted snowbirds that were uttering their cries of complaint and sorrow."

The common call-note is not unlike that of our well-known blue jay, but in addition, the Canada Jay has several other notes which are its own. Mr. Thompson says that some of these are "the melancholy sobs and wails which, sounding so uncanny among the gloomy evergreens, have surrounded the bird with an atmosphere of mythic interest. Almost the only musical sound that I have heard it utter is a metallic *'chuck chuck,'* not unlike that of the robin."

While it is loquacious at all other times, this Jay, like the other members of the family, during the breeding season dislikes publicity and is a silent and retiring bird. Though it moves about upon the ground and in the trees with ease and facility, it flies in a laborious manner by almost constant flapping of the wings.

The Canada Jay nests very early in the spring. Low temperature and the presence of snow and ice does not deter it from building its nest, laying its eggs and incubating them. Mr. Thompson says there is no doubt that "one or the other parents always remain with the eggs, but still it is difficult to see how they can keep them from freezing when the surrounding air is chilled to thirty degrees below zero." Mr. Dugmore has described its nest as "composed of twigs and strips of bark, with a thick lining of moss and feathers, and it is placed in a fir tree close to the trunk, at no very great distance from the ground." The down and catkins of the cottonwood trees, and its own feathers are also used in the construction of the walls of the nest and in the lining.

Say what we will regarding the reprehensible habits of the Canada Jay, if they were removed from the vast coniferous forests of the North, they would be sorely missed by the hunters, trappers and lumbermen, whose companions they are during many lonely hours in the midst of the deep snows of winter. They are not migratory birds and are supposed to store a supply of food for the barren time of winter. This would certainly seem necessary, for "four or five fluffy little jays, that look as if they were dressed in gray fur, emerge from the eggs before the spring sunshine has unbound the icy rivers or melted the snowdrifts piled high around the evergreens."

The Kentucky Warbler (*Oporornis formosus*)

By Lynds Jones

Description—*Adult male*: Crown lustrous black, more or less tipped even in highest plumage, at least behind, by obscure olive or grayish slate; a bright yellow line over eye and curling around it behind; a black patch on side of head, including, lores, produced downward on side of neck as though forming incipent collar; remaining upper parts uniform olive-green; below gamboge yellow, pure and continuous; olive-shaded on sides; bill slightly curved, dark above, light below; feet very pale. *Adult female*: Similar but with perceptibly less black on head, because of more extensive grayish skirtings. *Both sexes in winter*: The back of the crown is further veiled and with brownish tips, while the black on sides of head is partially obscured in the same manner. *Immature birds* lack the black on head or have it concealed in inverse ratio to age. Length 5.25-5.75 (133.3-146.1); wing 2.69 (68.3); tail 1.96 (49.8); bill .44 (11.2).

Recognition Marks—Medium Warbler size. Pattern of black and yellow on head distinctive, save as regards the "Maryland" Yellow-throat. It is larger and more deliberate in its movements than the latter bird, and differs further in having continuous yellow on the lower parts.

Nest—A bulky affair of dead leaves and grasses, lined with rootlets, and sometimes hair; usually on the ground, concealed or not by overgrowth. *Eggs*, 4 or 5, sometimes 6, white or grayish white, speckled, spotted or blotched with umber, cinnamon and lilac-gray, chiefly about larger end. Av. size, .73x.58 (18.5x14.7).

General Range—Eastern United States west to the plains, breeding from the Gulf States north to southern New England and southern Michigan. In winter, West Indies, eastern Mexico, and Central America to Panama.

The local preferences of the Kentucky Warbler lie about midway between those of the Oven-bird and the Louisiana Water Thrush; and there is much in the bird's appearance and manner to remind one of its near relationship to the *Seiuri*. But the bird is no mere echo of another more illustrious; its ways are its own, and its personality most marked. Damp hillsides, heavily wooded and with dense undergrowth, are the chosen haunts of this distinguished Warbler, especially if at the bottom of the hill there is a half-open glade set about with bush-clumps and a tiny stream of water trickling through it. Here the Warbler seeks its food upon the ground, *walking* instead of hopping over its surface, stooping to peer under a projecting stone, turning over a suspected leaf, and nimbly gathering in the scurrying harvest. Now the bird flits up to a fallen log and measures its length, now dives into a cranny behind it, and now emerges again in time to leap into the air for a passing insect. Through long association with mother earth the Kentucky Warbler has also acquired, tho in a lesser degree, that strange bobbing motion of the tail, peculiar to many ground-haunting species.

KENTUCKY WARBLER.
Life-size.

Interest in this bird is heightened by the fact that it is exceedingly shy, not only keeping to the wilder glens and out-of-the-way places, but carefully avoiding exposure of its golden plumage when found. More than once the bird-man has crept on hands and knees through a thicket to obtain a glimpse of this demure beauty, thus rendering an homage which a less modest bird could not have compelled. Like most birds, however, the male Kentucky lays aside inconvenient scruples during the season of song, and his voice is one of the boldest as well as sweetest in the woods. At this time he mounts a low branch, and, standing lengthwise, pours out at frequent intervals a clear, rich, ringing strain of three or four similar notes. *"Peé-u-dle, peé-u-dle, peè-u-dle,"* he seems to Mr. E. J. Arrick of McConnellsville to say; while other birds less commonly accent the last syllable of each phrase, *tit-oo-reét, tit-oo-reét, tit-oo-reét.* So intent does the bird become upon his music that if frightened from one perch he will immediately resume his song upon another.

As in the case of all ground-nesting warblers, the nest is rather difficult to find, since it is committed to the protection of some obscure weed-clump or sapling. The surest method of discovery is to spy upon the female while the nest is a-making. According to Messrs. Morris and Arrick, who have had great success in finding the nest of this Warbler, they are to be sought upon the bottoms of the glades rather than upon the hillsides, where the birds otherwise spend the greater portion of their time.

The Kentucky Warbler, with its rich colors and symmetrical form, is to be classed among the elect of the warbler tribe. Moreover, while locally common it is never so abundant that it does not excite a thrill of interest in the breast of even the most blasé of bird observers. It loves the deep, dark forest and shaded ravine, where the foliage overhead casts heavy shadows on the plentiful undergrowth beneath and where even in midsummer it is moist and cool.

The bird is a persistent singer, and in its own chosen haunts its loud, sweet song may be heard all day long. There is a curious resemblance between its ditty and that of the Carolina Wren, and while no one can mistake the two songs when heard close by, at a distance even the expert may be puzzled. This Warbler finds most of its food on the ground, and the thick undergrowth in which it hunts makes it difficult to learn much of its habits by observation, since it is difficult to keep an individual in sight many minutes at a time.

It builds a rather loose, bulky nest, largely of leaves and grasses, which is placed either on or just above the ground, and although it may seem to have been rather artlessly located it is in reality well protected by the surrounding vegetation with which it blends, and hence generally escapes the observation of all but the most persistent and sharp-sighted of observers.

The Prairie Warbler (*Dendroica discolor*)

By C. Hart Merriam

Description.—*Adult male*: Above olive-green, brightening on crown, with a triangular area of chestnut-rufous spots or confluent streaks on back; below and on sides of head bright yellow, most intense on superciliary, cheek and throat; with heavy black streaks or stripes on sides of breast and flanks; a blackish line through eye and a broad, black malar stripe; crissum pale, yellowish white; wings and tail dusky with greenish gray edgings on external webs; middle coverts yellowish white on tips; greater coverts edged terminally with gray on outer web, the two forming indistinct bars; two outer pairs of tail-feathers broadly white on inner webs, third pair with central spot; bill blackish; feet dark brown. *Adult female*: Similar to male but duller, and with chestnut-rufous of back much reduced or wanting. *Immature*: Like female but ashy on head (ear-coverts), ashy olive-green above; paler yellow below, etc. Length 4.25-5.00 (108.-127.); av. of four Columbus specimens; wing 2.19 (55.6); tail 1.74 (44.2); bill .37 (9.4).

Recognition Marks.—Smallest of the genus; chestnut-rufous of back distinctive; bears some resemblance to *D. maculosa* below, but smaller and otherwise quite different.

Nest, in bushes or saplings, deeply cup-shaped, composed of fine grasses, plant-fiber, and down, lined with hair. *Eggs,* 4 or 5, white or greenish white, marked with reddish brown and olive-brown, chiefly in a wreath about the larger end. Av. size, .65x.49 (16.5x12.5).

General Range.—Eastern United States to the Plains, breeding from Florida north to Michigan and southern New England. Winters in Southern Florida and the West Indies.

After *D kirtlandi* the Prairie Warbler is with us the rarest of the genus. Its normal range lies much farther south, and those which penetrate our state are to be regarded only as pioneers or as adventurerers without fixed habits. Professor Jones has seen single males at Oberlin on two different occasions, but there are no records for Ontario; and it seems probable that those birds which reach the Lake Erie short in spring turn southward again before settling for the summer.

On the 11th of June, 1903, I came across a singing male on a hill-top near Sugar Grove, at the point shown in the illustration. The bird moved restlessly from place to place, singing indifferently from the depths of black-berry thickets, from the tips of oak saplings, or from the foliage of surrounding forest trees. His time was about equally divided between singing and bug-catching, and altho he might remain in a single clump for five minutes at a time, the bird did not keep the same position for two consecutive seconds. Even during song he would twist and writhe like an Italian prima donna, producing quite as much motion as music.

PRAIRIE WARBLER.
(Dendroica discolor.)
About Life-size.

The song of the Prairie Warbler is a little the most remarkable production in the Mniotiltan repertoire. It is a succession of mellow whistling creaks, each note pitched higher than the preceding, and each gaining somewhat in intensity until the next to the last one is reached. The bird runs a weird chromatic scale upon a fairy oboe, with an effect which Dr. Coues describes as "like a mouse complaining of a toothache."

The bird seen at Sugar Grove was entirely destitute of the "brick-red spots upon the middle of the back," usually recommended as a recognition mark, and certain other marks were less distinct than normally in the adult male. It was probably a male of the second summer which had not yet attained adult plumage.

Birds and Their Young

By L. W. Brownell

I wonder if any of my readers ever stopped to think what a busy life is a bird's. Most especially is this true during the mating season when they have young to provide for. During this time of the year they are busy constantly from daybreak until dark searching for and carrying worms and other insects to their offspring. But this is a labor of love and the birds perform it in the most cheerful manner, even singing at their task. If any of us doubt that it is a task and a hard one at that, he should watch a pair of birds feeding their young in the nest for a few hours and I will warrant that he would not care to assume the same responsibilities. I have often stood hidden near a nest of young and watched the feeding and timed the old birds, and until one has done so he does not begin to realize the immense number of insects, mostly injurious to vegetation, that one family of birds will dispose of in the course of a season.

A pair of field sparrows which I once watched brought food at least once every three minutes during the three or four hours that I watched them and upon each trip from three to six insects were brought. This was in the middle of the day when the business of feeding is not carried on so vigorously as in the early morning. The greatest wonder to me was not where they managed to find so many insects, but how the young ones managed to hold them all, and they were apparently just as hungry at the end of the time as they were at the beginning. When we stop to consider that this work must be kept up every day for at least three weeks, growing even more arduous as the young grow older; that this is not the only duty of the parents but that they must keep their babies well sheltered from the elements; must keep the nest well cleaned; that one of them must always be not far from the nest in order to protect it from predatory enemies; and that with it all they must find time to feed and bathe themselves—for birds are very constant to their bath—we may begin to realize that a bird's life is something of a busy one, at least during the time when the young are being raised.

In a case where a careful record was made it was found that a young bird consumed more than half its own weight in food each day. In another case, during the fifteen days that a brood of young remained in the nest they managed to devour just ten times their weight. These figures I have taken from the notes of a close observer, a man who does not make random statements.

The young of the Gallinaceous birds: the grouse, sandpipers, plovers, ducks, geese, swans, quail, etc., are born with a complete covering of feathers and are able to run about and procure food for themselves within twenty-four hours of the time of their leaving the nest. In point of fact the mother bird has little to do in comparison with some of her cousins. About her only duties are to scratch the ground, as do the hens with a brood of young, in order to uncover the small insects, and to keep them covered and warm at night.

The majority of birds, especially among the perchers, are born naked and for at least the first two weeks of their life need constant care and attention and even after they are able to leave the nest they cannot immediately procure food for themselves. I have often seen a little chipping sparrow, a song sparrow or robin being followed about and feeding a young one nearly, if not quite, as large as the old bird itself. In many cases it has seemed to me to be pure laziness on the part of the younger bird that was fully able to feed and care for itself.

The great majority of nestlings at first receive nothing but partially digested food from the parent's crop which is fed to them by a process known as regurgitation. The old bird inserts her bill well down the young one's throat and pumps up a quantity of half-digested food which goes directly to the nestling's stomach with hardly even the effort of swallowing on its part. This method is used in most cases only until the young is old enough to receive solid food, but occasionally some birds continue it, more as a convenience than as a necessity, much longer than this. Of these latter the herons are a good example. With them it is a convenience in enabling them to carry sufficient food from their fishing grounds to their nests which they could not do in their bills alone. I have many times watched the old herons in the act of feeding their young. The old bird seems to be able to regurgitate as much or as little from the mass in her craw as she considers desirable, and so each one of her brood receives its quota in turn. When they grow older the old bird will often disgorge the entire mass into the nest and then the scrambling and fighting of the young to get at it, and the fierce greediness with which they devour it is ludicrous in the extreme.

The humming bird is probably the best example of the birds which feed their young by regurgitation not only while they are in the naked state but after they have left the nest and before they are fully able to care for themselves. To one who for the first time sees a humming bird feed its young it is undoubtedly a most surprising sight and one which leaves them in little in doubt as to whether the attack was one of an enemy or a friend. I have watched the process many times and yet I can never see it repeated without an instinctive fear that the young one will inevitably be impaled and carried off on the javelin-like bill

of her parent. At one instant the young is quietly sitting, apparently half asleep, on some small branch, at the next the old bird has dashed up, seemingly materialized out of thin air, and has jabbed her sharp, inch and a half long bill down the young one's throat until we are sure that it must be protruding from its back. But far from being frightened or startled by the operation the youngster seems to be enjoying it and hangs on desperately to the mother's bill while she goes through the most terrible contortions in her effort to pump into him the last drop of food which her crop contains. Then in an instant it is over and away she flashes, so rapidly that the eye cannot follow her, leaving the young one to drouse on his perch in anticipation of another onslaught.

The flicker gives another example of this method and is the only one of the woodpeckers that does feed its young in this manner. The old bird collects ants and other small insects sufficient to make a good square meal, and these by the time she has reached the nest are in a state of partial digestion. As soon as she arrives the young scramble for the entrance of the nest and the first one there of course receives first attention. She thrusts her bill down the yawning throat and with the same motion which she employs in drumming upon a tree she pumps part of the contents of her stomach into his. So violent is this motion that it is with the utmost difficulty that the young one is enabled to retain his hold, but no sooner has he dropped off satisfied than another is ready to take his place, and so it goes on until each one is fed or the supply exhausted.

Perhaps the most remarkable provision of all is made by pigeons for their young during the first few days of their career. Immediately after incubation is complete there arises from the crops of both parent birds a secretion that is known as "pigeon milk," and upon this alone for the first day or two of their lives the squabs are fed. Gradually regurgitated food is mixed with it until, when their digestive powers become strong enough to care for solid food, it ceases entirely. So far as is known these are the only birds that secrete such a fluid as this.

The pelicans, those huge water birds of the south and west, of which there are two species, the brown and the white, are fish eaters and get food for themselves and their young by plunging into the sea and catching fish in the large pouch which hangs from the lower mandible of their bill. The young obtain their food from the parent bird in a manner exactly opposite from that which I have been describing. The old bird, having caught and partially digested a fish, returns to its nest where each youngster in turn is invited to thrust its head way down the parent's throat and gobble its full. This, however, only for the first few days of its life, after which the food is brought in the pouch and the young allowed to help themselves as best they may. It is no unusual sight to see a half-grown pelican sitting in a nest with a fish in its mouth so large that it is unable to swallow it, and with the tail protruding from its bill while the head is being digested.

The birds of prey, the hawks, eagles, owls, etc., feed their young on the

animals, mice, rats, small birds, snakes, etc., which they catch and from which they tear small pieces to thrust into the waiting mouths of their babes. These babies soon learn to tear the food for themselves, however, so the old birds merely bring their victims to the nest and allow the young to fight among themselves for the tid-bits.

Birds are solicitous for the welfare of the young in proportion as they have ascended the scale of evolution. Those of the lower orders take the least care and seem to have the least amount of parental affection. The ostrich lays its eggs and then deserts them entirely, trusting to the heat of the sun and sand to hatch them and probably not caring whether they are hatched at all. The grebes, coots, gallinules, etc., care for their young but a short time after hatching them before allowing them to shift for themselves, and even with the ducks the drake deserts his mate as soon as the laying is commenced and seldom returns until all danger of his having to take part in the caring for the young has passed. On the other hand with many of the plovers, phalaropes, etc., the duties of hatching the eggs devolves almost entirely upon the fathers, but by far the best instance of parental love among the precocials is shown by the little bobwhite of our fields. The male is a model husband, and takes entire charge of the first brood while the little mother is sitting upon the second litter of eggs. When these are hatched she leads these, her second brood, forth to join these over which the father has had entire supervision, and thenceforth, through the entire station, the whole family remain together. If some accident happens to scatter them there can be heard a pitiful calling from all directions until the family are again united, but, alas! too often with the loss of one or more of its members.

There are among those birds that are highest in the evolutionary scale degenerates who after the egg is laid have no further interest in it or the young one that comes from it. Of this class two good examples are the European cuckoo and the cowbird of the United States. These birds lay their eggs in the nests of other birds and leave them to the tender mercies of the reluctant foster mother. She sometimes by various methods manages to rid herself of this unwelcome addition to her family, but more often she is forced to hatch the egg and rear the ungainly and unmannerly youngsters with her own brood.

—GUIDE TO NATURE.

Northern Parula Warbler

(Compsothlypis americana usneae)

Range: Breeds mainly in Transition and Austral Zones, from eastern Nebraska, northern Mninesota, central Ontario, and Anticosti and Cape Breton Islands, south to central southern Texas, southern Louisiana, Alabama, Virginia, and Maryland; winters probably in the Bahamas and West Indies to Barbados, and from Vera Cruz and Oaxaca to Nicaragua.

The northern parula, smallest of our warblers, with prevailing colors blue and yellow, is generally distributed during migration and usually found in company with other warblers in leafy trees, which it explores from the lower to the topmost branches. It is one of the most active of the tribe, and is untiring in its pursuits of the minute insects which form its food. Its habit of hanging head downward as it explores a cluster of blossoms suggests a chickadee, and the little fellow is a combination of warbler, kinglet, and chickadee. It is very partial to nesting in usnea moss and so is found in summer along streams or in swampy localities where long streamers of the usnea festoon the trees. The preference of the parula for this moss as a site for its nest is exemplified by a nest I once found in Maryland on the bank of the Potomac, which had been built in the frayed end of an old rope hanging to a sapling and which a short distance away looked to me—and no doubt to the bird—exactly like a clump of usnea. As no usnea occurred in this locality, the bird accepted the frayed rope as a satisfactory substitute, and in so doing followed the spirit if not the letter of family tradition. However, the parula is not strictly limited to usnea for a nesting site and I once saw a pair carrying shreds of bark into a juniper on an island in the Potomac River, the nest being already far advanced toward completion. The parula has a short, buzzing song of which it is prodigal enough, but it is weak and can be heard at no great distance.

The Brunnich Murre (*Uria lomvia*)

By W. Leon Dawson

Description.—*Adult in summer:* Upper parts sooty black, the secondaries narrowly tipped with white; chin, throat, fore-neck, and sides of head and neck snuffy brown; remaining under parts pure white; bill black, the "basal portion of cutting edge of upper mandible thickened and conspicuously light-colored." *Adult in winter and immature:* Similar, but entire under parts, including chin, throat, fore-neck, and sides of head and neck, white. Length 16.50 (41.9); wing 8.25 (209.6); tail 1.85 (47.); bill 1.45 (36.8); depth at angle .55 (14.); tarsus 1.40 (35.6).

Recognition Marks.—Duck size; black above, white below; small wings and tail; upright posture on land or water; rapid flight.

Nesting.—Does not breed in Ohio. "*Nests* in communities, side by side on the bare ledges of rocky cliffs." *Eggs,* one, subpyriform, varying from dull white or buffy to bluish, bluish-green and emerald-green, strikingly spotted, blotched and scrawled with deep chocolate, and obscurely with lilac. Av. size, 3.15x2.00 (80.x50.8).

General Range.—Coasts and islands of the North Atlantic and eastern Arctic Oceans; south to the lakes of northern New York and the coast of new Arctic Oceans; south to the lakes of northern New York and the coast of New Jersey. Breeding from the Gulf of St. Lawrence northward.

Those of us who experience poignant regret upon hearing the tales of Wild Pigeons which "darkened the sun"—thinking that we were perhaps born a generation too late—would probably have our longing for the "tumultuous rushing of myriad wings" thoroughly satisfied could we visit the breeding haunts of the Guillemots in Spitzbergen or off the coast of Alaska. Sober observers tell us that in some places during the breeding season, the roar of a Guillemot rookery will drown the sound of the thundering sea in time of storm; and a gentleman who once visited St. George Island, one of the Pribylov group, affirmed that the flying males of this species at certain hours of the day "form a dark girdle of birds more than a quarter of a mile broad and thirty miles long, whirling round and round the island."

In the winter of '96-7 a driving storm from the Labrador coast caught up a considerable number of these multitudinous sea-fowl and swept them far inland. When the storm had spent its fury the Murres were found promiscuously stranded in the lakes and water-ways, or wandering about dazed and helpless in the fields of Ohio, Indiana, and neighboring states. Many specimens were taken by the hand and others shot at scattered localities; and the village oracles were often sorely put to it to tell what this strange fowl might be. The first published record for Ohio was of the one taken by Rev. J. M. Keck, of Mentor, on December 19, 1896. A score of others have since come to light, all taken at about the same time or a few days later. This memorable inunda-

BRUNNICH'S MURRE.
(Uria lomvia).
⅝ Life-size

tion by Brünnich Murres was general throughout the eastern States and records were made as far south as South Carolina.

The Brünnich Murres are birds which have a decidedly northern range which is very limited within the United States, where it is only a winter visitor. Their range is well known and may be given as the coasts and islands of the North Atlantic and eastern Arctic Oceans, southward to the lakes of northern New York and the coast of New Jersey. Their nesting range extends from the Gulf of St. Lawrence northward. During the winter season of some years they have been observed quite a distance west of their usual range.

This memorable inundation by Brünnich's Murres was general throughout the eastern states and records were made as far south as South Carolina. During the winter, however, the Brünnich's Murres frequent the open sea and keep quite far from land. They are very expert in the water, and when disturbed by the approach of man they will suddenly dive, and using their wings as well as their feet, they will swim for long distances under water.

In his "Birds of Indiana," Mr. Amos W. Butler saw them during the month of December, 1896. This was the same month and year that they appeared in Ohio. Mr. Butler writes as follows: "Brünnich's Murre has, as I have been informed, been reported the present winter from other interior localities. It has, I believe, however, never before been authentically reported far from the ocean. Mr. Robert Ridgway informs me that they have this winter ranged down the Atlantic Coast as far as South Carolina. It would seem probable that some storm had driven them far out of their usual range. Evidently those mentioned herein were carried inland and dispersed about the same time, perhaps by the same storm. They were all taken within a few days. Only twenty-one days elapsed from the date when the first was obtained until the last was in the hands of a naturalist." These are the only Indiana records which are verified by specimens taken.

The Brünnich's Murres nest in groups, frequently very large communities, almost touching each other as they sit upon their single eggs, for but one is ever laid by a Murre, upon the bare ledges of rocky cliffs. The single eggs are laid upon the rocky surface and no attempt is made to build a nest. General Greely in his "Three Years of Arctic Service" says of the Brünnich's Murres on the bird cliffs of Arveprins Island (Northern Greenland): "For over a thousand feet out of the sea these cliffs rise perpendicularly, broken only by narrow ledges, in general inaccessible to man or other enemy, which afford certain kinds of sea-fowl secure and convenient breeding-places. On the face of these sea-ledges of Arveprins Island, Brünnich's Guillemots, or Loons, gather in the breeding season, not by thousands, but by tens of thousands. Each lays but a single gray egg, speckled with brown; yet so numerous are the birds that every available spot is covered with eggs." He also calls attention to the fact that each bird knows its own egg. The eggs are said to be very fine food, and the flesh of these Murres is highly praised by all who have partaken of it.

The Greater Yellow-Legs (*Totanus Melanolecus*)

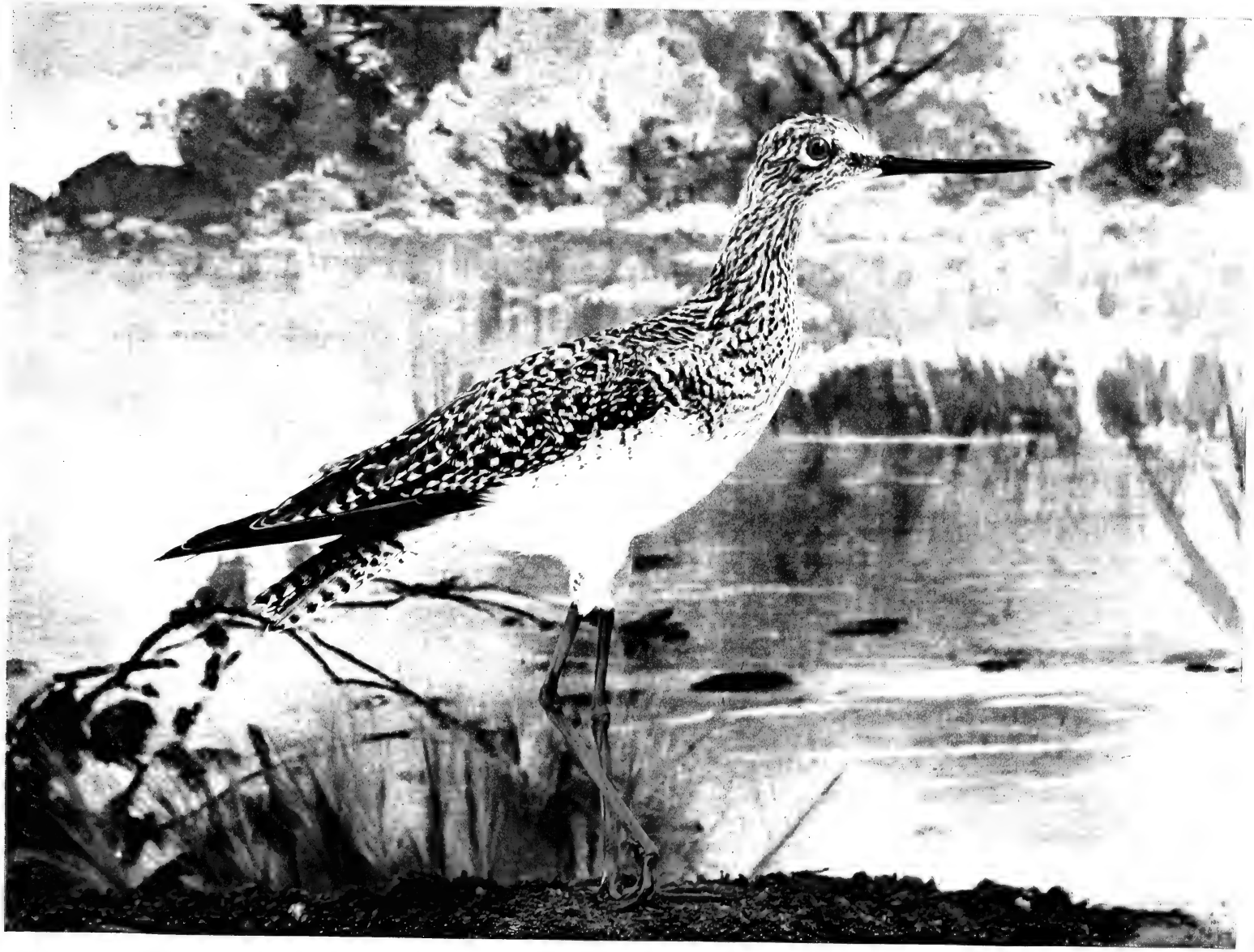
By I. N. Mitchell

Length: 12 inches.

Range: Breeds from Lake Iliamna, Alaska, and southern Mackenzie to southern British Columbia, Ungava, Labrador, and Anticosti Island; winters from southern California, Texas, Louisiana, and Georgia south to Patagonia.

The Yellow-legs is one of the largest and most conspicuous of our shorebirds, and though greatly reduced in numbers, is still comparatively abundant. Like many other shorebirds, its numbers vary locally and with different years, such fluctuations being chiefly due no doubt to favorable and unfavorable breeding seasons in the far North. On the eastern coast the Yellow-legs has learned that flight over the sea to its winter quarters in South America is safer than an all-land route where expectant gunners beset the shores, and this practical knowledge has greatly aided in conserving species. The bird has a loud and mellow call note which is easily imitated and if often employed in connection with wooden decoys to lure a flock within range of the deadly shotgun. Experience, however, soon teaches the Yellow-legs to be shy and suspicious, and its long neck and still longer legs eminently fit it for the post of watchman in a flock of shorebirds. For our big wader has a most friendly disposition, and associates on the closest terms with other members of the long-legged fraternity, both large and small. Hence among them its loud call has come to be recognized as a warning of danger.

No bird bears a more appropriate name than does this wader with its long yellow legs. In many localities Greater Yellowshanks is the name by which it is commonly known, and who that is acquainted with it does not recognize that the name Tell-tale is also very characteristic of the bird's habits. When flushed, the Yellow-legs excitedly rise from their feeding grounds uttering loud whistling notes which cannot well be expressed in syllables, but are easily imitated by the hunter. Other water and shore birds have learned that this piercing whistle is indicative of danger and they, too, take flight. Mr. Wilson has said: "Nature seems to have intended this bird as a kind of spy, or sentinel, for the safety of the rest; and so well acquainted are they with the watchful vigilance of this species that while it continues silent among them, the ducks feed in the bogs and marshes without the least suspicion. The great object of the gunner is to escape the penetrating glance of this guardian, which it is sometimes extremely difficult to effect. On the first whistle of the Tell-tale, if beyond gunshot, the gunner abandons his design." Not only is this whistle of the Tell-tale loud and shrill, but also its very tone is that of alarm. Its usual whistling call notes are so penetrating that, even when the bird is flying at a great height where it is almost invisible to the eye, the sound reaches the earth and can be distinctly heard. It is inquisitive and seldom fails to respond to a good imitation of their call by the hunter. In fact, it will check its onward flight



75

GREATER YELLOW LEGS.
(Totanus melanoleucus).
½ Life-size.

and turning back fly over the patch whence it came, in its desire to locate the source of the new call.

Mr. Frank M. Chapman has beautifully described the habits of the Greater Yellow-legs when responding to an imitated call. He was half reclining in his blind, and saw "in fancy, the staring decoys, pointing like weathercocks with the wind." He says: "Few birds are flying; lulled by the *lap, lap* of the water, I have almost fallen asleep, when far up in the gray sky comes a soft, flutelike whistle, *wheu, wheu-wheu-wheu-wheu-wheu-wheu-wheu.* I respond quickly, and lying on my back, look eagerly upward. Not a bird can be seen, but the questioning call grows stronger and is repeated more frequently. Finally I distinguish five or six black points sailing in narrow circles so high that I can scarcely believe they are the birds I hear. But no bar or shoal breaks the sound waves. The birds, grown larger and on widening circles, sweep earthward. The soft whistle has a plaintive tone; their long bills turn inquiringly from side to side. The stolid decoys give no response, they repel rather than encourage, but the whistling continues, and with murmured notes of interrogation the deluded birds wheel over them, to find too late that they have blundered."

None of the waders are more graceful than the Greater Yellow-legs. They frequent watery bogs and the muddy margins of streams. There they search for their food of insect larvae, small crustaceans and fish, worms and small mollusks, frequently wading in water deep enough to reach more than half way up to their bodies. In flying their necks and legs are extended to their full length. Their flight is swift and frequently they rise to great heights. When about to alight, they circle several times over the locality before settling. When they do alight, they stand for a few moments with their wings held over the body and pointing directly upward. It has been suggested that this habit arises from a desire to test the firmness of the soft soil before they bear their weight upon it. When wading, they move about in a quick and apparently excited manner, "with much balancing and vibrating of the body and graceful darting of the head in various directions," while they seek for their food.

The Greater Yellow-legs exhibits great anxiety and sympathy for a wounded companion and for a time seems to forget its own danger.

The range of the Greater Yellow-legs is an extensive one which includes America in general. It breeds from Northern Illinois and Iowa northward, and migrates south in the fall as far as Patagonia, some wintering in the Gulf states. In its migrations, it seldom remains more than a day or two at any one station, though the fall passage is somewhat slower than that of spring, when it seems to be in haste to begin the work of nesting.

Audubon has said: "When in Labrador, I found these birds breeding, two or three pairs together, in the delightful quiet valleys bounded by rugged hills of considerable height, and watered by limpid brooks. These valleys exhibit, in June and July, the richest verdure, luxuriant grasses of various species growing here and there in separate beds many yards in extent, while the intervening spaces, which are comparatively bare, are of that boggy nature so congenial to the habits of this species."

About Parrots

By Lawrence Irwell

Naturalists place the parrot group at the head of bird creation. This is done, not, of course, because parrots can talk, but because they display, on the whole, a greater amount of intelligence, of cleverness and adaptability to circumstances than other birds, including even their cunning rivals, the ravens and the jackdaws.

It may well be asked what are the causes of the exceptionally high intelligence in parrots. The answer which I suggest is that an intimate connection exists throughout the animal world between mental development and the power of grasping an object all round, so as to know exactly its shape and its tactile properties. The possession of an effective prehensile organ—a hand or its equivalent—seems to be the first great requisite for the evolution of a high order of intellect. Man and the monkeys, for example, have a pair of hands; and in their case one can see at a glance how dependent is their intelligence upon these grasping organs. All human arts base themselves ultimately upon the human hand; and our nearest relatives, the anthropoid apes, approach humanity to some extent by reason of their ever-active and busy little fingers. The elephant, again, has his flexible trunk, which, as we have all heard over and over again, is equally well adapted to pick up a pin or to break the great boughs of tropical forest trees. The squirrel also, remarkable for his unusual intelligence when judged by a rodent standard, uses his little paws as hands by which he can grasp a nut or fruit all round, and so gain in his small mind a clear conception of its true shape and properties. Throughout the animal kingdom generally, indeed, this chain of causation makes itself everywhere felt; no high intelligence without a highly-developed prehensile and grasping organ.

Perhaps the opossum is the best and most crucial instance that can be found of the intimate connection which exists between touch and intellect. The opossum is a marsupial; it belongs to the same group of lowly-organized, antiquated and pouch-bearing animals as the kangaroo, the wombat, and other Australian mammals. Everybody knows that the marsupials, as a class, are preternaturally dull—are perhaps the least intelligent of all existing quadrupeds. And this is reasonable when one considers the subject, for they represent a very early type, the first "rough sketch" of the mammalian idea, with brains unsharpened as yet by contact with the world in the fierce competition of the struggle for life as it displays itself on the crowded stage of the great continents. They stand, in fact, to the lions and tigers, the elephants and horses, the monkeys and squirrels of America and Europe, as the native Australian stands to the American or the Englishman. They are the last relic of the original secondary quadrupeds, stranded for centuries on a Southern island, and still keeping up among Australian forests the antique type of life that went out of fashion elsewhere a vast number of years

ago. Hence they have brains of poor quality, a fact amply demonstrated by the kangaroo when one watches his behavior in the zoological gardens.

Every high-school graduate is well aware that the opossum, though it is a marsupial, differs in psychological development from the kangaroo and the wombat. The opossum is active and highly intelligent. He knows his way about the world in which he lives. "A 'possum up a gum tree" is accepted by observant minds as the very incarnation of animal cunning and duplicity. In negro folklore the resourceful 'possum takes the place of the fox in European stories; he is the Macchiavelli of wild beasts; there is no ruse on earth of which he is not amply capable; and no wily manœuvre exists which he cannot carry to an end successfully. All guile and intrigue, the 'possum can circumvent even Uncle Remus himself by his crafty diplomacy. And what is it that makes all the difference between this 'cute marsupial and his backward Australian cousins? It is the possession of a prehensile hand and tail. Therein lies the whole secret. The opossum's hind foot has a genuine apposable thumb; and he also uses his tail in climbing as a supernumerary hand, almost as much as do any of the monkeys. He often suspends himself by it, like an acrobat, swings his body to and fro to obtain speed, then lets go suddenly, and flies away to a distant branch, which he clutches by means of his hand-like hind foot. If the toes make a mistake, he can recover his position by the use of his prehensile tail. The result is that the opossum, being able to form for himself clear and accurate conceptions of the real shapes and relations of things by these two distinct grasping organs, has acquired an unusual amount of general intelligence. And further, in the keen competition for life, he has been forced to develop an amount of cunning which leaves his Australian poor relations far behind in the Middle Ages of psychological evolution.

At the risk of appearing to forsake my ostensible subject altogether, I must pause for a moment to answer a very obvious objection to my argument. How about the dog and the horse? They have no prehensile organ, and yet they are admitted to be the most intelligent of all quadrupeds. The cleverness of the horse and the dog, however, is acquired, not original. It has arisen in the course of long and hereditary association with man, the cleverest and most serviceable individuals having been deliberately selected from generation to generation as dams and sires to breed from. We cannot fairly compare these artificial human products with wild races whose intelligence is entirely self-evolved. In addition, the horse has, to a slight extent, a prehensile organ in his mobile and sensitive lip, which he uses like an undeveloped or rudimentary proboscis with which he can feel things all over. We may conclude, I believe, that touch is "the mother-tongue of the senses"; and that in proportion as animals have or have not highly developed and serviceable tactile organs will they rank high or low in the intellectual hierarchy of nature. It may well be asked how all this concerns the family of parrots. In the first place, anybody who has ever kept a parrot or a macaw in slavery is well aware that in no other birds do the claws

so closely resemble a human or simian hand, not indeed in outer form or appearance, but in apposability of the thumbs and in perfection of grasping power. The toes upon each foot are arranged in opposite pairs—two turning in front and two backward, which gives all parrots their peculiar firmness in clinging on a perch or on the branch of a tree with one foot only, while they extend the other to grasp a fruit or to clutch at any object they desire to possess. This peculiarity, it must be admitted, is not confined to the parrots, for they share the division of the foot into two thumbs and two fingers with a large group of allied birds, called, in the exact language of technical ornithology, the Scansorial Picarians, and more generally known by their several names of cockatoos, toucans and woodpeckers. All the members of this great group, of which the parrots proper are only the most advanced and developed family, possess the same arrangement of the digits into front-toes and back-toes, and in none is the power of grasping an object all round so completely developed and so full of intellectual consequences.

All the Scansorial Picarians are essentially tree-haunters; and the tree-haunting and climbing habit seems specially favorable to the growth of intellect. Monkeys, squirrels, opossums, wild cats, are all of them climbers, and all of them, in the act of climbing, jumping and balancing themselves on boughs, gain such an accurate idea of geometrical figures, distance, perspective and the true nature of space-relations as could hardly be acquired in any other way. In a few words, they thoroughly understand the tactual realities that answer to and underlie each visible appearance. This is, in my opinion, one of the substrata of all intelligence; and the monkeys, possessing it more profoundly than any other animal, except man, have accordingly reached a very high place in the competitive examination perpetually taking place under the name of Natural Selection.

So, too, among birds, the parrots and their allies climb trees and rocks with exceptional ease and agility. Even in their own department they are the great feathered acrobats. Anybody who watches a woodpecker, for example, grasping the bark of a tree with its crooked and powerful toes, while it steadies itself behind by digging its stiff tail-feathers into the crannies of the outer rind, will readily understand how clear a notion the bird must gain into the practical action of the laws of gravity. But the true parrots go a step further in the same direction than the woodpeckers or the toucans; for in addition to prehensile feet, they have also a highly-developed prehensile bill, and within it a tongue which acts in reality as an organ of touch. They use their crooked beaks to help them in climbing from branch to branch; and being thus provided alike with wings, hands, fingers, bill and tongue, they are the most truly arboreal of all known animals, and present in the fullest and highest degree all the peculiar features of the tree-haunting existence.

Nor is this all. Alone among birds or mammals, the parrots have the curious peculiarity of being able to move the upper as well as the lower jaw. It

is this strange mobility of both the mandibles together, combined with the crafty effect of the sideways glance from those artful eyes, that gives the characteristic air of intelligence and wisdom to the parrot's face. We naturally expect so clever a bird to speak. And when it turns upon us suddenly with some well-known maxim, we are not astonished at its remarkable intelligence.

Parrots are true vegetarians; with a single degraded exception, to which I shall recur hereafter, they do not touch animal food. They live chiefly upon a diet of fruit and seeds, or upon the abundant nectar of rich tropical flowers. And it is mainly for the purpose of getting at their chosen food that they have developed the large and powerful bills which characterize the family. Most of us have probably noticed that many tropical fruit-eaters, like the hornbills and the toucans, are remarkable for the size and strength of their beaks; and the majority of thinking people are well acquainted with the fact that tropical fruits often have thick or hard or bitter rinds, which must be torn off before the monkeys or birds, for whose use they are intended, can get at them and eat them.

As monkeys use their fingers in place of knives and forks, so birds use their sharp and powerful bills. No better nut-crackers and fruit-parers could possibly be found. The parrot, in particular, has developed for the purpose his curved and inflated beak—a wonderful weapon, keen as a tailor's scissors, and moved by powerful muscles on both sides of the face which bring together the cutting edges with extraordinary energy. The way the bird holds a fruit gingerly in one claw, while he strips off the rind dexterously with his under-hung lower mandible, and keeps a sharp look-out meanwhile for a possible intruder, suggests to the observing mind the whole living drama of his native forest. One sees in that vivid world the watchful monkey ever ready to swoop down upon the tempting tail-feathers of his hereditary foe; one sees the parrot ever prepared for his rapid attack, and eager to make him pay with five joints of his tail for his impertinent interference with an unoffending fellow-citizen of the arboreal community.

Of course there are parrots and parrots. The great black cockatoo, for example, the largest of the tribe, lives almost exclusively upon the central shoot of palm trees; an expensive kind of food, for when once this so-called "cabbage" has been eaten, the tree dies, so that each black cockatoo must have killed in his time whole groves of cabbage-palms. Other parrots live on fruits and seeds; and quite a number are adapted for flower-haunting and honey-sucking.

As a group, the parrots must be comparatively modern birds. Indeed, they could have no place in the world till the big tropical fruits and nuts were beginning to be developed. And it is now generally believed that fruits and nuts are for the most part of recent and special evolution. To put the facts briefly, the monkeys and parrots developed the fruits and nuts, while the fruits and nuts returned the compliment by developing conversely the monkeys and parrots. In other words, both types grew up side by side in mutual dependence, and evolved themselves pari passu for one another's benefit. Without the fruits there could

be no fruit-eaters; and without the fruit-eaters to disperse their seeds, there could not be any great number of fruits.

Most of the parrots very much resemble the monkeys and other tropical fruit-eaters in their habits and manners. They are gregarious, mischievous and noisy. They have no moral sense, and are fond of practical jokes. They move about in flocks, screeching aloud as they go, and alight together on some tree well covered with berries. No doubt they herd together for the sake of protection, and screech both to keep the flock in a body and to strike consternation into the breasts of their enemies. When danger threatens, the first bird that perceives it sounds a note of warning; and in a moment the whole troupe is on the wing at once, vociferous and eager, roaring forth a song in their own tongue, which may be interpreted to mean that they are ready to fight if it is necessary.

The common gray parrot, the best known in confinement of all his kind, and unrivalled as an orator for his graces of speech, is a native of West Africa. He feeds in a general way upon palm-nuts, bananas, mangoes and guavas, but he is by no mens averse, if opportunity offers, to the Indian corn of the industrious native. It is only in confinement that this bird's finer qualities come out, and that it develops into a speechmaker of distinguished attainments.

A peculiar and exceptional offshoot of the parrot group is the brush-tongued lory, several species of which are common in Australia and India. These interesting birds are parrots which have a resemblance to humming birds. Flitting about from tree to tree with great rapidity, they thrust their long extensible tongues, penciled with honey-gathering hairs, into the tubes of many big tropical blossoms. The lories, indeed, live entirely on nectar, and they are so common in the region they have made their own that the larger flowers there present the appearance of having been developed with a special view to their taste and habits, as well as to the structure of their peculiar brush-like honey-collector. In most parrots the mouth is dry and the tongue horny; but in the lories it is moist and much more like the same organ in the humming-birds and the sun-birds. The prevalence of very large and brilliantly-colored flowers in the Malayan region must be set down for the most part to the selective action of the color-loving, brush-tongued parrots.

The Australian continent and New Zealand, as everybody knows, are the countries where everything goes by contraries. And it is here that the parrot group has developed some of its most curious offshoots. One would imagine beforehand that no two birds could be more unlike in every respect than the gaudy, noisy, gregarious cockatoos and the sombre, nocturnal, solitary owls. Yet the New Zealand owl-parrot is a lory which has assumed all the appearances and habits of an owl. A lurker in the twilight or under the shades of night, burrowing for its nest in holes in the ground, it has dingy brown plumage like the owls, with an undertone of green to bespeak its parrot origin; while its face is entirely made up of two great disks, surrounding the eyes, which succeed in giving it a most marked and unmistakable owl-like appearance.

Why should a parrot so strangly disguise itself and belie its ancestry? The reason is not difficult to discover. It found a place for itself ready made in Nature. New Zealand is a remote and sparsely-stocked island, peopled by various forms of life from adjacent but still distant continents. There are no dangerous enemies there. Here, then, was a great opportunity for a nightly prowler. The owl-parrot, with true business instinct, saw the opening thus clearly laid before it, and took to a nocturnal and burrowing life, with the natural consequence that those forms survived which were dingy in color. Unlike the owls, however, the owl-parrot, true to the vegetarian instincts of the whole lory race, lives almost entirely upon sprigs of mosses and other creeping plants. It is thus essentially a ground bird; and as it feeds at night in a country possessing no native beasts of prey, it has almost lost the power of flight, and uses its wings only as a sort of parachute to break its fall in descending from a rock or a tree to its accustomed feeding-ground. To ascend a steep place or a tree, it climbs, parrot-like, with its hooked claws, up the surface of the trunk or the face of the precipice.

Even more aberrant in its ways, however, than the burrowing owl-parrot, is that other strange and hated New Zealand lory, the kea, which, alone among its kind, has adjured the gentle ancestral vegetarianism of the cockatoos and macaws, in favor of a carnivorous diet of remarkable ferocity. And what is stranger still, this evil habit has been developed in the kea since the colonization of New Zealand by the British, the most demoralizing of new-comers, as far as all aborigines are concerned. The English settlers have taught the Maori to wear silk hats and to drink strong liquors, and they have thrown temptation in the way of even the once innocent native parrot. Before the white man came, the kea was a mild-mannered, fruit-eating or honey-sucking bird. But as soon as sheep-stations were established on the island, these degenerate parrots began to acquire a distinct taste for raw mutton. At first they ate only the offal that was thrown out from the slaughter-houses, picking the bones as clean of meat as a dog or a jackal. But in course of time, as the taste for blood grew, a new and debased idea entered their heads. If dead sheep are good to eat, are not living ones? The keas, having pondered deeply over this abstruse problem, solved it in the affirmative. Proceeding to act upon their convictions, they invented a truly hideous mode of procedure. A number of birds hunt out a weakly member of a flock, almost always after dark. The sheep is worried to death by the combined efforts of the parrots, some of whom perch themselves upon the animal's back and tear open the flesh, their object being to reach the kidneys, which they devour at the earliest possible moment. As many as two hundred ewes are said to have been killed in a single night on one "station"—ranch, we should call it. I need hardly say that the New Zealand sheep-farmer resents this irregular procedure, so opposed to all ideas of humanity, to say nothing of good-farming, and, as a result, the existence of the kea is now limited to a few years. But from a purely psychological point of view, the case is interesting, as being the best recorded

instance of the growth of a new and complex instinct actually under the eyes of human observers.

A few words as to the general coloring of the parrot group. Tropical forestine birds have usually a ground tone of green because that color enables them best to escape notice among the monotonous verdure of equatorial woodland scenery. In the north, it is true, green is a very conspicuous color; but that is only because for half the year our trees are bare, and even during the other half they lack that "breadth of tropic shade" which characterizes the forests of all hot countries. Therefore, in temperate climates, the common ground-tone of birds is brown, to harmonize with the bare boughs and leafless twigs, the dead grass or stubble. But in the ever-green tropics, green is the proper hue for concealment or defense. Therefore, the parrots, the most purely tropical family of birds on earth, are chiefly greenish; and among the smaller and more defenceless sorts, like the little love-birds, where the need for protection is greatest, the green of the plumage is almost unbroken. Green, in truth, must be regarded as the basal parrot tint, from which all other colors are special decorative variations.

But fruit-eating and flower-feeding creatures—such as butterflies and humming birds—seeking their food among the brilliant flowers and bright berries, almost invariably acquire a taste for varied coloring, and by the aid of the factor in evolution, known as sexual selection, this taste stereotypes itself at last upon their wings and plumage. They choose their mates for their attractive coloring. As a consequence, all the larger and more gregarious parrots, in which the need for concealment is less, tend to diversify the fundamental green of their coats with red, yellow or blue, which in some cases takes possession of the entire body. The largest kinds of all, like the great blue and yellow or crimson macaws, are as gorgeous as birds well could be; they are also the species least afraid of enemies. In Brazil, it is said, they may often be seen moving about in pairs in the evening with as little attempt at concealment as storks in Germany.

Even the New Zealand owl-parrot still retains many traces of his original greenness, mixed with the brown and dingy yellow of his nocturnal and burrowing nature.

I now turn to the parrot's power of mimicry in human language. This power is only an incidental result of the general intelligence of parrots, combined with the other peculiarities of their social life and forestine character. Dominant woodland animals, like monkeys and parrots, at least if vegetarian in their habits, are almost always gregarious, noisy, mischievous and imitative. And the imitation results directly from a somewhat high order of intelligence. The power of intellect, in all except the very highest phases, is merely the ability to accurately imitate another.

A Robins Song

By Millie Noel Long

Robin, 'mid the gold-green leaves
In the shining afternoon,
Know you how my heart is stirred
By your sweet, entrancing tune?

In the silence roundabout,
Strangely close and clear there come
Scenes of other, happier days
In my quiet childhood home.

I can see the flitting birds
In the cherry trees so tall,
And the giant maple, dark,
Shading all the cool north wall

In the grand old maple's shade,
Wide-extended, dark and cold,
Shone the softly-gleaming stars
Of the brave marsh marigold.

Out beyond the grassy lawn
And across the shining road,
Lay the fragrant pasture-land
Where the dappled cattle stood.

In the sunset's level glow
Seemingly there ceased to be
Aught but that sweet pasture-land
Spread between the sun and me.

Robin, 'mid the gold-green leaves,
How I love you that you bring
Those sweet scenes of happier days
Close around me while you sing!

The Hawk Owl (*Surnia ulula*)

By Gerard Alan Abbott

Length: 15 inches.

The typical form of this owl (*Surnia ulula*) is a native of Scandinavia and Northern Russia, and incidentally is a visitor to Western Alaska. We are told by Mr. L. M. Turner, who was stationed by the United States Signal Service in Alaska from 1874 to 1881, that the natives assert that this form is "a resident, and breeds in the vicinity of St. Michaels; also that it is a coast bird, i. e., not going far into the interior, and that it can live a long time in winter without food, as it remains for days in the protection of the holes about the tangled roots of the willow and alder patches." Its true breeding range, however, is the northern portion of the Eastern hemisphere. It is somewhat larger and lighter in color than the American Hawk Owl.

The bird of our illustration, the American Hawk Owl, is simply a geographical variety of the Old World form, and is a native of northern North America, from Alaska to Newfoundland. This is its usual breeding range, though it migrates in winter to the northern border of the United States, and is an occasional visitor, during severe winters, as far south as Maine and Idaho. It is much more common in the northern portion of its range.

Unlike the other owls as we usually understand their habits, it may be considered as strictly diurnal, seeking its prey, to a great extent at least, during daylight, usually during the early morning or evening hours. Its principal food consists of the various species of rodents, insects and small birds. Its southward migration is caused by that of its food specie, especially that of the lemmings.

It is a tame bird and may be said to know no fear. We are told by Dr. A. K. Fisher that "specimens have been known to return to the same perch after being shot at two or three times. It is a courageous bird and will defend its nest against all intruders. A male once dashed at Dr. Dall and knocked off his hat as he was climbing to the nest; other similar accounts show that the courage displayed on this occasion was not an individual freak, but a common trait of the species."

Not alone in its diurnal habits is it like the hawks, but it also resembles some of them in selecting the dead branch of a tall tree in some sightly locality from which to watch for its prey. From this position it will swoop down hawk-like. Like the hawks its flight is swift and yet noiseless, a characteristic which is common to all the owls.

As a rule, its note, which is a sharp, shrill cry, is only sounded when flying.

As a nesting site, hollow trees are more frequently chosen. However, nests built of twigs and lined with grass are not infrequent. These are usually placed on the tops of stumps or among the branches of dense cone-bearing trees. The number of eggs varies from three to seven, and are frequently laid long before the ice and snow have disappeared. "The eggs vary from oval to oblong oval in

AMERICAN HAWK OWL.
(Surnia ulula caparoch).
⅓ Life-size.

shape, are pure white in color, and somewhat glossy, the shell is smooth and fine-grained." Incubation begins as soon as the first egg is laid, and both sexes participate in this duty, and occasionally both are found on the nest at the same time. At the nesting season the courage of both sexes is very marked. The male will fight with its talons, and even when wounded will still defend itself. We are told by Mr. Gentry that "calmly and silently it maintains its ground, or springs from a short distance on its foe. So, bravely it dies, without thought of glory and without a chance of fame; for of its kind there are no cowards."

This bird, like the other species of owls, though possibly not to so great an extent because of its diurnal habits, is looked upon by the Indian tribes as a bird of ill omen and by some tribes all owls are called "death birds." As a whole, the hawk owls are perhaps more useful to man than any other birds that are not used as food. They cause but little trouble in the poultry yard and are of incalculable value to the farmer because of the large number of small rodents that they destroy.

Golden-Winged Warbler (*Vermivora chrysoptera*)

Range: Breeds in Alleghanian Zone from central Minnesota, southern Ontario, and Massachusetts south to southern Iowa, northern Illinois, northern Indiana, northern New Jersey, and northern Georgia, winters from Guatemala to Colombia.

Though less gaudily colored than certain others of our warblers, the golden-wing ranks high in the family for beauty, and its trim form and tastefully contrasted tints of gray, black, and yellow may well excite admiration. It is almost wholly limited to eastern States, rarely indeed being found west of the Mississippi, and its summer haunts are in the northern parts of its range. Though common in some localities, the golden-wing in most places is sufficiently rare always to interest the bird observer, and in Massachusetts if several are heard or seen in a long tramp the day may well be esteemed a red-letter day. The bird is to be looked for in deciduous timber, and is especially fond of elms and birches as hunting grounds. I have often seen it busy in elms so high up that only with difficulty could it be distinguished from the Tennessee, Nashville, and other strikingly different warblers in company with it. Like the blue-wing, it has the habit of clinging to the tip of a branch or cluster of flowers, back downward, examining the spot with the most exact scrutiny.

Once heard, its song is not to be forgotten nor mistaken for that of any other warbler, unless possibly the blue-wing. It possesses a buzzing, insectlike quality and is well represented to my ears by the syllables *ze-ze-ze-ze,* the latter notes in a higher pitch. It seems strange that a bird so distinctly arboreal in habits should choose to nest on the ground; but numerous nests of the golden-wing have been found, all of them practically on or a few inches from the earth, though usually supported by weed stalks or grass stems.

Early Autumn Days

By George L. Hutchinson

When the summer days are over,
And the bees desert the clover,
When with golden-rod and aster vale and upland are a-bloom,
Then, with Nature, 'tis a pleasure,
To improve our humble leisure,
In her sylvan haunts to linger to imbibe some late perfume,—
To behold some treasure glisten,
And in peaceful thought to listen
To the sad prophetic voices of the season in decline;
For one feels the good of living
In accordance with His giving,
While observing Nature's wisdom flow from Nature's God divine.

Though have perished all the flowers
That kept fragrant June's rich bowers,
Yet the landscape is made brighter by the early autumn rain;
While the days grow fresh and clearer,
As the season's end draws nearer,
And the charm seems more consistent with the body and the brain.

With their mellow fruit resplendent
Are the orchards. The sun, pendent,—
Not unlike a golden jewel,—fills a setting very blue;
While a dreamy mist is trailing
Lake and river,—softly veiling,—
At the meeting of their waters, where the woodland shades the view.
Wondrous bright are vale and fountain,
Wondrous clear the distant mountain,
Ever gently with each other earth and heaven seem to vie;
Save where flocks of duck or plover,
Startled by the gunner, hover
Like gray clouds above the marshes and bedim the lower sky.

Now the rural tasks, in measure,
Have become a sort of pleasure,
To get in the splendid harvest have the husbandmen begun;
While the timid quail goes creeping
Through the wavy rows of reaping,
Or among the fragrant rowan, where the mower's task is done;
Oft we hear a loud, sweet whistle
From the stone-wall, edged with thistle,—

'Tis a warning from the sentry, as we near the feeding broods,—
In our mouths our hearts seem beating,
When, with sudden flight, retreating,
They, from under foot, go whirring through some recess in the woods.

And the birds that used to meet us
On our rambles, and to greet us,
With their joyful songs of welcome, from the boughs our heads above,
Have unwonted shyness taken,
Their familiar fields forsaken,
And no longer are rejoicing in the heyday of their love.
Now and then we hear one fluting,
Where the winter-green is fruiting,
But he does not seem contented with his sad and broken strain,—
For his comrades, uninspiring,
And his restless mate, retiring,—
Busy with the cares of journey,—only twitter and complain.

Our attention is diverted
To the flower-haunts deserted,
Where now brightly colored berries meet the eye on every side,—
Where the jay and catbird clinging
To the jeweled branches—swinging—
With their plunder merry-making, all the day are occupied,
Day by day, as woods grow stiller,
Locusts louder sing and shriller,
Till the very air seems throbbing with their little hissing tunes;
Insects everywhere before us,
With their fairy harps in chorus,
Conjugal ditties chirp while rejoicing in their honeymoons.

Soon will cease this joyous humming,
For the bitter frost is coming;
In the foliage around us we can mark his footsteps now,—
Where, among the oak and sallow,
Interspersed are leaves of yellow,
Like the silver threads that mingle with the brown on manhood's brow.
And the west wind's early greeting
Tells us how the time is fleeting,—
That October is upon us, and the birds have southward flown;
That September's charm is over,
While, in solitude, the rover,
For the lovely things departed, is left weeping and alone.

The Pine Siskin (*Spinus pinus*)

By C. W. Bowles

Synonyms.—American Siskin; Pine Finch; Pine Linnet.

Description.—*Adult male and female:* Above brownish buffy; below creamy-buff and whitish; everywhere streaked with dusky or dark olive-brown; the streakings are finer on the head and fore-parts, coarser on back and breast; wings fuscous, the flight-feathers sulphur-yellow at the base, and the primaries edged with the same color; tail fuscous, all but the middle feathers sulphur-yellow at base. Bill comparatively slender, acute. Length 4.75-5.00 (120.6-127.); wing 2.75 (69.9); tail 1.80 (45.7); bill .43 (10.9).

Recognition Marks.—Warbler size; conspicuous general streakiness, sulphur-yellow markings of wings and tail, most noticeable in flight.

Nest, of grasses, twigs and vegetable fibers, lined with hair, plant-down or feathers, and placed, usually, high in coniferous trees. *Eggs*, 4, greenish or bluish white, spotted with reddish brown. Av. size, .68x.47 (17.3x11.9).

General Range.—North America at large, breeding in higher latitudes and in mountains of the West; also, sparingly, in northeastern United States.

The Pine Siskin is one of those happy-go-lucky mortals (he is mortal, is he not?) whose habits are the despair of all guide-books. We know him for a northern bird, and by all analogies he ought to quit our hospitable woods not later than the middle of May; but with the most reckless unconcern he lingers through May and into June, until we are disposed to chide him for neglect of the primal instinct, or else to wonder whether the rollicking, roving bands may not have nests to watch that we know not of. Siskins have been found in northern Ohio during every month of the year, but whether they nest or not is still undetermined.

Their actions were still more puzzling at my home in eastern Washington. There we lived not above twenty miles from the timber-clad mountains where they might have been supposed to breed, and yet roistering troops of them made free with the shade trees of our front yard, as the whim seized them, throughout every month of the year, save winter. Either these companies were composed of young bachelors too frivolous to love, or else they were made up of communists whose lives were too happy in general to permit them to think of particularizing in their effections. A recent writer asserts that they do nest in small colonies, three or four pairs in a tree, and that it is difficult to determine which particular bird is most interested in a given nest.

In many respects the Siskins resemble their more familiar cousins, the Goldfinches: they cultivate a graceful, undulatory or looping flight, chirruping as they go; and like them they have "a habit of singing in a lively, rambling sort of way for an hour or more at a time." On the other hand their love of pine trees and the seeds of pine cones links them closely to the Crossbills and their

PINE SISKIN.
(Spinus pinus).
Life-size.

rattling cry is quite suggestive of the common notes of these birds. They have one note, however, which is entirely distinctive. It is a labored but singularly penetrating production with a peculiar vowel quality (like a German umulated u), *zuem* or *zeem*. At the same time the bird often displays his wing with its sulphur-colored watermark, and speedy recognition follows.

Cape May Warbler (*Dendroica tigrina*)

Range: Breeds in Canadian Zone from southern Mackenzie, northern Ontario, New Brunswick, and Nova Scotia south to Manitoba, northern Maine, and New Hampshire, and in Jamaica; winters in the Bahamas and the West Indies to Tobago.

Not only is the Cape May one of our most beautiful warblers, but its rarity adds greatly to the zest with which one hails the discovery of even an individual. This species, however, is far more numerous even in New England, especially in fall, than it used to be, and in time the bird may even be listed in many of the eastern States as among the more common migrants.

Although the bulk of the species undoubtedly migrates north through the Mississippi Valley, rarely a spring passes that a few individuals are not reported about Washington, D. C., and I have seen several in a day. At this time of year the Cape May often forsakes the woodlands and appears in orchards or even in city parks, and probably not a season passes that one or more do not visit the Smithsonian or Agricultural Department grounds. Chapman tells us that in Florida he has seen the species "actually common, feeding in weedy patches among a rank growth of pokeberries."

The bird is rather a sluggish, but persistent, insect hunter, though it adds to its bill of fare one item, grapes, which is bringing it into ill repute in parts of Pennsylvania and Virginia. The sharp-pointed bill of the Cape May enables it readily to puncture the skin, its apparent purpose being to satisfy its thirst with the sweet juice.

The Cape May is a persistent songster, but its song is weak and squeaky and by no means worthy of so superb a creature. Comparatively little is recorded of this bird's nesting habits. It is known to summer from northern Maine northward. A nest found by Banks at St. Johns, New Brunswick, was built in a cedar less than three feet from the ground.

The Wheatear (*Saxicola oenanthe*)

Length: 5½ inches.

The Wheatear is a remarkable bird because of its extensive distribution. Abundant in both Europe and Asia, it migrates in winter to northern Africa and India. It is also quite common in Greenland, and is found in Labrador. From there it straggles southward to Nova Scotia, and along the Atlantic coast as far as the Bermudas. On the western coast of America it is only found in Alaska. Here its visits are seasonal, and in its migrations it must fly across Bering's Strait and southward through Asia, as it has never been observed in British Columbia, or southward along the Pacific coast. The range of this bird extends nearly around the world, and from far within the Arctic circle to the torrid climes of the equator.

A few of these birds seem to winter in the British Islands, but the majority, having passed the season of severe weather in more southern regions, return to the coast of England early in the spring. They soon leave the rocky shores and fly to the downs and fallow lands. When crossing the water, the Wheatears, in an apparently exhausted condition, often alight upon vessels.

The Wheatear is an active bird, always alert, and is usually in motion. On the ground, and it is decidedly a terrestrial species, it hops rapidly, constantly jerking its tail. When disturbed, it utters a cry like "the syllables peep, chack, chack." For this reason and on account of its predilection for stony places, it is named in most parts of Scotland the "Stanchack." Because of the white plumage on the rump of the Wheatear it is often called White-rump or White-rumped Stonechat. It is a shy bird, and its favorite resorts are lonely meadows and fallow-lands and other localities little frequented by disturbing creatures. In such places it can easily retreat to the friendly cover of a clot of earth or a stone pile when danger is near.

The male Wheatear has a sweet and lively song, and it is said to be quite successful in its efforts to imitate the notes of other birds. Seebohm says: "The love notes form a short but pleasing song, and the more particularly are we apt to view his performance with favor, because it generally greets the ear in wild and lonely places. * * * Sometimes he warbles his notes on his perch, accompanying them with graceful motion of the wings, and finally launching into the air to complete his song, the aerial fluttering seeming to give the performance additional vigor." It is said that the Wheatear in confinement will sing continually and far into the night.

The nests of the Wheatear are usually placed in wild localities, and are well protected by their natural surroundings. The deep recesses of sea coast rocks and the crevices of old stone walls are favorite nesting sites. Not infrequently its home is built in the loose piles of stones found in abandoned gravel pits. Yarrell writes of one Wheatear that had nested in a bank behind a pile of stones. To reach this spot the bird passed through the "interstices of some

WHEATEAR.
(Saxicola oenanthe).
Life-size.

rather large, loose stones, as a mouse would have done, and then laterally to a hollow space in a bank, against which the stones were laid; and so deep had she penetrated that many stones had to be removed before we could discover her treasures." But the Wheatear does not always show as much caution in the selection of a nesting site. Sometimes it chooses a deserted rabbit burrow or a space underneath a clod of earth in a fallow-field. The nest is usually constructed with the stems of plants and grasses, and is well lined with feathers and hair.

The Wheatear feeds on worms, small mollusks and insects. Flies are often caught while on the wing, the bird launching forth from its perch on a clod or stone pile and returning after the capture, as do the flycatchers.

Late in the season, when the Wheatear is plump and fat, it is esteemed as an article of food. In former years large numbers of these birds were captured for this purpose. Pennant states that in his time nearly two thousand dozens were annually captured by the shepherds on the downs in the vicinity of Eastborne.

Though the Wheatear is a shy bird, both the male and the female exhibit a great deal of anxiety, and bravely endeavor to defend their nest on the approach of danger. The male is very watchful during the nesting season, and it is said that he performs a part of the duties of incubation.

THE STUDY OF BIRDS

By Lynds Jones

General appreciation of the birds, their beauty, the charm of their songs, their joyous lives, and their usefulness, is one of the most significant signs of the times. It indicates that as a people we are coming into our own. We are living a life beyond the merely commercial. We are looking out upon a larger world lifted to a higher plane. Americans have always excelled in strength and push and general initiative where material things are concerned, but we have been too busy developing ourselves to see about us the beautiful and pleasing in nature. The grand, indeed, has always appealed to us. Now we begin to have leisure for the graceful and the subtle. We are broadening our lives by closer touch with that which appeals to the higher instincts which have been allowed to remain dormant. It is natural and fitting that birds should appeal most strongly to an American, because they possess that vigor and tireless energy which he recognizes in himself. The birds live at white heat and are never idle. They typify American energy.

The study of birds necessarily takes one out of doors. Our medical advisers are always prescribing more outdoor exercise; but without any other object than getting into the fresh air exercise is pretty stupid. Give one the

zest of finding new things which must be searched for, something which requires going after, and the necessity for exercise is forgotten in the interest aroused by the ever receding bird. Enlist a child in bird study and the problem of most serious importance to the parent, how to properly guard the developing life and keep it away from evil influences, becomes greatly simplified. A boy cannot be bad, nor stay bad, if he has a genuine interest in birds. They keep his mind occupied and direct his energies into healthful channels. Life never falls to a dead level to him who knows and loves the birds. Old age, as we are wont to regard it, will never touch him, for he will not wish to live in the past, but continue his interest in the present which will always be fresh and filled with new things to learn.

The study of birds does not require any unusual leisure. Many business men whose business demands practically their whole time and attention are ardent lovers of the birds, and find the few moments of bird study each day valuable to them in their hours of business. They are able to plan their few short vacations so they will count for the most. There is no haphazard effort to get the most rest in the shortest time, requiring more effort to execute the plan than the rest is worth, but the calm assurance that they are certainly to find what they wish for. No one, no matter how busy, need think that for him bird study is impossible, because some birds may be seen from any window. Attention is the only requisite. Most present day bird students began their study during their period of least leisure.

The once almost continuous forests are rapidly disappearing, and with them some of our birds, but there is a compensation in the appearance of many others which do not live in the forests. We are now passing through a transition period from the original conditions before the advent of the dominant race to the modified conditions which he has made necessary. The rising generation will see more changes in the birds of our state than we have or will see. The birds will not disappear so long as there is the keen interest shown in them which we see dawning today. Their friendship and trust are worthy of any effort which we may put forth.

"Thou'lt break my heart, thou warbling bird,
That wantons thro' the flowering thorn;
Thou mind'st me of departed days,
Departed, never to return."

—*Robert Burns.*

Woodcock (*Philohela minor*)

Range: Breeds from northeastern North Dakota, southern Manitoba, northern Michigan, southern Quebec, and Nova Scotia south to southern Kansas, southern Louisiana, and northern Florida; winters from southern Missouri, Ohio Valley, and New Jersey south to Texas and southern Florida.

The woodcock, another member of the royal family among game birds, is practically the exclusive property of the American people to deal with as they list. It is true that a greater or lesser number of woodcock cross our northern frontier to breed, but the bulk of the species never leave our own borders. As a prerequisite to its presence the woodcock requires soft, moist earth in which to probe for earthworms, and its range may be said to be largely determined by the presence or absence of its favorite food. Study him at what season you will, meet him where you may, the woodcock is always an interesting bird. His spring-flight song, given as the hours of darkness approach—for the woodcock is chiefly of noctural habits—is unique among the long-billed, long-legged fraternity, and the many details connected with his housekeeping are well worth attention. And what music so sweet to the sportsman's ears as the silvery whistle of the woodcock's wings when the bird, suddenly roused from his snug shelter beneath bush or bracken, mounts upward through the silver birches! Nor is any other prize among game birds so dear to the sportsman's heart as this many-hued denizen of swamp and hillside when brought to bag in fair, sportsmanlike fashion. All the more keenly then must sportsman and bird lover regret the fact that the woodcock is passing. While there is no present danger of extinction, spring and summer woodcock-shooting should be abolished as a crime alike against a fine game bird and fair sportsmanship.

Herring Gull (*Larus argentatus*)

Length, about 24 inches. Deep pearl gray above; much of rest of plumage white. Not readily distinguished in life from its allies.

Range: Breeds in Alaska and in Arctic regions south to southern British Columbia, southern Alberta, northern North Dakota, central Wisconsin, southern Ontario, northern New York, and Maine; winters from southern British Columbia to Lower California and western Mexico, and from Gulf of St. Lawrence and Great Lakes south to Bahamas, Yucatan, and coast of Texas.

All things considered, the herring gull is probably the best known of the family by reason of its abundance and wide distribution. Moreover, this is the gull most frequently noticed by passengers as it follows in the wake of our ocean and trans-Atlantic steamers. It breeds no farther south than the coast of Maine, but in winter it is very numerous along the Atlantic coast and in many of our inland ponds. It does excellent service as a scavenger in our harbors, venturing fearlessly among the shipping to secure anything edible that may find its way overboard. The services of this and other gulls in such a capacity are so valuable that their destruction under any pretense is to be deprecated. When the craze for feathered hat gear was at its height thousands of gulls, without regard to species, were killed for millinery purposes, but it is to be hoped that, now the sale of their feathers is illegal practically everywhere in the United States, the gulls will rapidly increase.

The European Crested Titmouse (*Parus cristatus*)

By Joseph Grinnell

Wise the nuthatch and the titmouse,
Wise the bluebird and the downy,
To conceal their nests in tree-trunks
Where this monster cannot find them.

—*Frank Bolles, "The Blue Jay."*

Length: 4¾ inches.

Sprightly and restless, the Crested Titmouse of Europe frequents the topmost branches of secluded forests in northern Europe. Hopping from twig to twig, flying from branch to branch, and seeming always in motion, the little bird peers under leaves and into the crevices of the bark, diligently searching for its food of insects, of which it consumes a large number. Of a shy and retiring disposition, it has a decided liking for forests of coniferous trees, where its diminutive form and the compact foliage protect it from intruders of all kinds, while it readily finds an abundant supply of food. It is a rare bird in the central and southern parts of the European continent and in Great Britain.

Regarding the habits of the Crested Titmouse in Germany, an observer has written: "It does not leave us, and is partly a resident and to some extent a wanderer, but not so much of a wanderer as many other birds, for it seldom leaves the pine woods, and when it does it is only to visit another pine growth situated in non-evergreen woods. Its wanderings are most extended in the late autumn and in the spring. It is then to be found in small groves of pine or fir trees standing in the open country and miles away from the large forests. It may also be seen in large gardens. They hurry uneasily through the non-evergreen woods and fruit gardens which lie between the pine woods they visit on their wanderings and are only at ease when in these latter. They also hurry with greater speed over fields or any treeless tract they may pass."

Wherever it is found it is usually a constant resident unless the severity of the weather or the lack of food necessitates a change of locality. At such times it is often seen migrating in company with other species of the smaller birds, and it generally seems to be the leader of these small flocks. It is said that the other species will obey the call notes of the Titmouse and when danger is apparent it seems to be the first of the birds to give an alarm. Its shy nature, as well as its method of catching its food, would naturally make it alert at all times.

In an economic sense it is a most useful bird, as it feeds upon insects in all the stages of their development. It also feeds upon the seeds of various cone-bearing trees. Constantly active the crest of this beautiful bird gives it an added dignity as it seeks its food, leads a flock or quarrels with one of its kind, as it often does during the nesting season.

Probably because of its nesting habits, the Crested Titmouse seems to like those cone-bearing forests in which there are also deciduous trees. Its nest of

CRESTED TITMOUSE (Europe).
(Parus cristatus).
Life-size.

grasses, moss, lichens, feathers, hair and other soft materials is usually placed in a hole of some tree or stump. Not infrequently, however, the deserted holes of squirrels or the old nests of crows and magpies are selected.

The European Crested Titmouse would be a popular bird and much better known were it not for the difficulty of studying the habits of so small an object in the dense and extensive forests which it frequents. Its characteristics can only be satisfactorily observed when it is compelled to seek its food in more open places.

Black-Throated Green Warbler (*Dendroica virens*)

Range: Breeds in lower Canadian and Transition Zones from west, central, and northeastern Alberta, southern Manitoba, central Ontario, northeastern Quebec, and New Foundland south to southern Minnesota, southern Wisconsin, northern Ohio, northern New Jersey, Connecticut, and Long Island, New York, and in the Alleghenies south to South Carolina and Georgia; winters in Mexico (Nuevo Leon to Chiapas and Yucatan), Guatemala, Costa Rica, and Panama.

What true bird lover is there who does not cherish fond memories of certain birds? The very name of black-throated green warbler carries me back to boyhood days and to a certain pine-crested hill in Massachusetts, from which was wafted on an early spring morning the song of this warbler, heard by me then for the first time. The many years since elapsed have not effaced the sweet strains, and I seem to hear them now as they were borne that morning by the pine-scented spring breeze. I can vividly recall the pleasure the song occasioned and the satisfaction of having added one more bird to my small list of avian acquaintances. Those were the days of mystery, when the woods seemed filled with unknown birds, and secrets lurked in every thicket and met the seeker at every turn. They were the times when bird books were few, keys unknown, and the keen eyes of youth far more satisfactory than the best field glasses of the present day.

The black-throated green is one of the commoner of our eastern warblers and one of the first to engage the attention of the bird student. During migration it may be met with in every kind of woodland, where it is at home, both high and low, ever pursuing with tireless energy its quest for insects. It has two songs, or rather one song delivered in two different ways, sprightly, sweet, and perfectly charactertistic. In summer it is partial to coniferous woods, especially white pines and hemlocks, and it frequently nests in these, though also in birches and alders.

The Brandt's Cormorant (*Phalacrocorax penicillatus*)

By Seth Mindwell

Length: 24 inches.

There are about thirty species of Cormorants which are distributed throughout the world. Ten of these are known to inhabit North America. They are ocean birds, yet they are also occasionally seen on the larger bodies of fresh water. The Pacific coast of North America and the shores of New Zealand are rich in species and their plumage is more beautiful than that of those found in other parts of the world.

The name Cormorant is derived from the Latin words Corvus Marinus, meaning marine crow or raven. This name may have been suggested by the fact that these birds are fond of sitting on an elevated perch, especially after a hearty meal. In this habit of seeking high perches, and because of their dark color, they resemble the raven or crow. The generic name Phalacrocorax is derived from the Greek words, meaning bald crow.

One of the species that frequents the coast of Europe is easily tamed and in early times was trained to fish for its master. There was even an appointment in the royal household known as the "Master of the Cormorants." When used in fishing "a strap is fastened around the bird's neck so as, without impeding its breath, to hinder it from swallowing its captures. Arrived at the waterside, it is cast off. It at once dives and darts along the bottom as swiftly as an arrow in quest of its prey, rapidly scanning every hole or pool. A fish is generally seized within a few seconds of its being sighted and as each is taken the bird rises to the surface with its capture in its bill. It does not take much longer to dispose of the prize in the dilatable skin of its throat so far as the strap will allow and the pursuit is recommenced until the bird's gular pouch, capacious as it is, will hold no more. It then returns to its keeper, who has been anxiously watching and encouraging its movements, and a little manipulation of its neck effects the delivery of the booty."

The Cormorants are voracious eaters. They catch the fish, which is their usual food, under water by rapid swimming and with the aid of their hooked bills. On account of this habit of the bird the word Cormorant has been used synonymously with the word glutton, rapacious or avaricious when applied to a person who exhibits these traits.

Brandt's Cormorant, the bird of our illustration, is found on the Pacific coast from the state of Washington southward to Cape St. Lucas at the southern extremity of Lower California. In its habits it is gregarious and collects in great numbers wherever its natural food of fish is plentiful. These flocks present a very odd appearance and their long necks appear as numerous black sticks on the watery background.

Mr. Leverett M. Loomis well illustrates the habits of these birds in a report on the California Water birds. He says of a rookery, "which is situated on a rock,

BRANDT'S CORMORANT.
Phalacrocorax penicillatus.
About ¼ Life-size.

or little islet, in the ocean at the extremity of Point Carmel, about fifteen yards from the mainland. This rock rises perpendicularly some forty or more feet above the water. At first sight it does not seem that it can be scaled, but closer inspection reveals that a foothold may be had in the seams and protuberances on its water-worn sides. Only on days when the sea is very calm can the rock be landed upon and then only from the sheltered channel separating it from the mainland. We first took a view of the rookery from the mainland. The Cormorants were very tame, remaining on their nests while we clambered down the sloping rocks and while we stood watching them on the same level, only a few yards away. They were equally tame when our boat drew nearer as we approached from the water. The clefts in the sides of the rock were occupied by Baird's Cormorant and the top by Brandt's. There were comparatively few of the former, but of the Brandt's Cormorant there were upwards of two hundred pairs. Their nests covered the top of the rock, every available situation being occupied. Standing in one place I counted one hundred and eighteen."

He also states that the Cormorants remained on the nests till he fired his gun and they lingered on the edge of the rock while he walked among the nests a few yards away. On the rock were many piles of sardines, evidently placed near the nests for the use of the sitting bird.

The nests are nearly circular when placed on top of the rocks, and are usually constructed of eel grass. They are generally placed in the most inaccessible places and at various heights above the surface of the water. The Cormorants frequent the same locality from year to year and experience considerable difficulty in constructing their nests because of the gulls which frequently carry away the material as fast as it can be gathered. The young, when first hatched, are entirely devoid of plumage and their skin resembles a "greasy, black kid glove." It is said that the gulls feed upon these young birds.

Mr. Frank M. Woodruff relates the following observations, made during a recent trip to California. He says:

"The Brandt's Cormorant is the common species wintering in Southern California. Like the California brown pelican and the surf ducks, only the juvenile birds are found in the bay close to the city of San Diego. As one rows about the harbor close to the shipping docks and by the old deserted fishermen's huts along the slips, large numbers of Brandt's Cormorants and pelicans can be seen perched on and almost covering the sunny sides of the roof tops. They sit in rows like sentinels with the head well down upon the shoulders, undisturbed by the noise of traffic, and only by continued rapping on the building with an oar can they be induced to take to flight. They will usually circle for a short time in a lazy manner and then return to their old position. The older birds are rather more wary and usually feed a mile or so from the shore, in flocks of from three to ten. The loose kelp floating in the bay attracts the smaller fish. Such places form their feeding grounds. After they become gorged with fish they fly to the rocks along the jetties and to the cross bars of the buoys, which mark the deep water channels. The birds are perfect gluttons, and as I lifted it into

the boat there dropped from the gular sack of one specimen that I shot over twenty small fish. The beautiful iridescence of the dark copper-green plumage of the adult Cormorant can only be appreciated when the freshly killed bird is seen."

The Hooded Warbler (*Wilsonia citrina*)

By W. Leon Dawson

Description.—*Adult male:* A golden mask, including forehead and cheeks, superimposed on a black hood, which covers the head and neck all around and reaches the fore-breast; back, etc., bright olive-green; wings and tail fuscous with olive-green edgings; the two outer pairs of tail feathers white on the inner webs for exposed length; remaining under parts, including lining of wing, bright yellow, abruptly contrasting with the black of hood; bill and rictal bristles black; feet pale. *Adult female:* Black hood much less distinct or wanting, showing only traces of black on nape, etc.; outlines of golden mask sometimes indistinguishable below, partially veiled by olive-green skirtings above; under parts impure yellow. *Immature male:* Like adult male, but the black feathers of hood with yellow tips. Length 5.00-5.75 (127.-146-1); wing 2.60 (67.6); tail 2.30 (59.9); bill .40 (10.2).

Recognition Marks.—Warbler size; black hood and golden mask of male; yellow forehead and black rictal-bristles of specimens lacking the hood.

Nest.—In bushes or saplings from one to five feet up, of bark-strips, leaves, grass and trash, more or less interwoven with spiders' silk, and lined with hair or fiber. *Eggs*, 4 or 5, white or creamy white, dotted and spotted with reddish brown or umber, chiefly in wreath about larger end. Av. size, .71x.51 (18.x13.).

Range.—Breeds in Carolinian and Austroriparian zones from southeastern Nebraska, southern Iowa, southwestern Michigan, central New York and the lower Connecticut Valley south to Louisiana, Alabama and Georgia; winters from Vera Cruz and Yucatan to Panama.

While the hooded warbler has a wide range in eastern United States, its center of abundance is the lower Mississippi Valley. It is common only locally and wholly absent from many sections except as a casual migrant. Of the bird, one of our most beautiful warblers, Chapman says:

"To my mind there is no warbler to which that much misused word 'lovely' may be so aptly applied as to the present species. Its beauty of plumage, charm of voice, and gentleness of demeanor make it indeed not only a lovely, but a truly lovable bird. Doubtless, also, the nature of the hooded warbler's haunts increases its attractiveness not merely because these well-watered woodlands are in themselves inviting, but because they bring the bird down to our level. This creates a sense of companionship which we do not feel with the bird ranging high above us, and at the same time it permits us to see this exquisitely clad creature under most favorable conditions."

HOODED WARBLER.
(Silvani mitrata).
Life-size

Take a lump of molten gold fashioned like a bird, impress upon it a hood of steel, oxidized, as black as jet, overlay this in turn with a half-mask of the gold, tool out each shining scale and shaft and filament with exquisite care, and you may have the equal of one of those ten thousand-dollar vases of encrusted steel and gold, which the Spanish are so clever at making, an heirloom to be handed down from father to son. But let Nature breathe upon it; let the Author of Life give it motion and song; and you will have a Hooded Warbler, not less beautiful that you cannot handle it, but infinitely more so in that its beauty takes a thousand forms, a fresh one for every turn of fancy that may stir an avian breast.

The further charm of comparative rarity is added to this exquisite creation, so that not a few of us count upon our fingers the occasions upon which we have been granted a sight of it. To me the bird first came as a voice, a sweet and pure, but altogether puzzling sound, tossed down from a tree-top on a foggy morning, an hour before dawn. The bird was at an unheard-of distance from his chosen range, so when the sun dissolved the mist and disclosed the singer, sitting quietly, and piping in accents unconstrained, it seemed to us as though we had caught a fairy overstaying his time limit.

The Hooded Warbler shows a decided preference for damp woods, where there is plenty of undergrowth. Beech woods are favorite places if the other conditions are suitable. Here the birds spend their time fly-catching along the middle levels, or descend to search the brush. The tail is sometimes carried half-open after Redstart's well-known fashion; but otherwise the birds are much less fussy than their salmon-spotted neighbors.

Like most Warblers the Hooded has a *chip* note of alarm which is distinctive to practiced ears, while the male has a song which is quite marked, *tsue-e, tsu-e, tsu-e, tsu-wĕe-tsu.* The notes are ringing and musical, but the last two contain a sort of vocal somersault, as though the bird were attacked by a sudden inclination to sneeze. These last notes, therefore, closely resemble the dainty cachination of the Acadian Flycatcher, and would undoubtedly be mistaken for those of the latter bird if heard alone. This is the common song, but some, probably many, variant forms occur. One bird, which haunted the beech-woods shown in the first illustration, rendered the typical song, but had also a fashion of bringing in the sneeze early, and finishing strong in spite of the interruption.

The nests in the illustration speak for themselves, and it is only necessary to add that they were placed, the one in an oak and the other in an alder sapling, at a height of about two feet from the ground. In feeding the young in the Sugar Grove nest the parents would invariably appear upon a certain bare twig some fifty feet above; here, if observed, the bird would chirp apprehensively for a minute or two, and then without further precaution launch straight for the nest.

The Hooded Warbler is possibly on the increase. I have seen it twice at Columbus and twice at Oberlin within three years, but have not suspected it of nesting at either place. Mr. Robert J. Sim reports it as a regular breeder in Ashtabula county, while Rev. W. F. Henninger reports it as rare in Scioto county in summer.

Thoughts For the Discouraged Farmer

The summer winds is sniffin' round the bloomin' locus' trees;
And the clover in the pastur' is a big day fer the bees,
And they been a-swiggin' honey, aboveboard and on the sly,
Tel they stutter in theyr buzzin' and stagger as they fly.
The flicker on the fence-rail 'pears to jest spit on his wings
And roll up his feathers by the sassy way he sings;
And the hoss-fly is a-whettin'-up his forelegs fer biz,
And the off-mare is a-switchin' all of her tail they is.

You can hear the blackbirds jawin' as they foller up the plow—
Oh, theyr bound to git theyr breakfast, and theyr not a carin' how;
So they quarrel in the furries, and they quarrel on the wing—
But theyr peaceabler in pot-pies than any other thing:
And it's when I git my shotgun drawed up in stiddy rest,
She's as full of tribbelation as a yeller-jacket's nest;
And a few shots before dinner, when the sun's a-shinin' right,
Seems to kindo-sorto sharpen up a feller's appetite!

They's been a heap o' rain, but the sun's out today,
And the clouds of the wet spell is all cleared away,
And the woods is all the greener, and the grass is greener still;
It may rain again tomorry, but I don't think it will.
Some says the crops is ruined, and the corn's drownded out,
And propha-sy the wheat will be a failure, without doubt;
But the kind Providence that has never failed us yet
Will be on hands onc't more at the 'leventh hour, I bet!

Does the medder-lark complane as he swims high and dry
Through the waves of the wind and the blue of sky?
Does the quail set up and whissel in a disappinted way,
Er hang his head in silunce, and sorrow all the day?
Is the chipmunk's health a-failin'? Does he walk, er does he run?
Don't the buzzards ooze around up thare jest like they've allus done?
Is they anything the matter with the rooster's lungs er voice?
Ort a mortul be complainin' when dumb animals rejoice?

Then let us, one and all, be contented with our lot;
The June is here this morning, and the sun is shining hot.
Oh! let us fill our harts up with the glory of the day,
And banish ev'ry doubt and care and sorrow fur away!
Whatever be our station, with Providence fer guide,
Sich fine circumstances ort to make us satisfied;
Fer the world is full of roses, and the roses full of dew,
And the dew is full of heavenly love that drips fer me and you.

Blackburnian Warbler (*Dendroica fusca*)

Range: Breeds in lower Canadian and upper Transition Zones from Manitoba, southern Keewatin, central Ontario, Quebec, and Cape Breton Island to central Minnesota, Wisconsin, northern Michigan, Massachusetts, and Connecticut, and in the Alleghenies from Pennsylvania to Georgia and South Carolina; winters from Columbia to central Peru and less commonly north to Yucatan.

The Blackburnian, one of the gems of the warbler tribe, has a rather wide range in eastern North America, extending west as far as the Plains and north to Manitoba. Apparently it is nowhere, at least in migration, an abundant warbler, and there are few field observers so seasoned to the sight of its beautiful colors as not to be thrilled by sight of the bird. In migration its habits offer nothing peculiar. In the Atlantic States in September careful scrutiny of a migrating band of warblers and other birds will often reveal the presence of one or perhaps half a dozen Blackburnians. About Mount Monadnock, Gerald Thayer finds it a "very common summer resident. It is one of the four deep-wood warblers of this region, the other three being the black-throated blue, the Northern parula, and the Canada."

The Blackburnian favors very big trees, particularly hemlocks, and spends most of its life high above the ground. As Thayer says, the Blackburnian is the "pre-eminent forest warbler of the group, the lover of deep mixed growth and the upper branches of the biggest conifers." The bird has a thin, shrill voice and utters at least two songs or variations which some think resemble the black-throated green's. Whatever the tree selected, be it a hemlock or a deciduous tree, the nest is placed well up among the branches and well out toward the end, where it is safe from all enemies that do not possess wings.

The Traill Flycatcher (*Empidonax traillii*)

By W. Leon Dawson

Description.—*Adult:* Above olive, dark olive-green, or olive-brown, *brown of head darker and unmistakable;* wings and tail fuscous; wing-coverts tipped and inner quills margined with grayish (pale buffy or fulvous); pattern of edging on secondaries similar to that of preceding species, but less distinct—yellow not so abrupt, paler, etc.; wing-tip formed by second, third and fourth primaries; first usually shorter than fifth; below sordid white, tinged on breast and sides with brownish gray, and with a faint wash of sulphur-yellow behind; bill dark above, light brown below. *Immature:* Browner above, more yellow below; wing-bands deep buffy or ochraceous. Length 5.75-6.25 (146.1-158.8); wing 2.84 (72.1); tail 2.22 (56.4); bill from nostril .36 (9.1); width at base .30 (7.6). Female not so long, but other dimensions substantially the same.

Recognition Marks.—Warbler to small Sparrow size; as compared with the preceding species, a general note of brownness observable; other diagnostic differences not easy, nor individually constant; habits quite different; a dweller in swamps and lowland thickets.

Nest, a rather bulky but neatly-turned cup of plant-fibres, bark-strips, grass, etc., carefully lined with fine grasses; placed three to ten feet up, in crotch of bush or sapling of lowland thicket or swamp. *Eggs,* 3 or 4, not certainly distinguishable from those of preceding species. Av. size, .70 x .54 (17.8x13.7).

General Range.—Western North America from the Mississippi Valley (Ohio, Illinois, and Michigan) to the Pacific and from the Fur Countries south into Mexico.

EARLY in June your morning walk along the river bank is likely to be interrupted by an imperative *swee-chee,* issuing from the top of a hackberry sapling hard by. This bird sits uneasily upon her perch and appears anxious, worried. Only dire extremity, you may be sure, could induce her to venture so near this unknown monster, man. *Swee-chee,* she challenges again, and then amazed at her own temerity, vanishes into the thicket to be seen no more. There is a nest near, but the owner has done her duty in proclaiming the fact, and she will not lead further in the search. At about the level of your head in some willow or alder clump, or mayhap in a hackberry like the one upon which she sat, you will find a neat, substantial cup of hemp and grasses, bound tightly to an upright fork. The nest might have been a Yellow Warbler's, except that it is a trifle bulkier and not so well concealed. It lacks, too, the cotton lining which is indispensable to the Warbler home. The eggs might have been those of an Acadian Flycatcher, but the situation of the nest is entirely different, and its architecture as far removed as Gothic from Maori. Or again the nests of the two species may be happily related by the comparison of cup and saucer. The cup of the Traill Flycatcher is normally two inches across by one and a half deep, inside.

TRAILL'S FLYCATCHER.
Life-size.

On June 11th, 1901, while walking through a dense clump of swamp elms on the Olentangy levee, I spied a nest of this bird at a height of about ten feet. It was in a delicate situation, but by resting what seemed about one-half of my avoirdupois on an elm sapling, and entrusting the other half to the air, I managed to secure a glimpse into the nest. I saw that it was good. The nest itself was somewhat awry. It had doubtless been planned right in the first place, but the last wind, or the rapid growth of engaging twigs had lifted one side higher than the other. It contained four eggs, three normal and fresh; the other off in every way, except as to size and shape. The egg in question was absolutely unmarked, and bore every evidence of having been exposed to the weather for a great length of time. It was porous with age and the contents perfectly hard. How it might have come into a nest of recent construction along with three fresh eggs I am quite unprepared to say.

Traill's Flycatcher is found only in localities conforming to rather exact requirements. The bird loves brushy swamps and lowland thickets. In a suitable swamp of a few acres it may abound, so that one writer has stated, rather extravagantly, that it nests in colonies. On the other hand it may be entirely wanting for miles around. Altho nests of this species have been frequently found of late, comparatively little systematic work has been done upon its life history. The bird reaches Ohio about the second week in May (Columbus, May 5th, is an early record, possibly of *E. t. alnorum*), raises one brood and disappears early in September. Authorities differ, as usual, in the interpretation of the notes: *"Whit-te-ar,"* and later in the season *"Hoyt-te-ar"* were what Dr. Wheaton heard. An energetic *swee-chee* or *swee-chu* suits most. An early migrant at Columbus once startled me with a most emphatic enunciation, *zwee-bew* and once again *zwee-bew, zweet*. This bird was evidently not *E. hammondi*, but he had acquired the precise accent of the western species.

FOOD HABITS OF BIRDS

By Frank M. Chapman

To the members of this family are attributed numerous misdeeds, and although much attention has been given to their food habits, their injurious habits are said to be so nearly balanced by beneficial ones that it is difficult to determine which outweighs the other.

Crow (*Corvus americanus*).—"That he (the Crow) does pull up sprouting corn, destroy chickens, and rob the nests of small birds has been repeatedly proved. Nor are these all of his sins. He is known to eat frogs, toads, salamanders, and some small snakes, all harmless creatures that do some good eating insects. With so many charges against him, it may be well to show why he should not be utterly condemned.

"The examination of a large number of stomachs, while confirming all

the foregoing accusations, has thrown upon the subject a light somewhat different from that derived solely from field observation. It shows that the birds-nesting habit, as in the case of the Jay, is not so universal as has been supposed; and that, so far from being a habitual nest robber, the Crow only occasionally indulges in that reprehensible practice. The same is true in regard to destroying chickens, for he is able to carry off none but the very young ones, and his opportunities for capturing them are somewhat limited. Neither are many toads or frogs eaten, and as frogs are of no great practical value, their destruction is not a serious matter; but toads are very useful, and their consumption, so far as it goes, must be counted against the Crow. Turtles, crayfishes, and snails, of which he eats quite a large number, may be considered neutral, while mice may be counted to his credit.

"In his food, however, the Crow makes amends for his sins in the rest of his dietary, although even here the first item is against him. Predaceous beetles are eaten in some numbers throughout the season, but the number is not great. May beetles, 'dor-bug,' or June bugs, and others of the same family, constitute the principal food during spring and early summer, and are fed to the young in immense quantities. Other beetles, nearly all of a noxious character, are eaten to a considerable extent. Grasshoppers are first taken in May, but not in large numbers until August, when, as might be expected, they form the leading article of diet, showing that the Crow is no exception to the general rule that most birds subsist, to a large extent, upon grasshoppers in the month of August. Many bugs, some caterpillars, mostly cutworms, and some spiders, are also eaten —all of them either harmful or neutral in their economic relations. Of the insect diet Mr. E. A. Schwartz says: 'The facts, on the whole, speak overwhelmingly in favor of the Crow.'

"Probably the most important item in the vegetable food is corn, and by pulling the newly sprouted seeds the bird renders himself extremely obnoxious. Observations and experiments with tame Crows show that hard, dry corn is never eaten if anything else is to be had, and if fed to nestlings it is soon disgorged. The reason Crows resort to newly planted fields is that the kernels of corn are softened by the moisture of the earth, and probably become more palatable in the process of germination, which changes the starch of the grain to sugar. The fact, however, remains that the Crows eat corn extensively only when it has been softened by germination or partial decay, or before it is ripe and still 'in milk.' Experience has shown that they may be prevented from pulling up young corn by tarring the seed, which not only saves the corn but forces them to turn their attention to insects. If they persist in eating green corn it is not easy to prevent the damage; but no details of extensive injury in this way have yet been presented, and it is probable that no great harm has been done.

"Crows eat fruit to some extent, but confine themselves for the most part to wild species, such as dogwood, sour gum, and seeds of the different kinds of sumac. They have also a habit of sampling almost everything which appears eatable, especially when food is scarce. For example, they eat frozen apples

found on the trees in winter, or pumpkins, turnips, and potatoes which have been overlooked or neglected; even mushrooms are sometimes taken, probably in default of something better.

"In estimating the economic status of the Crow, it must be acknowledged that he does some damage, but, on the other hand, he should receive much credit for the insects which he destroys. In the more thickly settled parts of the country the Crow probably does more good than harm, at least when ordinary precautions are taken to protect young poultry and newly planted corn against his depredations. If, however, corn is planted with no provision against possible marauders, if hens and turkeys are allowed to nest and to roam with their broods at a distance from farm buildings, losses must be expected."

While, from the nature of the case, birds' eggs and young birds can form but a small portion of the annual food-supply of the Crow, I believe it to be indisputable that during the nesting season they constitute a large percentage of the Crow's food. Nest-robbing is not occasional but is the characteristic habit of the Crow. Not only do they eat eggs and young birds, but they feed their offspring on them. Doubtless few Crows live through May and June without preying on smaller birds and the possibilities are that almost any one of the birds destroyed (either in the egg or out of it) is of greater economic value than the Crow. The Crow, therefore, in addition to the direct damage it may do our crops, robs us of the services of birds far more desirable than itself. Even if the Crow, aside from its cannibal-like propensities, was wholly beneficial, it would not, it seems to me, render us as great a service as would have been performed by the birds it destroys. In short, in my opinion, the Crow is one of the worst enemies of our small insectivorous and seed-eating birds, and as such it is undeserving of protection.

Blue Jay (*Cyanositta cristata*).—"The Blue Jay is a common bird of the United States east of the Great Plains, and remains throughout the year in most of its range, although its numbers are somewhat reduced in winter in the Northern States. During spring and summer the Jay is forced to become an industrious hunter for insects, and is not so conspicuous a feature of the landscape as when it roams the country at will after the cares of the nesting season are over.

"Ornithologists and field observers in general declare that a considerable portion of its food in spring and early summer consists of the eggs and young of small birds, and some farmers accuse it of stealing corn to an injurious extent in the fall. While there may be some truth in these accusations, they have almost certainly been exaggerated. No doubt many Jays have been observed robbing nests of other birds, but thousands have been seen that were not so engaged.

"In an investigation of the food of the Blue Jay 292 stomachs were examined which showed that animal matter comprised 24 per cent and vegetable matter 76 per cent of the bird's diet. So much has been said about the nest-robbing

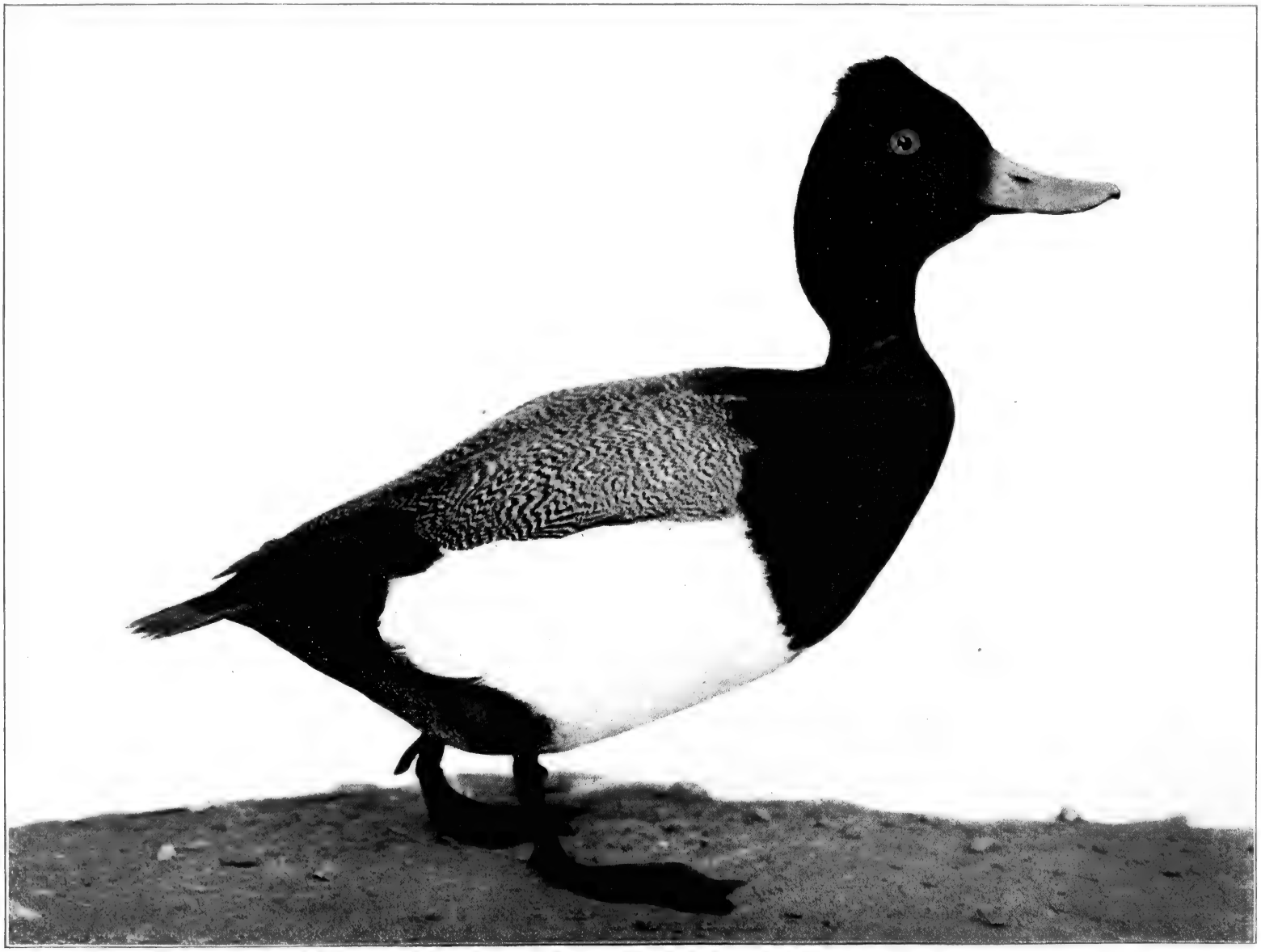
habits of the Jay that special search was made for traces of birds or birds' eggs in the stomachs, with the result that shells of small birds' eggs were found in three and the remains of young birds in only two stomachs. Such negative evidence is not sufficient to controvert the great mass of testimony on this point, but it shows that the habit is not so prevalent as has been believed. Besides birds and their eggs, the Jay eats mice, fish, salamanders, caterpillars, snails, and crustaceans, which altogether constitute but little more than 1 per cent of its diet. The insect food is made up of beetles, grasshoppers, caterpillars, and a few species of other orders, all noxious, except some 3½ per cent of predaceous bettles. Thus something more than 19 per cent of the whole food consists of harmful insects. In August the Jay, like many other birds, turns its attention to grasshoppers, which constitute nearly one-fifth of its food during that month. At this time, also, most of the other noxious insects, including caterpillars, are consumed, though the beetles are chiefly eaten in spring.

"The vegetable food is quite varied, but the item of most interest is grain. Corn was found in 70 stomachs, wheat in 8, and oats in 2, all constituting 19 per cent of the total food. Corn is evidently the favorite grain, but a closer inspection of the record shows that the greater part was eaten during the first five months of the year, and that very little was taken after May, even in harvest time, when it is abundant. This indicates that most of the corn is gleaned from the fields after harvest, except what is stolen from the cribs or gathered in May at planting time.

"The Jay's favorite food is mast (*i. e.*, acorns, chestunts, chinquapins, etc.), which was found in 158 of the 292 stomachs and amounted to more than 42 per cent of the whole food. In September corn formed 15 and mast 35 per cent, while in October, November and December corn dropped to an almost inappreciable quantity, and mast amounted to 64, 82 and 83 per cent, respectively. And yet in these months corn is abundant and everywhere accessible. The other elements of food consist of a few seeds and wild fruits, among which grapes and blackberries predominate.

"The results of the stomach examination show, (1) that the Jay eats many noxious insects; (2) that its habits of robbing the nests of other birds is much less common than has been asserted; and (3) that it does little harm to agriculture, since all but a small amount of the corn eaten is waste grain." (Beal.)

Personally, my attitude toward the Jay is that which I hold in regard to the Crow. It is not unusual for the Jay to eat birds' eggs, and in so doing he does an injury which the good deeds to his credit are far from balancing. As with the Crow, any one of the insect or seed-eating birds killed by a Jay would doubtless have been more desirable than the Jay itself, and where a single Jay, as often happens, destroys a whole nestful of eggs it becomes a positively injurious species. I believe, therefore, that the Blue Jay is no more deserving of protection than is the Crow. Both birds, however, are far too interesting to be exterminated, but no steps should be taken which will result in their increase.



LESSER SCAUP DUCK.
(Aythya affinis).
½ Life-size.

Lesser Scaup Duck (*Aythya affinis*)

By Lynds Jones

Synonyms.—Lesser Scaup; Little Blackhead; Bluebill, etc.

Description.—*Adult male*: Similar to preceding but smaller; the head not glossed with green,—violet or purplish instead. *Adult female*: Distinguishable from that of *A. marila* only by smaller size. Length 15.00-17.00 (381.-431.8); wing 8.00 (203.2); tail 2.30 (58.4); bill 1.65 (41.9); tarsus 1.40 (35.6).

Recognition Marks.—See preceding species; smaller.

Nesting.—Not certainly known to breed in Ohio. *Nest* and *Eggs*, like those of preceding species. Av. size of eggs, 2.25 x 1.58 (57.2 x 40.1).

General Range.—North America in general breeding chiefly north of the United States, migrating south to Guatemala and the West Indies.

A CAREFUL enumeration of the ducks would probably prove this "Little Black-head," or "Little Blue-bill" as he is known to the hunters, the most numerous of all our ducks. It is certainly true that more individuals of this species are seen on our rivers, ponds, reservoirs and lakes than any other ducks. They are wary and wide awake where danger may threaten, but on the Oberlin water-works reservoir, which lies within the village residence section, they are not usually disturbed at the presence of people standing all about the embankment on Sundays. During the season of migration they rarely occur singly, but in flocks of from five to over a hundred individuals.

Early in the season, during early April, most flocks contain a smaller number of females than males, but near the close of the migrations the females predominate. The early flocks contain about twenty per cent of females, the later ones not more than that percent of males. I have never yet seen a flock wholly composed of one sex. Often other ducks associate with the Scaups on the smaller ponds, particularly the Greater Scaups, but in flight the tendency is strong for each species to go its own way alone.

Since the Scaups are sea and bay ducks, they are excellent divers, and feed well below the surface of the water. While they remain upon the Oberlin water-works reservoir there is not so much fishing as resting. Apparently the flocks have learned that the place is secure from danger, because small flocks remain for hours passively floating upon the water with the head turned back, resting upon the shoulders. They scarcely even notice the passing trains, nor people upon the embankment. The purplish-black head and neck, and black breast of the males contrasts strongly with the almost pure white sides and wing speculum. Often the bluish bill shows white in reflections, making the head appear cut away in front. The plain brownish-drab females are often puzzling to many people, but the white patch at the base of the bill should be a mark for certain identification, even if there should be no males present in the flock.

For three summers a pair of these birds has made its nest in the vicinity

of Oberlin, making the reservoir the base of supplies. The nest has not been found, to be sure, but the birds make daily visits to the reservoir all summer long, and in the fall pay it a farewell visit with the whole brood. It seems more than likely that a few pairs nest in the northern parts of the state each summer. Most of those which pass us in the migrations spend the summer many miles north of Ohio.

The nest seems to be placed at the edge of running water, in thick grass, rushes, or weeds, slightly sunken, and lined with dry grasses and the down from the mother bird's breast. It is not a well-made nest, but is sufficient to contain the dozen eggs. The birds flush only when danger threatens near at hand, when they get up quickly and are away at great speed. The eggs are a darker drab than is usual with ducks' eggs.

So closely do the two Scaups or Blue-Bills resemble each other and so similar are their general habits that, except as regards their distribution, what is said of one applies almost equally well to the other. Like its congener, the lesser Scaup is prone to associate in immense flocks, and on this account is sometimes called the "Raft Duck." Because of this habit and because it decoys well, this Scaup is a favorite with gunners, and immense numbers are killed every season and find their way to the markets. Naturally they are nothing like so numerous as formerly though, everything considered, they still hold their own fairly well. I found the lesser Scaup abundant in Florida and in the Gulf States in winter in the early seventies, and Chapman thinks they are more southern in their winter distribution than is the Greater Scaup. This species ranks among our best divers and its food habits are such as to insure it a warm welcome on the table of the epicure. It is very fond of wild rice, and in fall, when the crop of this grain ripens, frequents the inland lakes by thousands, and soon becomes fat on this nutritious diet. In protected waters it is surprising how soon this duck and its congener, the Greater Scaup, become tame. I have often approached flocks within half a gun shot that were apparently quite indifferent to my presence, and yet elsewhere the same individuals were wary enough to insure their own safety. No doubt the Scaups would readily lend themselves to semi-domestication.

Do you know that Pennsylvania has abolished its crow law? For a time the state offered a bounty of fifty cents for each crow killed. The state paid out about a hundred thousand dollars in bounties before it repealed the law. It was discovered that rats, mice and other pests had increased alarmingly; and the generally approved estimate was that this bounty law had cost the farmers over two million dollars, as well as costing the state over a hundred thousand. Illinois had a crow-bounty law at one time, and was glad to take it off the books—enterprising gentlemen of other states were shipping in crows in car lots. They found that the crow had its place in the plans of Nature.

The Musical Swan (*Cygnus musicus*)

By Julietta A. Owen

"What moonlit glades, what seas,
Foam-edged, have I not known!
Through ages hath not flown
Mine ancient song with gathered music sweet—
By fanes o'erthrown,
By cities known of old, and classic woods,
And, strangly sad, in deep-leaved northern solitudes?"

If those living avian gems aglow amid the trees that form Earth's emerald diadem, are the jewels of Nature's crown, then is the great white swan afloat upon the ripples of her glistening lakes and seas, a shimmering pearl amid the chasing of her silver breastplate.

Yet it was not the beautiful Mute Swan, most beautiful, most stately, and most silent of all created things, that typified to the men of old the reincarnation of the poet's soul; neither the Trumpter, with its loud clarion, but the more slender Singing Swan of song and story, that "thro' its deathless music sent a dying moan." It was to this swan alone that the ancients could attribute the power of melody—the singular faculty of tuning its dying dirge from among the reedy marshes of its final retreat, where "in a low, plaintive and stridulous voice, in the moment of death, it murmured forth its last prophetic sigh;" and it was this swan, too, that inspired the philosopher Pythagoras to teach that the souls of poets passed at death into swans and retained the powers of harmony they had possessed in their human forms.

M. Antoine thinks that it is not improbable that the popular and poetical notion of the singing of the swan was derived from the doctrine of the transmigration of souls; yet the traveler Pausanius, who spake as one having authority, affirmed the swan to be "the glory of music," at the same time preserving the following testimony to the repute of the swan as a bird of prophecy: "In the night before Plato was to become the pupil of Socrates, the latter in a dream saw a swan take refuge in his bosom. Now the swan has a reputation for music, because a man who loved music very much, Kuknos, the king of the Ligyes beyond the Eridanus, is said to have ruled the land of the Kelts. People relate concerning him that, through the will of Apollo, he was changed after his death into a swan." From this evidence Pausanius thus subtracts the weight of his private opinion: "I am willing to believe that a man who loved music may have ruled over the Ligyes, but that a human being was turned into a bird is a thing impossible for me to believe."

Mr. Rennie cites, also: "In his Phaedro, Plato makes Socrates thus expresses himself: 'When swans perceive approaching death, they sing more merrily than before because of the joy they have in going to the God they serve; but men, through fear of death, reproach the swans, saying that they lament their death

and sing their grief in sorrowful tones.' After digressing to assert that no bird sings when either hungry or sorrowful, he resumes, 'Far less do the swans sing out of grief, which, by reason of their belonging to Apollo, are diviners, and sing more joyfully on the day of their death than ever before, as foreseeing the good that awaits them in the other world.'"

Charles de Kay wrote: "Not the magnificence merely, but the element of superstitious reverence, accounts for the frequency of the swan as a crest and charge of coat of arms," stating that in heraldry the swan runs back through heraldic devices to totemism, and that among the "oath-birds" which wizards of Lapland called upon in their incantations, the swan often figured.

It is also asserted that German local legends retain the idea of the swan as an uncanny bird, prophetic of death or the under world, and that the Klagesee, or Lake of Complaining, near Liban, was so named from the numbers of musical swans that congregated there.

Pliny says, "Some affirm that swans sing lamentably a little before death, but untruly, I suppose, for experience of many has shown the contrary." But Aristotle says, "Swans are wont to sing, particularly when about to die, and mariners in African seas have observed many of them singing with a mournful voice, and expiring with the notes of their dying hymn."

Cicero affirmed that Lucius Crassus spoke with the divine voice of a swan about to die; while Homer makes no allusion to their singing, but mentions their "flying round the springs of Cayster, clanging on sounding pinions." Oppian asserts, "They sing at dawn before the rising of the day as if to be heard more clearly through the still air. They also sing on the sea-beach, unless prevented by the sounds of storms and boisterous weather, which would not permit them to enjoy the music of their own songs. Even in old age, when about to die, they do not forget their songs, though they are more feeble than in youth, because they cannot so well erect their necks and expand their wings. * * *

"They are invited to sing by Favonius, and as their limbs become sluggish and their members deficient in strength when death approaches, they withdraw to some place where no bird can hear them sing, and no other swans, impelled by the same cause, may interrupt their requiem."

While on the one hand Julius Scaliger vituperates Cardan for "lauding the nonsense of the poets, and the mendacity of the Greeks about the singing of the swan," Aldrovand cites on their behalf the testimony of one Frederico Pendasio, a celebrated professor of philosophy and a person worthy of credit, who told him that he had frequently heard swans singing melodiously while he was sailing on the Mantuan Lake; also that one George Braun had heard the swans near London "sing festal songs."

Besides this, Mr. Rennie says, Olius Wormius professed that many of his friends and scholars had heard them singing, and proceeded to give the experience of one John Rostorph, a student in divinity, and a Norwegian by nation. "This man did, upon his credit, and with the interposition of an oath, solemnly

affirm, that once in the territory of Dronten, as he was standing on the seashore early in the morning, he heard an unusual and sweet murmur, composed of the most pleasant whistlings and sounds; he knew not at first whence they came, or how they were made, for he saw no man near to produce them; but looking round about him, and climbing to the top of a certain promontory, he there espied an infinite number of swans gathered together in a bay, and making the most delightful harmony—a sweeter in all his life-time he had never heard."

To this testimony Goldsmith appends his personal opinion in the following words: "Thus it appears that our modern authorities in favour of the singing of swans are rather suspicious, since they are reduced to this Mr. George Braun and John Rostorph, the native of a country remarkable for ignorance and credulity." Goldsmith's own belief was that the ancients had some mythological meaning in ascribing melody to the swan, "and as for the moderns, they scarcely deserve our regard. The swan must, therefore, be content with that share of fame that it possesses on the score of its beauty, since the melody of its voice, without better testimony, will scarcely be admitted by even the credulous."

This better testimony is furnished by Charles de Kay, who says that modern bird-lovers have heard the swans of Russia singing their own dirge in the North, when, having lingered too long before migration, reduced in strength by lack of food, and frozen fast to the ice where they have rested over night, they clang their lives out, even as the ancients said.

Inasmuch as we have record of the Singing, or Whistling Swan from Egypt to Alaska and the Aleutian Isles, with testimony of modern scientists as well as ancient poets in proof of the vocality of this, the largest of singing birds, the question becomes one of quality of song rather than of the actuality of the song itself. M. Montbeillard's opinion of the whistler's vocal exertions is thus expressed: "The bursts of its voice form a sort of modulated song, yet the shrill and scarcely diversified notes of its loud clarion sounds differ widely from the tender melody, the sweet, brilliant variety of our birds of song." And M. Morin even composed a memoir, entitled "Why swans that sang so well in ancient times now sing so badly." It is probable that the ancients, with due consideration for the difference in size between the swan and all other songsters, may have also given consideration in the same ratio to the theory of the enchantment that distance lends; and it is more than probable that all of this confusion of testimony resulted from confusion of species; for, as Charles de Kay explains, observations of the Mute Swan caused people to assign the song of the dying swan to the most fabulous of fables; while Hearne, who observed the Trumpeter, makes the following vigorous statement: "I have heard them in serene evenings, after sunset, make a noise not very unlike that of a French horn, but entirely divested of every note that constituted melody, and have often been sorry that it did not forebode their death."

Aldrovand, referring to the structure of the organs of voice as countenancing the poetical creed of the singing swan, says, "For when we observe the

great variety of modulations which can be produced from a military trumpet, and, going upon the axiom that Nature does nothing in vain, compare the form of such a trumpet with the more ingenious mechanism of a swan's windpipe, we cannot but conclude that this instrument is at least capable of producing the sounds which have been described by the ancient authors."

In distinguishing between the Whistling and Tame or Mute Swans, Bingley describes this strange form of windpipe, "Which falls into the chest, then turns back like a trumpet, and afterwards makes a second bend to join the lungs. The curve being inside the neck of the Whistler or Hooper, instead of being an external adornment, as in the case of the graceful Mute, in whom

'Behold! The mantling spirit of reserve
Fashions his neck into a goodly curve,
An arch thrown back between luxuriant wings
Of whitest garniture, like fir-tree boughs,
To which, on some unruffled morning clings
A dusky weight of winter's purest snows—'

while with the Musical Swan the gift of voice is balanced by a corresponding detraction from personal appearance; for the straight neck and smaller stature impart, we are told (alas!), a certain goose-like suggestion."

This aesthetic obstacle is, however, successfully surmounted by the fact that their songs are uttered mostly at night, when flying far overhead in the darkness; but there is no help for the statement of Albertus Magnus, which must needs be taken for better or for worse, that "When swans fight, they hiss and emit a sort of bombilation, not unlike the braying of an ass, but not so much prolonged."

The Abbe Arnaud, whose observations were said to be very minute, completes the list of odious comparisons as follows: "One can hardly say that the swans of Chantilly sing; they cry, but their cries are truly and constantly modulated; their voice is not sweet: on the contrary, it is shrill, piercing, and rather disagreeable. I could compare it to nothing better than the sound of a clarionet winded by a person unacquainted with the instrument."

Proceeding then to depict the manner of their dual concerts, he continues: "The swan, with his wings expanded, his neck stretched and his head erect, comes to place himself opposite to his mate, and utters a cry to which she replies by another which is lower by half a tone. The voice of the male passes from A to B flat; that of the female from G sharp to A. The first note is short and transient, and has the effect which our musicians call sensible, so that it is not detached from the second, but seems to slip into it. This dialogue is subjected to a constant and regular rhythm, with the measure of two times. Observe that, fortunately for the ear, they do not both sing at once!"

Nuttall is likewise arrayed with the witnesses for quantity rather than quality of sound. Of the dying song, he says, "These doleful strains were heard at the dawn of day or when the winds and waves were still, and, like the syrinx

of Pan, were in all probability nothing more than the murmurs and sighs of the wind through the marshes and forests graced and frequented by these elegant aquatic birds." Speaking of the natives of Iceland comparing their notes, "very flatteringly," to those of a violin, he suggests that "allowance be made for this predilection, when it is remembered that they hear this cheerful clarion at the close of a long and gloomy winter, and when, at the return of the swan, they listen to the harbinger of approaching summer; every note must be, therefore, melodious, which presages the speedy thaw and return of life and verdure to that gelid coast." He adds that it emits its notes only when flying or calling on its companions—the sound being very loud and shrill, but by no means disagreeable when heard high in the air and modulated by the winds."

Of the "Peaceful Monarch of the Lake," Thomas Bewick wrote: "Much has been said, in ancient times, of the singing of the Swan, and many beautiful and poetical descriptions have been given of its dying song. 'No fiction of natural history, no fable of antiquity, was ever more celebrated, oftener repeated, or better received; it occupied the soft and lively imagination of the Greeks; poets, orators, and even philosophers, adopted it as a truth too pleasing to be doubted.' 'The dull, insipid truth,' however, is very different from such amiable and affecting fables, for the voice of the swan, singly, is shrill, piercing and harsh, not unlike the sound of a clarionet when blown by a novice in music. It is, however, asserted by those who have heard the united and varied voices of a numerous assemblage of them, that they produce a more harmonious effect, particularly when softened by the murmur of the waters."

To Cassell the voice of the swan "is low, soft and musical, and when heard from multitudes congregated together has a very pleasing effect." Shakespeare repeatedly alludes to the music of the swan with manifest confidence in its melody; Pallas, the ornithologist, likens their notes to silver bells; and Olaffson says that in the long Polar night it is delightful to hear a flock passing overhead, the mixture of sounds resembling trumpets and violins.

So now, though we no longer know that the soul of the poet returns to float, the embodiment of rhythmic grace, before our mortal eyes as in the years so long gone by, there yet remains to us the splendid imagery of that stately form in spotless plumage against the setting of the darkening sea, the wonder of that solemn requiem, and the prophecy and the mystery of the shadowy orchestra passing onward in the depths of the midnight sky.

Marbled Godwit (*Limosa fedoa*)

Range: Breeds from valley of Saskatchewan south to North Dakota; winters from southern Lower California, Louisiana, Florida, and Georgia to Guatemala and Belize.

The marbled godwit, one of the largest and finest of American shorebirds, formerly nested in Nebraska and Iowa. A few may still breed in North Dakota but the bulk of the species retire beyond our northern boundaries to rear their young. Though in summer an inhabitant of the interior prairies and marshes, the marbled godwit prefers to winter on the seacoast, and Cooke notes the remarkable fact that it "presents the unique spectacle of a bird breeding in the middle of the American continent and migrating directly east and west to the ocean coasts." While it is easy to prove that the marbled godwit formerly was much more abundant than it is now, it is doubtful if the bird ever existed in numbers comparable to certain other shorebirds, as the curlews and various sandpipers. Wherever it was found, the bird carried with it its own death warrant in its large size, excellent flesh, and its trusting disposition, which not only made it easy to decoy but prompted it to return once and again at the call of wounded comrades. Strict observance of the Federal regulation which prohibits the killing of this and certain other shorebirds until 1918, may possibly save the marbled godwit from extinction, but friends of our shorebirds may well watch with anxious foreboding the history of this bird during the next few years.

Heath Hen (*Tympanuchus cupido*)

Range: Island of Marthas Vineyard, Massachusetts.

So late as the first year of the present century the heath hen was still more or less common in the middle and eastern states. Still earlier the bird was probably rather generally distributed over the territory east of the Alleghenies. We have no reason to be proud of the course taken by legislation in favor of the heath hen, though we need not go back to the last century for even more flagrant examples of the failure of protective legislation. First, as is usual in such cases, all legislation halted till the bird was well on the road to extinction. Then laws were passed, adequate enough, if properly enforced; but they were openly and frankly ignored or repealed or modified no doubt under the time-worn arguments of the present day: the importance to sportsmen of an open season; the need for meat; with the carollary, that the species at that particular period was in no danger. And the result was the same as in the case of the passenger pigeon, and as it will be soon in the case of the prairie chicken.

Marthas Vineyard, Massachusetts, now holds the last pitiful remnant of this fine game bird which, under the protection of the state, has increased from a few couples to about two hundred. How long this little band of survivors will be able to hold fate at bay remains to be seen. It would seem to be the part of wisdom to found other colonies and so increase the chances of survival.

Passenger Pigeon (*Ectopistes migratorius*)

Range: Bred formerly from middle western Mackenzie, central Keewatin, central Quebec, and Nova Scotia south to Kansas, Mississippi, Pennsylvania, and New York; wintered principally from Arkansas and North Carolina south to central Texas, Louisiana, and Florida.

On September 1, 1914, aged twenty years, departed this life the sole surviving passenger pigeon. This brief obituary records the disappearance from earth not only of the last survivor of a notable American game bird, but what is infinitely sadder, the passing of a species. The history of the passenger pigeon from the first settlement to and including our own times reads like a romance, but a romance tinged on every page with man's cruelty, rapacity, and shortsightedness. Early accounts of the enormous numbers of this pigeon that migrated from section to section read like fables, but they are too well attested to be doubted. Wood's account of the passenger pigeon (1629-34) is so quaint I subjoin part of it:

"These Birds come into the Countrey, to goe to the North parts in the beginning of our Spring, at which time (if I may be counted worthy to be believed in a thing that is not so strange as true) I have seene them fly as if the Ayerie regiment had beene Pigeons; seeing neither beginning nor ending, length or breadth of these Millions of Millions."

Audubon states that he rode through a winter roosting-place in Kentucky which was more than forty miles long and three miles wide. It may be doubted if in the prime days of this pigeon its numbers were ever equaled by any other bird, either in the Old World or the New. Only its great numbers enabled it to survive the assaults of its enemies as long as it did. Then came the market netter, and everywhere the hapless pigeons were taken in season and out of season, with eggs in their bodies ready for the nest and with nests full of young. While neither the netter nor the sportsman is responsible for the extermination of the last passenger pigeon, it is nevertheless true that by the combined assaults of the two, the species was reduced to such a low ebb that it could not recover. Protective legislation was too late.

The Leconte's Sparrow (*Passerherbulus lecontei*)

By Edward B. Clark

Length: 5 inches.

The Leconte's Sparrow has an interesting history. It was first discovered and named by Audubon in 1843. Later, his account seemed almost a myth, for no more individuals were taken, and even the specimen on which he based his published report of the new species was lost. It was not seen again until Dr. Coues rediscovered it in 1873, obtaining his specimens on the Turtle Mountain, near the border of Dakota.

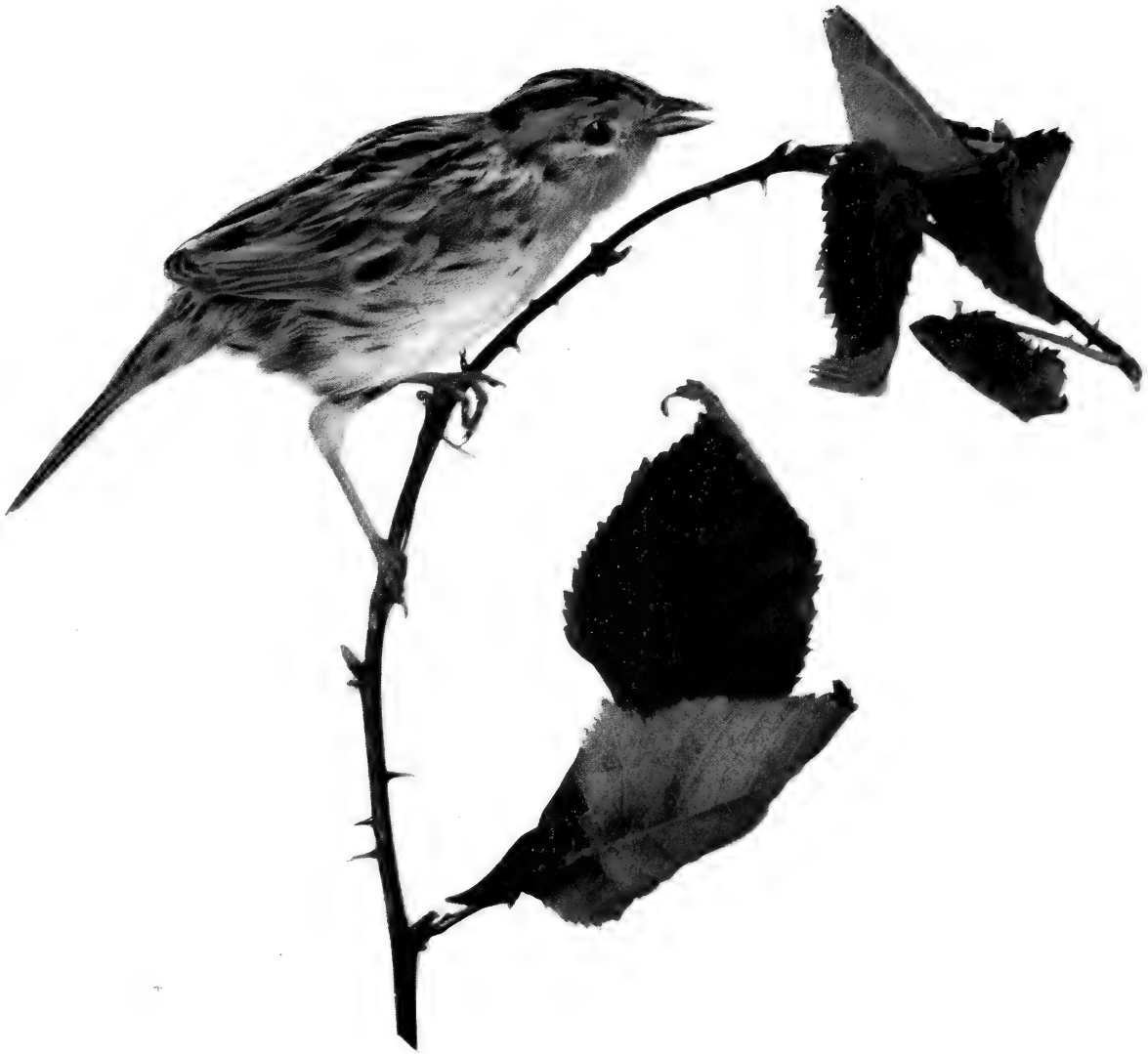
Of their habits, Dr. Coues says: "In their mode of flight the birds resemble wrens; a simile which suggested itself to me at the time was that of a bee returning home laden with pollen; they flew straight and steady enough, but rather feebly, as if heavily freighted for their very short wings."

Its range is quite extensive, for it is found from the Great Plains eastward through Illinois and Indiana and from Manitoba southward. During the winter months it frequents the states bordering the Gulf of Mexico. This Sparrow is often seen in the stubble of grain fields which have become covered with grass and low weeds, to the cover of which it will retreat when frightened. In this respect it resembles the grasshopper sparrow, and like it is easily overlooked. Mr. Nelson found it on moist prairies that were covered with a growth of coarse grass. It is also frequently seen in the swampy prairies of the Mississippi bottom lands.

Mr. Oliver Davie quotes the following description of the bird's habits from an observer who studied their habits in Manitoba, where they nest extensively: "Leconte's Sparrows are fairly numerous in Manitoba. Their peculiar note can be heard both day and night in fine weather; the only sound I can compare it to is the note of the grasshopper. It is one of the most difficult of all the small birds to collect that I know of. They are great skulkers. I have often followed them, guided by their chirping, in the grass until I was sure the bird was not more than a few yards away; then he would suddenly 'crowd on all sail' and dart away at a high rate of speed, gyrating from side to side in a manner that would test the skill of any collector."

The nests are described as concealed in a thick tuft of grass and are rather deep and cup shaped. They are constructed of fine grass and fibers.

Though this elegenat little Sparrow baffled bird lovers for so many years, it is now known to be abundant in many localities, and it is only because of its peculiar and retiring habits, living as it does in grassy places not easily accessible, that it is not more often observed.



LECONTE'S SPARROW.
(Ammodramus leconteii.)
About Life-size.

Winter Birds

By Alfred Kummer

In Summer's brightest day,
From tree-tops, by the way,
Birds sing in cheery song,
Our days and joys prolong.

In Spring, the flowers, once dead,
Again lift up their head;
And birds of passage sing
To welcome lovely Spring.

But, in the Winter, too,
Bird notes are not a few;
The black-capped chickadee
Sings from the snow-clad tree.

The blue jay and shore lark,
When clouds bring gloom and dark,
Mid snows and freezing cold,
Sing cheer,—their hearts are bold.

The shrike, or butcher-bird,
Is not by cold disturbed;
And e'en the cawing crow
Fears neither cold nor snow.

Along our frozen streams,
When snow, like diamonds, gleams,
Where Winter's works are rife,
E'en there you'll find bird-life.

The ruby-kinglet crowned,
For daintiness renowned,
Comes in a restless crowd
To sing o'er Winter's shroud.

Shall we, with Reason's light,
Give way to Winter's night?
No; let us take to wing,
With birds and angels sing.

Bird Houses and How to Build Them

By Ned Dearborn

Birds may be gathered about us in all seasons of the year with ease and certainty merely by offering what they desire. In winter they are often pushed for food, and if we supply this need they will report daily at the lunch counter and help relieve the tedium of our indoor life. In summer they care less for food provided by their human friends, and other means must be sought to attract them about the home. They appreciate fresh water for bathing and drinking. A shallow pool of varying depth, if only a foot across, becomes on hot days a center of attraction for all the birds in the vicinity, and it may be made with little effort and material; only a small amount of cement is required, or, if that be lacking, a pan with stones in it set in the ground will be equally serviceable. Trees, shrubs, and vines bearing fruit relished by birds are great attractions in their season.

Birds are desirable about premises not only on account of their beauty and song, but because of their economic worth. They are especially useful as insect destroyers during the breeding period, when they have to work early and late to obtain sufficient food for their nestlings, and their movements at this time are more interesting than during any other season. There is, therefore, a double purpose in offering them special nesting facilities. If mud is available, swallows, robins, and phœbes will found and wall their nests with it. If we put out feathers, bits of wool, or twine, a dozen different kinds of birds will make use of them. If we furnish safe retreats in which they can rear their young comfortably, most of them will be occupied. In fact no attraction for summer birds is more effectual than a series of houses suited to the needs and habits of the various kinds of house birds.

A few years ago only four species were commonly regarded as house birds —the house wren, the bluebird, the tree swallow, and the martin. Since the movement to protect birds and make neighbors of them began, however, their natures and needs have become better understood, and it is now known that many other species will avail themselves of houses constructed for them by their human friends. The practice of erecting bird houses in this country, while now nation-wide, is not so common and uniformly distributed as it should be, and more extended provisions of this nature cannot fail to result in a largely increased number of house birds.

HOUSE BIRDS INCREASING IN NUMBER.

The habit of nesting in bird houses has been adopted by individuals of many species which would not ordinarily be expected to make use of such homes, and this may be taken as indicating that it will become more general from year to year as facilities are afforded and as the number of birds hatched in houses increases.

That western wrens and bluebirds should take as naturally to artificial shelters as did the eastern relatives was to be expected. On the other hand, the use of houses by birds which until recently had persistently ignored them is surprising and must be considered a victory for those who have studiously attempted to enlarge their circle of feathered neighbors.

Woodpeckers, nuthatches, and titmice excavate their own houses, usually new ones each year, leaving the old homes to less capable architects. Builders of artificial houses generally go to the woodpecker for designs, and by varying styles to suit the tastes of different kinds of birds, have been rewarded by such tenants as chickadees, tufted titmice, white-breasted nuthatches, Bewick and Carolina wrens, violet-green swallows, crested flycatchers, screech owls, sparrow hawks, and even some of the woodpeckers, the master builders themselves. Flickers readily accept houses built according to their standards. Red-headed and golden-fronted woodpeckers are willing occupants of artificial houses, and even the downy woodpecker, that sturdy little carpenter, has, in one instance at least, deemed such a home a satisfactory abode in which to raise a family. Shelters having one or more sides open are used by birds which would never venture into dark houses suited to woodpeckers. They have been occupied by robins and brown thrushes, and, in one instance, by a song sparrow.

The number of house birds may be still further augmented as time goes on. All of the commoner woodpeckers are likely to be included, as are several of the small owls and wrens, and a few of the wild ducks, as the golden-eye. The wood duck is already known to use nesting boxes. Houses set close to streams in the western mountains will probably be occupied by ousels or dippers. Florida grackles sometimes breed in flicker holes and may be expected to occupy houses now and then. In every locality having trees there is a group of birds ready to appropriate houses when they have the opportunity.

House birds differ decidedly in their requirements. For those which usually excavate homes for themselves, the diameter of the entrance and the depth and diameter of the cavity must be in accord with their specific standards. Some birds are satisfied with almost any sort of a lodging. Bluebirds and wrens, for example, are content to build in tomato cans, although chickadees and nuthatches disdain them. Wood is better building material than metal or earthenware. Entrance holes should be countersunk from the outside to exclude rain. Heads of nails and screws should be set rather deeply and covered with putty. All houses should be easy to open for cleaning. A perch at the entrance is unnecessary and may even be an objection, as it is frequently used by English sparrows while they twitter exasperatingly to more desirable occupants. To provide for proper ventilation a row of small holes is sometimes bored just beneath the eaves, but there should never be a ventilating hole lower than the entrance, and joints should be made tight, as drafts of air are dangerous. In case there is danger that rain may be driven in through the door, a small drainage hole, which will be covered by the nest, may be made in the middle of the floor.

The appearance and durability of houses are improved by a coat of paint. A neutral shade of green or gray is suitable for houses mounted in trees, while those on poles, being conspicuously placed, lend themselves harmoniously to the landscape when painted white.

The Black-Chinned Hummingbird

(*Archilochua Alexandri*)

By Edward B. Clark

Length: 3½ inches.

"To the ornithologist who may be so fortunate as to visit Southern California in the spring, when Nature has put on her holiday attire, and everything appears at its best, our friends, the feathered midgets, will contribute not a little to the pleasure of his stay."—Benjamin T. Gault.

The Black-chinned Hummingbird has a long and narrow range extending along the Pacific coast from Southern British Columbia southward into Southern Mexico, where it passes the winter. Eastward its range extends to Western Montana, Western Colorado, New Mexico, and Western Texas. In some portions of this range it is very abundant, while in others that are apparently as well suited to its habits it is rare, or never seen at all.

This Hummingbird, which also bears the name Purple-throated and Alexandre's Hummingbird, is very similar in its habits to our eastern ruby-throat. Even in its call notes and antics while wooing its mate it is almost a counterpart of the eastern species.

Next to the Anna's Hummingbird, the Black-chinned is the most conspicuous of all the hummingbirds that frequent Southern California. At twilight it is a frequent visitor to the orange groves, and later, as night approaches, it retires to the mountain sides, where, with numerous individuals of its own kind and other birds, it finds a resting place through the dark hours.

Mr. B. T. Gault has related an interesting anecdote that occurred in his experience with hummingbirds. He once found a nest of the Black-chinned species in which there were eggs nearly ready to hatch. Wishing the nest, which was an exceedingly fine one, he cut the branch only to find the eggs of no value as specimens. Finally, finding a nest in which there were two fresh eggs, he took them and substituted the two older ones. The female bird watched this action from a nearby branch. Returning a few days later, he was surprised to find two little naked worm-like bodies in the nest. Naturally satisfied and pleased over the result of his experiment he says: "The old bird seemed pleased too, as she watched me from a neighboring branch, while arranging her feathers, evidently wondering why I should take such a deep interest in her treasures. And well she might be pleased, for incubation had been robbed of all its tediousness in this case and the pair acting on this assumption undoubtedly hatched another brood, but not in such haste, I venture to say."

BLACK-CHINNED HUMMINGBIRD.
(Trochilus alexandri.)
About Life-size.

The nests are delicate affairs, and in many cases resemble small sponges, readily assuming their normal form if the edges are pressed together. The inner cup is seldom more than one inch in diameter. The walls are usually composed of the down of willows. This is firmly woven by an unsparing use of spider web. Usually a few small leaves and scales of willow buds are attached to the outer face, evidently to give it stability.

It has been stated that hummingbirds invariably lay but two eggs in each set. The female Black-chinned Hummingbird seems to be at least one of the exceptions that prove the rule. Major Bendire says that "nests of this species now and then contain three eggs, all evidently laid by the same female, and such instances do not appear to be especially rare."

The Black-chinned Hummingbird is like all the other birds of its kind. Always inquisitive, never afraid to combat a foe and always active, the lines of Jones Very are especially applicable to its character:

Like thoughts that flitted across the mind,
Leaving no lasting trace behind,
The humming-bird darts to and fro,
Comes, vanishes before we know.

Looking Toward the Light

By S. D. Stockton

I asked the robin as he sprang
From branch to branch and sweetly sang,
What made his breast so round and red.
" 'Twas looking toward the sun," he said.

I asked the violets sweet and blue,
Sparkling with the morning dew,
Whence came their color. Then, so shy,
They answered, "looking toward the sky."

I saw the roses one by one
Unfold their petals to the sun,
I asked what made their tints so bright.
They answered, "looking toward the light."

I asked the thrush as his silvery note
Came like a song from a siren's throat,
What made him sing in the twilight dim.
He answered, "looking up to Him."

The Burrowing Owl (*Speotyto cunicularia hypogaea*)

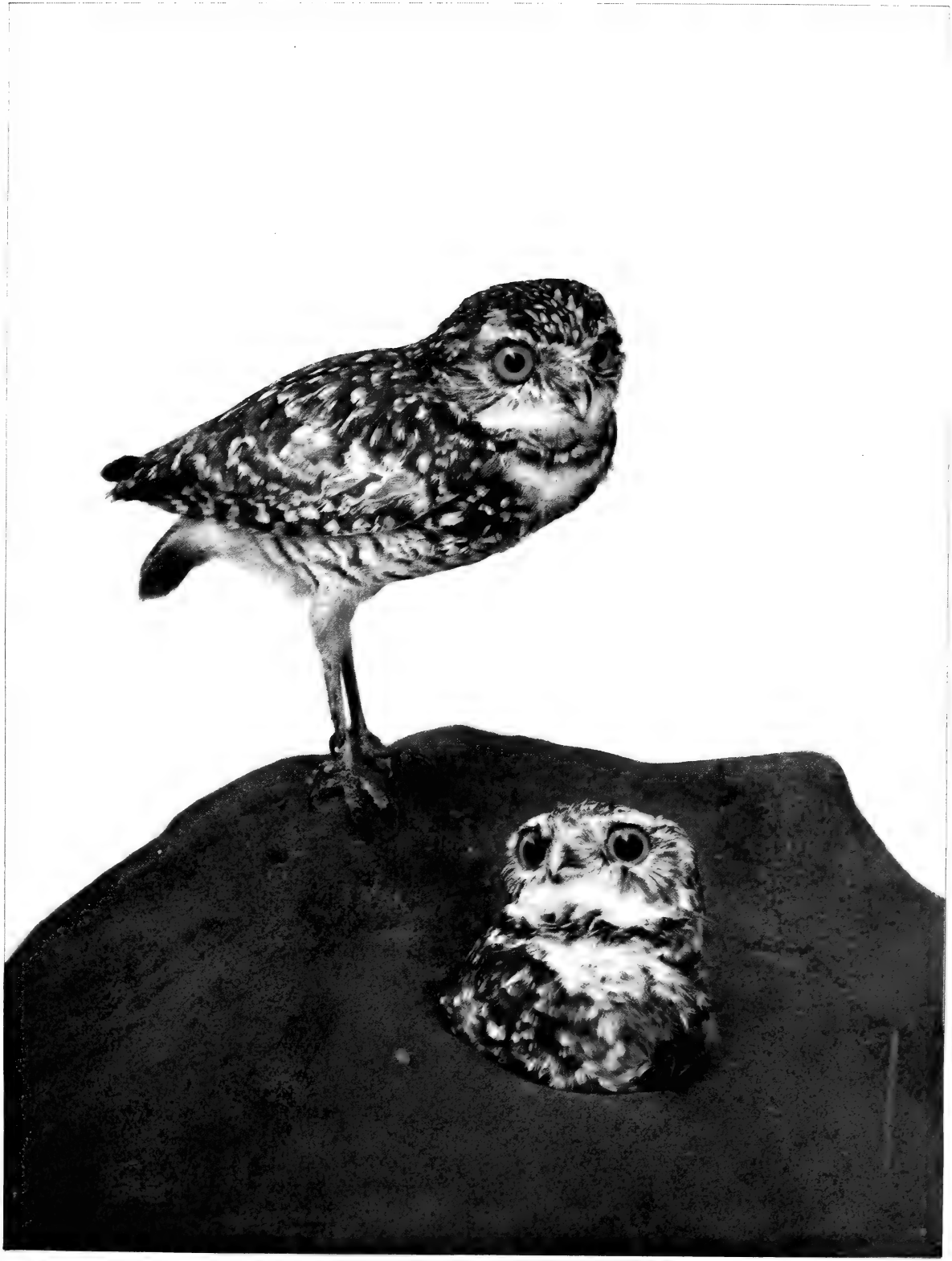
By R. L. Baird

Length: 9 inches.

The Burrowing Owl is a denizen of the prairies and plains west of the Mississippi and the Missouri rivers. It is found from localities somewhat north of the United States as far to the southward as Guatemala. In some parts of this large area it is exceedingly common, and it is the only representative of the owl tribe that inhabits, in any numbers at least, the treeless regions of the western states.

Unlike other species of owls, the Burrowing Owl is especially fitted for a subterranean mode of life. It will make its home in the burrows of the various animals that inhabit the prairie regions. These birds are social and live in colonies consisting of several pairs. Some Indians have claimed that it retires into its burrow at the approach of winter, and there remains in a torpid condition during the cold weather. Careful observers have, however, shown that this is not the case. It may be said that, except in the northern part of its range, where the winters are severe, it is resident wherever found and not migratory. It is probable that it would not be migratory at all were it not that the animals upon which it feeds are not obtainable in severe weather. Investigation has proved that the stories of the confidential relations existing between the Burrowing Owl, the prairie dog and the rattlesnake are pure fabrications of an imaginative mind, greatly strengthened by additions as they are passed from person to person. The only foundation for these stories is the fact that this Owl and also the rattlesnake do occasionally enter the burrows of the prairie dog. Dr. Coues has said "that the Owls live at ease in the settlements and on familiar terms with their four-footed neighbors is an undoubted fact; but that they inhabit the same burrows or have any intimate domestic relations is quite another thing. It is no proof that the quadrupeds and the birds live together that they are often seen to scuttle at each other's heels into the same hole when alarmed, for in such a case the two simply seek the nearest shelter independently of each other." It is not at all strange that the snakes should also enter these holes. It may be that they do so for the want of some other retreat on a broad expanse of prairie, but it is much more probable that they are in search of food, either in the form of young dogs or the eggs of the Owl. Though the Burrowing Owls are found with the burrowing mammals, they do not occupy the same holes with them and do without doubt drive them out if they wish to pre-empt the burrows for their own use.

Though the Burrowing Owl probably obtains most of its food in the early twilight, it is frequently "in motion on the brightest days, capturing its prey or evading its pursuer with the greatest ease." Like the sparrowhawk, it frequently hovers in the air and drops upon its prey. Its food consists of the smaller rodents, including the young of the prairie dog, frogs, fish, lizards, snakes and insects of various kinds. In fact, its food is so varied and consists of noxious animals to



BURROWING OWL.
(Speotyto cunicularia hypogaea.)
½ Life-size.

so great an extent that it is of great service to the agriculturist. Dr. Fisher says: "In summer and fall, when grasshoppers and crickets are exceedingly abundant on the western plaine, the Burrowing Owl feeds almost exclusively on such food. Like the sparrowhawk, this little Owl will chase and devour grasshoppers until its stomach is distended to the utmost." It is rare and only when pressed for food that it attacks and kills other birds.

Dr. C. S. Canfield gives the following account of its nesting habits: "I once took pains to dig out a nest of the Burrowing Owl. I found the burrow was about four feet long and the nest was only about two feet from the surface of the ground. The nest was made in a cavity of the ground, of about a foot in diameter, well filled with dry, soft horse-dung, bits of an old blanket and the fur of a coyote that I had killed a few days before. One of the parent birds was on the nest, and I captured it. It had no intention of leaving the nest, even when entirely uncovered with shovel and exposed to the open air. It fought bravely with beak and claws. I found seven young ones, perhaps eight or ten days old, well covered with down, but without any feathers. The whole nest, as well as the birds, swarmed with fleas. It was the filthiest nest I ever saw. There were few birds that carry more rubbish into the nest than the Burrowing Owls, and even the vultures are not more filthy." In this nest Dr. Canfield found scraps of dead animals, both of mammals, snakes and insects.

Major Bendire believes that when these Owls are once mated they are paired for life. He also likens their love note, which is heard about sundown, to the call of the English cuckoo. He says that it is "a mellow, sonorous and far-reaching 'coo-c-oo,' the last syllables somewhat drawn out, and this concert is kept up for an hour or more. These notes are only uttered when the bird is at rest, sitting on the little hillock surrounding the burrow. While flying about a chattering sort of note is used and when alarmed a short shrill 'tzip-tzip.' When wounded and enraged it utters a shrill scream and snaps its mandibles rapidly together, making a sort of rattling noise, throws itself on its back, ruffles its feathers and strikes out vigorously with its talons, and with which it can inflict quite a severe wound."

The Western Red-tail (*Buteo borealis*)

By Lynds Jones

Description.—*Adult:* Plumage chiefly blackish, sometimes uniform sooty, except tail and its upper coverts; individually variable between form nearly as light as *B. borealis* and deepest sooty brown; breast usually extensively rufous, and lower belly with more or less white, but these colors obliterated in completely melanistic specimens; tail as in *borealis,* with a conspicuous black subterminal bar and often with several more or less complete additional bars. *Immature:* As in *borealis* but darker throughout and more heavily spotted below; the plumage (except tail) sometimes wholly dusky as in adult (Ridgway). Size as in preceding form.

Recognition Marks.—Like *Buteo borealis* but more heavily colored.

Nest and Eggs as in *B. borealis.*

General Range.—"Western North America from the Rocky Mountains to the Pacific, south into Mexico; casual east to Illinois."

A specimen in the O. S. U. collection is labelled "*Buteo calurus,* Red-tailed Blackhawk, Adult male, November 20, 1875, Franklin County, Ohio," and bears the signature of Dr. Jasper. The bird is a handsome and strongly marked example but lacks the additional barring of the tail which is usually present or at least indicated. Nothing further is known of the circumstances attending its occurrence.

Darker colored than most hawks.

Northern Water-thrush (*seiurus noveboracencis noveboracensis*)

Range: Breeds chiefly in Canadian Zone from northern Ontario, northern Ungava, and Newfoundland south to central Ontario, northwestern New York and northern New England, and in mountains south to Pennsylvania and West Virginia; winters from the Valley of Mexico to Colombia and British Guiana, and from the Bahamas throughout the West Indies.

So far as appearance, motions, and habits go, the water-thrush is more thrush than warbler, and one who sees him for the first time walking sedately along with teetering tail may well be excused for declining to class him with the warbler family. He is partial to swamps and wet places, is a ground frequenter, and in no real sense aboreal. Though an inhabitant of the wilds and showing strong preference for swampy ground, he not infrequently visits gardens even in populous towns, and seems to be quite at home there in the shade of the shrubbery. A sharp and characteristic alarm note often calls the attention of the chance passerby, who would otherwise overlook the bird in its shady recesses.

Few who are privileged to hear its notes will dissent from the opinion that the water-thrush is one of the foremost of the warbler choir and a real musician. The bird is a ground builder, placing its nest under the roots of an upturned tree, in banks, or in cavities of various sorts.

WESTERN RED-TAILED HAWK.
(Buteo borealis calurus).
⅔ Life-size.

Connecticut Warbler (*Oporornis agilis*)

Range: Breeds in Canadian Zone from Manitoba to central Minnesota and northern Michigan; winters in South America, probably in Colombia and Brazil.

Discovered by Wilson in Connecticut early in the last century, the Connecticut warbler remained almost unknown for many years until, September 7, 1870, I found it numerous in the fresh pond swamps of Cambridge. The bird thus rediscovered rapidly came into the limelight, and there are few eastern observers of the present day who are not tolerably familiar with the appearance and habits of this warbler. In fall it is common throughout eastern United States in low, swampy thickets. It habitually feeds on the ground, and is so silent and shy as easily to escape the notice even of one on the lookout for it, especially as its single chirp of alarm is infrequently uttered. In fact, the only way to be sure that one or more Connecticut warblers are not concealed in the shrubbery of a suspected locality is to beat over it systematically, not once, but many times.

When started, the warbler flies noiselessly to the nearest shaded perch, and there sits motionless, watching the intruder, till it decides either to renew its interrupted search for food or to seek some distant place, far from the danger of intrusion. Under such circumstances its motions are highly suggestive of the staid and quiet thrushes, and in no respect similar to the sprightly warblers. The Connecticut is one of the few species that for some reason choose distinct routes of migration, as in spring it passes up the Mississippi Valley instead of through the Atlantic Coast States, which form its southern route in fall. The bird is known to breed in Michigan, Wisconsin, Minnesota, Manitoba, and elsewhere in the north. The only nest so far found, however, appears to be one discovered by Seton in Manitoba. As was to be expected, it was on the ground.

The Florida Gallinule (*Gallinula galeata*)

By W. Leon Dawson

Description.—*Adult:* Frontal shield and bill bright red, the latter tipped with greenish yellow; general plumage blackish slate; above heavily overlaid with olive-brown on back and scapulars; edges of wings and lateral and posterior under tail-coverts white; a few flank feathers narrowly striped with white; feet greenish; tibiæ red. *In winter* specimens the frontal shield is narrower and the feathers of the belly more or less white-tipped. *Immature:* Similar to winter adult, but frontal shield reduced; bill brownish, yellow-tipped; feathers of lower parts more extensively white-tipped. *Downy young:* "Glossy black, the lower parts sooty along the median line; throat and cheeks interspersed with silvery-white hairs" (Ridgway). Length 13.75 (349.3); wing 6.50-7.25 (165.1-184.2); tail about 2.75 (69.9); bill (to frontal shield) 1.26 (32.); tarsus 2.20 (55.9); middle toe and claw 3.20 (81.3).

Recognition Marks.—Little Hawk size; nearly uniform slaty coloration; bright red bill and frontal shield distinctive.

Nest, a platform of dried reeds and grasses raised above surrounding mud and water of swamp. *Eggs,* 6-13, usually 8 or 9, buff or brownish buff, sparingly speckled and spotted or blotched with reddish brown, never (?) black. Av. size, 1.77x1.22 (45.x30.9).

General Range.—Temperate and tropical America from Canada to Brazil and Chili.

GALLINULA—literally, *little hen,*—is the connecting link between ducks and chickens. On the one hand she swims freely and dives readily to escape a pursuer, moving upon the surface of the water rather daintily, nodding the head and perking the tail with each stroke, as if she were working her passage. When under the water the bird makes all speed to shelter, where, if sore pressed, she is said to cling to the submerged stems of water plants, protruding only the nostrils for air. On the other hand the water-hen moves nimbly through the reeds and walks upon the lily pads, or ranges the grass on the dry borders of the swamp. The resemblance to the domestic fowl is further heightened by its occasional appearance among them during migrations. Says Dr. Jones: "The Florida Gallinule is in many respects a curious bird. It occasionally is found during its periods of migration in open fields away from the water or even in the barn yard. Some years ago a gentleman in Circleville found one walking about among his chickens. To him it was a new and strange bird and he concluded to capture it and see where it was hurt. He at once gave chase and soon caught it, but a careful examination failed to reveal a wound. I saw the bird later in the day walking about his yard. It seemed as tame as the chickens and perfectly contented. On the flat hard ground it moved about awkwardly, often stepping with one foot upon the toes of the other, an accident which seriously affected the grace of its movements. The gentleman could not be persuaded that the bird was not

FLORIDA GALLINULE.
About ½ Life-size.

hurt, and having no idea that it would fly it was left in the yard with the poultry. The following morning it was gone, having disappeared as mysteriously as it came."

A brood of Gallinule chicks—tiny black fellows with funny silver whiskers —are fully as cunning as any raised ashore. And they add to the accomplishments of pattering over the lily pads, and peeping lustily while they gather in little insects and snails, that which would horrify their landsmen cousins, viz., the ability to swim and dive.

The Gallinule keeps much more closely to the reeds than does the Coot, to which it is so closely related. It is difficult to flush, but when seen the red bill is immediately distinctive. The notes, by which the bird's presence in the swamp is oftenest betrayed, distantly resemble those of the Guinea-hen, but are much softened and subdued.

The nest is a low platform of broken-down reeds, and is oftenest placed upon the shore side of the swamp, where the ground is only moderately damp. It is a little smaller than that of the Coot, but boasts the same characteristic runway. Like the Coot also it will build in isolated weed-patches, well out, which can be reached only by swimming; while Dr. Langdon found, near Port Clinton, a floating nest which was only anchored to the reeds.

The eggs may be distinguished with certainty from those of the Coot by remembering that the markings are of pale rufous and lavender, and that they incline to larger sizes and irregular shapes, while the spots of the Coot's egg are rounded or punctate, and run in sepias and blacks.

The Florida Gallinule is quite irregular in its distribution in this state. Its presence, especially in the swamps which border the larger reservoirs, depends largely upon the height of the water. In 1902, they were common at the Licking Reservoir, while in 1903, with the water a foot or so higher, none were to be found. They are common at any time in the larger swamps which bound Lake Erie, but even here their presence varies locally from year to year.

Food Habits of Birds

By Frank M. Chapman

Starlings (*Family Sturnidae*)

STARLING (*Sturnus vulgaris*).—The Starling was first successfully introduced into this country by Mr. Eugene Schieffelin, under whose direction 80 birds were released in Central Park, New York City, March 6, 1890; and 40 more on April 25, 1891. There was evidently room in this new environment for these birds for they so thrived that their descendants are now numbered by thousands; flocks containing several hundred being frequently seen in the upper part of New Yory City and eastward along the sound.

The Starling, therefore, is now firmly established in this country, and if it continues to multiply at the rate already shown to be possible, it will in comparatively few years become one of our most abundant birds.

Whether this species will prove to be beneficial or injurious it is difficult to surmise. In its own habitat it is said to be on the whole economically valuable; but under wholly new surroundings, where its relations to other species are as yet undetermined, one cannot predict what its place in nature will be. There can be no question, however, that the present is the time to give this matter serious consideration. In a few years Starlings will be as far beyond control as English Sparrows are now.

Blackbirds, Orioles, etc. (*Family Icteridae*)

In this family are included several species reputed to be the worst enemies among birds, to the farmer. The Blackbirds, of several species, are especially condemned as grain destroyers. Raising only one brood they begin to flock early in July and before the grain is harvested have gathered in enormous bodies which unquestionably do much damage. It is, therefore, not without cause that our law refuses Blackbirds protection at all seasons. The question is, shall we go further than this? Shall we attempt to reduce the numbers of these birds? On this point Professor Beal writes:

"In a treatise on the destructiveness of grain-eating birds it is natural that the reader should expect at least a suggestion of a remedy. Unfortunately it is much easier to point out the evil than to prescribe the cure. Stomach investigation shows conclusively that birds do not subsist upon grain alone, even at times when it is possible to obtain it. Moreover, the greatest amount of grain is not eaten at harvest time, but during the winter months, when other food is scarce and waste kernels can be picked up in the fields. If any kind of grain is preferred by a certain species, we should expect the bird to subsist upon that grain almost exclusively when it can be obtained, that is, at harvest time. That this is not the

case is shown by the fact that many birds of the same species have been shot at the same time in a grainfield, and while some stomachs were full of grain, others were only partly filled, and still others were wholly filled with other food. So many cases of this kind have occurred that it seems practically certain that few birds willingly subsist exclusively upon any kind of grain for a considerable length of time. With many species this is in notable contrast to their marked fondness for the seeds of certain useless plants, upon which at some seasons they subsist almost entirely.

"If it be admitted that birds do not as a rule display an inordinate appetite for grain, the question naturally arises: What is the cause of the tremendous ravages they sometimes commit? Both stomach examination and field observation point to the same answer: Too many birds of the same or closely allied species are gathered together within a limited area.

"As already pointed out, the Upper Mississippi region presents such exceptionally favorable breeding grounds for Blackbirds, especially the Redwing and Yellowhead, that they swarm there in countless numbers. Settlement and cultivation have not yet encroached materially upon their haunts, but have added a source of food, which, coming before the great natural supply, has served to render the race more vigorous and prolific.

"An attempt to exterminate these species would be not only ill-advised but hopeless. States have offered bounties for their destruction without perceptibly thinning their ranks. Is there, then, any remedy for the evil? The writer is forced to confess that he has none to suggest, except in the case of Crows and Blackbirds that pull up sprouting corn. This can be prevented by thoroughly tarring the seed, which, if properly done, neither injures its vitality nor prevents the use of machinery in planting. There is, however, some hope for the future, though perhaps a distant one. While the advance of civilization has thus far not affected these birds or their haunts, the time must surely come when it will. Increased density of population will broaden the area of cultivation, and this in time must lead to the draining of the smaller marshes and ponds, thus turning over to agriculture much land that has heretofore been worse than waste, since it has served as a breeding ground for the birds that have destroyed the crops. With the breeding places more restricted and an environment otherwise changed by increased population, the number of birds must surely decrease, and in time the proper equilibrium will be restored. In the meantime, it behooves the farmer to apply such remedies as the exigencies of the case suggest, and where these gregarious species are over-abundant it might be well to exempt them from the general protective laws, in order that each landholder may be free to protect himself as best he can."

Crow Blackbird: Purple Grackle and Bronzed Grackle (*Quiscalus quiscula et oeneus*).—"Crow Blackbirds are fond of grain, and being of good size and abundant, evidently have the power to do great harm. Moreover, the examination of more than 2,000 of their stomachs shows that grain formed 45

per cent of the food of the year, and that corn alone constitutes 35 per cent. From this it might be expected that they would attract much attention from grain growers, and such is the case. Hundreds of communications have been received testifying to their destructiveness; yet many of these acknowledge the fact that Blackbirds eat a large quantity of insects, especially during the breeding season, and that many insects are fed to the young. This last is also borne out by stomach examination. A review of the yearly diet shows that the greater part of the corn eaten is taken during the fall and winter months. That eaten in winter and early spring (March and April), except the small quantity taken from corncribs, must be waste grain, or picked up in places where grain is left in the shock for a long time. No one will begrudge the birds the corn gathered from the hog lot or about the cattle crib, but when they attack the ripening grain in September it is a different story, and in cases where the birds are so abundant that they take a large part of the crop it will be difficult to persuade the unfortunate farmer that they did enough good earlier in the season to pay for this loss. There can be no doubt that in many parts of the country these birds are too numerous for the farmer to realize the best results from their services." (Beal.)

Red Winged Blackbird (*Agelaius phoeniccus*).—"In investigating the food habits of the Red-wing over 700 stomachs were examined. These were collected in every month of the year, and show that a little more than 13 per cent of the year's food is grain. This is a remarkably small percentage when it is considered that this bird has been the subject of more complaints on the score of grain eating than any other species. In order to understand thoroughly the grain-eating propensities of the Red-wing, a special study of its food for the five months from May to September, inclusive, has been made. Of the stomachs taken in May, 46 per cent contained grain. This percentage falls to 11 in June and then rises in July and culminates in August at 72, after which it decreases rapidly. The average for the five months is 46 per cent, that is, in every 100 birds taken 46 have eaten grain. If now we examine the grain-eating record as exhibited by the quantity of that food the results are quite different. In May grain constitutes 21 per cent of the food by bulk; in June it decreases to 5 per cent; in July it rises to its maximum of 42 per cent; in August it falls off slightly, after which it rapidly decreases and disappears. The average consumption of grain for the five months is 25 per cent of the whole food. Again, if the two months of July and August are considered alone, it is found that out of every 100 birds 68 have eaten grain, but that the grain constitutes only 40 per cent of the total food for the two months. * * *

"Of the different kinds of cereals, oats is the favorite with the Red-wings, constituting more than half of the grain eaten. Corn stands next in order, and wheat last of all. At the same time many noxious insects and much weed seed are destroyed. The former amounts to over 26 per cent of the year's food, the latter to nearly 57 per cent. Seeds of noxious weeds, eked out by grain found scattered in the fields, form the almost exclusive diet of these birds during the

colder months. Even in August, when the destruction of grain is at its height, weed seed forms more than 30 per cent of the food." (Beal.)

Rusty Blackbird (*Scolecophagus carolinus*).—"The Rusty Grackle (*Scolecophagus carolinus*) of the eastern United States and Brewer's Blackbird (*S. cyanocephalus*) of the west are similar birds, whose habits of associating in large flocks would indicate that they could do great damage to grain fields if they chose to visit them for food. Stomach examinations show that the eastern bird lives to a great extent upon animal substances, principally insects, and as the species retires to the extreme northern edge of the country and beyond to breed, it does not appear in most of the grain-raising states until the crops of wheat and oats have been harvested. It feeds to some extent on corn, but the damage appears to be slight. Brewer's Blackbird, on the contrary, breeds over the greater part of its range and only retires from the northern part during a short time in winter. It is more of a grain eater than the Rusty Grackle and does considerable damage in wheat-growing areas in the far west. Like the Rusty Grackle, it is a great consumer of insects." (Beal.)

Cowbird (*Malothrus ater*).—This bird is said not to be seriously injurious to grain, but its habit of laying in the nests of smaller and much more valuable species, the young of which are, in consequence, often starved, should be sufficient to warrant us in denying it legal protection.

The Far-away Days

By Millie Noel Long

There's a song in my heart of the far-away days,
Of dark, mossy wood-paths and sweet, grassy ways,
A song made of blossoms dewy and fair,
Spilling their fragrance on sunlighted air—
A story recited by wind through the trees
And chorused by meadow-larks, warblers and bees;
It tells of wild places where bobolinks sang,
Their piercingly sweet, wild cadenzas that rang
So startlingly rapid and filling all space,
One listened in vain to determine their place.
O, the song of those beautiful seasons, so fair,
Will lift up the care-saddened heart as a prayer,
And the scenes of those far-away days never cease
To bring, with their memory, wonderful peace.

The Tennessee Warbler (*Vermivora peregrina*)

Description.—*Adult male:* Crown and sides of head bluish ash fading into whitish of throat; above bright olive-green; wings and tail dusky with faint edgings of olive-green; outer tail-feathers sometimes show obscure whitish spot near tips; upper eyelid, or faint superciliary line, whitish; below dull white, often washed more or less on throat, breast and sides (especially the last) with sordid yellowish. *Adult female:* Similar; ashy of head veiled by olive-green skirtings; more yellow below. *Immature:* Crown and back clear olive-green; under parts washed with yellow, except on under tail-coverts. Length 4.50-5.00 (114.3-127.); wing 2.53 (64.3); tail 1.65 (41.9); bill .40 (10.2).

Recognition Marks.—Small warbler size. Another nondescript,—sordid white or pale yellowish below; white of belly usually unmistakable.

Nesting.—Does not breed in Ohio. *Nest,* in low bushes near ground, of vegetable fibers, grasses, etc., lined with hair. *Eggs,* pearly white with wreath about larger end of brown and purplish spots. Av. size, .60x.56 (15.2x14.2).

General Range.—Eastern North America, breeding from northern New York and northern New England northward to Hudson Bay Territory; in winter south through eastern Mexico to Costa Rica and California.

And all about, the hills are crowned
With woods that seem to burn and glow,
And purple asters, from the ground,
Look up and watch the armies go;
Long, swaying ranks of swallows strong,
And bobolinks, alert and gay,
And warblers, full of life and song—
All moving swiftly on their way.

—*Frank H. Sweet.*

During the spring and fall migrations, the Tennessee Warbler is a common bird in many localities of the eastern United States. Its breeding range extends from Minnesota, New York and northern New England northward to the latitude of Hudson Bay, and it winters in Mexico and Central America.

This "nymph of the woodland" is a very active bird and extremely dexterous in catching insects which it seeks in the foliage of trees, both of the forest and the orchard. It seems to be especially fond of the willow trees and shrubs that grow on the banks of water courses, where there is an abundance of insect life, and it is not an uncommon visitor in the denser foliage of tamarack swamps. While it prefers the borders of an open forest, it not infrequently visits, during its fall migration, corn fields and vineyards and may even be seen in large gardens.

Constantly alert, the Tennessee Warbler flutters through the outer foliage of trees where, with its sharp and slender bill, which is admirably adapted for the

TENNESSEE WARBLER.
(Helminthophila peregrina).
Life-size.

purpose, it picks innumerable small insects from the leaves and twigs. Like a titmouse, it will frequently swing from the underside of a twig or even a leaf in its pursuit of an insect. Though it destroys a large number of the smaller insects, it seems also to have another use for its sharp bill which has brought upon it the enmity of the grower of small fruits. It has been shown by several observers that in the fall it will puncture ripe grapes in order to obtain the sweet juice. Because of this habit it has been called Grape-sucker, and in some vineyards the injury produced by the pretty little green Warbler has been quite serious. Mr. Amos W. Butler says, in his "Birds of Indiana": "It sometimes eats the fruit of the poison ivy and becomes a distributor of its seed." From the examination of stomachs of several of these Warblers, it is evident that the amount of damage that is done by the puncturing of grapes and the distribution of noxious seeds is greatly overbalanced by the large number of insects, many of which are harmful to vegetation, which they destroy.

The Tennessee Warbler quite closely resembles both the Nashville and the orange-crowned warblers when young. Mr. Chapman gives the following method of distinguishing the young of the three species: "The Nashville is distinctly yellow on the breast and under tail-coverts; the orange-crowned is pale greenish yellow, with dusky streaks and yellow under tail-coverts; the Tennessee is pale greenish yellow, without streaks and with the under tail-coverts white." The adults are easily distinguished.

Its song is not easily described. By many the song has been likened to that of the Nashville warbler, but Mr. Bradford Torrey says that the two are so decidedly different as never for a moment to be confounded, though the former is suggestive of the latter. The Tennessee's song is certainly much shriller than that of the Nashville Warbler. Mr. Ernest Thompson has described its song as beginning "with a note like chipiti, chipiti, repeated a dozen or more times with increasing rapidity, then suddenly changed to a mere twitter."

The Tennessee Warbler nests in low bushes or upon the ground, building its home with fine fibers and grasses interwoven with mosses and lined with hair.

The Black Brant (*Branta nigricans*)

By Joseph Grinnell

Since earliest spring-time they have sought
  The utmost northern isle and shoal;
Their chosen haunt and breeding-ground,
  In latitudes beneath the Pole.
The wild-geese and the brent-geese there
  In swamps impervious build their nest
(So northern fishermen declare),
  Where none may reach them to molest.
—Isaac McLellan, "Coot Shooting."

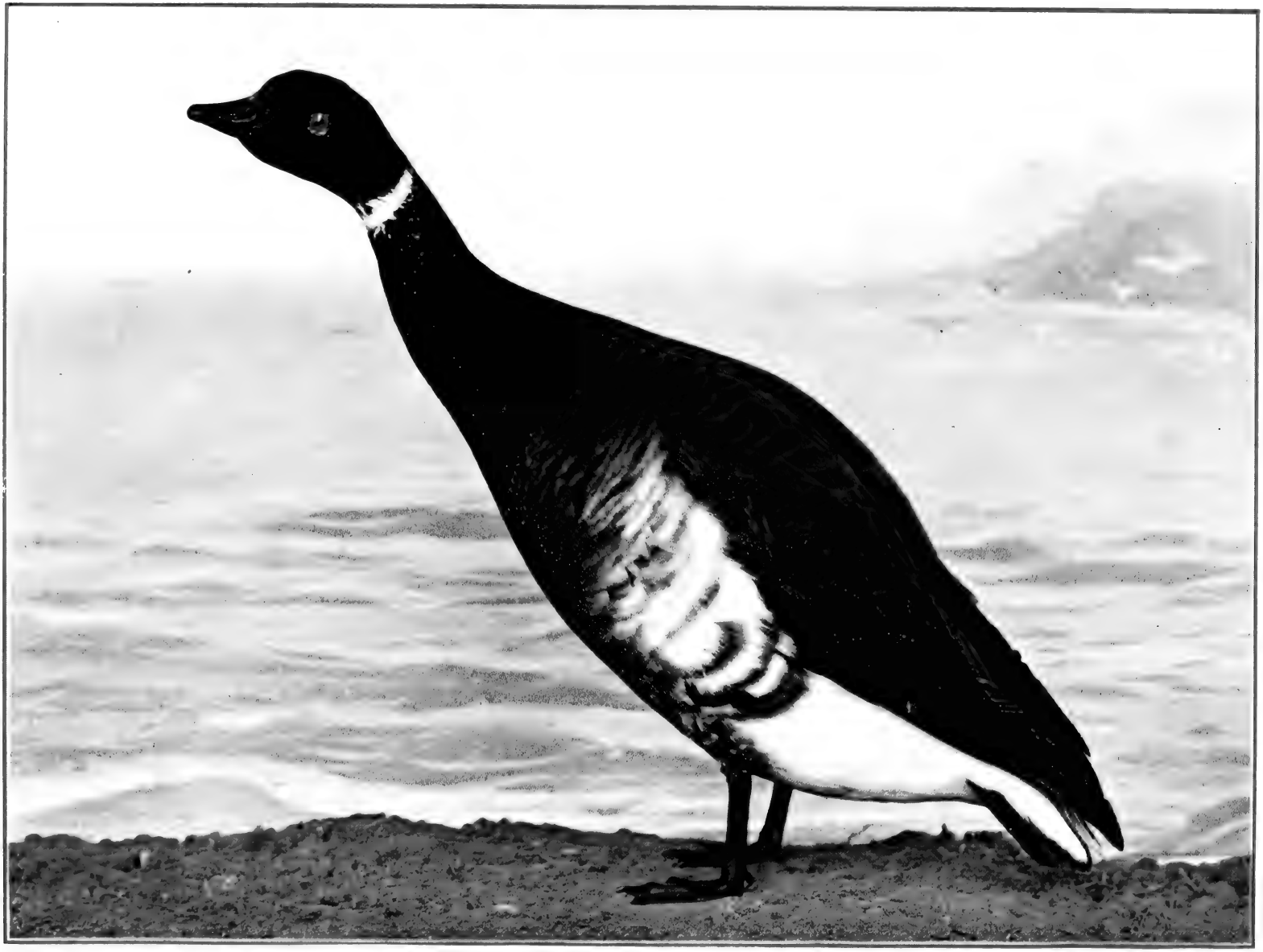
The Black Brant, or the Brant or Brent Goose, as it is frequently called, is not the brant of the Atlantic coast, but a Western bird ranging from Lower California to the Arctic region of North America. On the Atlantic coast it appears only as a casual visitor and it is not found in the interior. It makes its summer home in very high latitudes and on the Pacific coast the southern limit of its nesting range seems to be about the latitude of the mouth of the river Yukon. Dr. William H. Dall has said that in the spring it comes in immense flocks to the sea coast of Alaska and he found the crop of one of these birds to be full of small crustaceans, though, as a rule, it partakes only of a vegetable diet, feeding chiefly upon eel-grass.

During the time of low tide the Brant feeds constantly, tearing up the plants by the roots from the muddy flats. Unlike the sea ducks, it does not dive for its food and it is said that it will never dive except when wounded. It passes the night hours floating on deep water in the open sea. It is a noisy bird and quarrelsome with its kind.

Its note is "hoarse and honking," and when a flock gabbles in company, as they often do when feeding, the sound produced cannot be described better than to call it a perfect din.

It is said that the nest of the Black Brant is usually situated in a depression in the ground and consists of grasses and moss lined with down.

Both the Black Brant and its eastern relative (Branta bernicla) are sometimes called "barnacle geese." This name is said to have had its origin in a fable which narrates that they were developed out of barnacles attached to wood in the sea. Dr. Coues says that the name Brant means burnt, and that it was given to these birds because of their dark color which suggests charring.



FROM COL. CHI. ACAD. SCIENCES

BLACK BRANT.
(Branta nigricans).
About ⅓ Life-size.

Save the Birds

By Charles G. Plummer

Teach conservation and construction rather than waste and destruction.

I am convinced that agriculture is the very foundation of national greatness. It does not take very great reasoning power to ascertain that while the individual is the unit of society and that the organization of these individuals into groups, families, classes and armies, for instance, must be based upon the healthfulness of the unit as an active agent, that one thing which renders the unit always available in peace or aggressiveness must be the amount and quality of food that is consumed. All of us know that the food must come from those husbandmen who till the soil, garner the grains and conserve them for ultimate individual consumption. It takes money to make the mare go. That same mare won't go unless the money is wisely expended to feed her what she needs to keep her engine going.

Whether it be the mare that is speeding against the stop-watch for a record or to defeat an opponent, or a big husky lad in the scrimmage line of the varsity team trying to win glory for his college, each must be fed the products of the soil. Unless the rancher produces the grains and grasses for this human and animal consumption there can be no races against Old Father Time, no football games or other athletic activities, no properly rationed army and no national greatness.

I have noticed always that when crops are a failure in certain portions of our country the insect life of these regions has become a menace because it has preyed upon the products of the farmer's fields and gardens. What has been the result? In some countries real famine has come to the people because of the raids of insect hordes! I have noted also that often many reasons are given before the real one comes to light. Someone says it is the rain; still another says it is the heat; another one admits it was poor seed; but I have found few individuals who were honest enough to say it was because they had killed off the game birds and the insect eating birds in their community.

My hat is doffed to those who are so honest and my every effort shall be allied with theirs so long as they are earnestly endeavoring to save and to build in every practical way.

If there were no other argument for the conservation of our wild bird life than the one demanding economic administration of national affairs concerning them, I would be perfectly satisfied that the cause of the birds would win in any court in Christendom. So sure am I of the reasonableness of the growing boys and girls who are about to step out into life to undertake its conquest, that I believe all they need is to have a moment's time given them for consideration of the value of enlistment in the army of conservation and construction, that declares its purpose to be to save rather than to waste, when they will com-

mend the economic activity in which they are urged to take part and thus keep the wolf away from the door for all time to come.

Protection from invasion by insect hordes is the rancher's only hope. The natural enemy of all insect life is the bird life with which we were once so generously surrounded. When we consider that this country now exists upon about 10 per cent of the bird life that was here less than 450 years ago, it does not seem as though it ought to be necessary to urge measures to build rather than to tear down—does it?

I wonder how many ever stopped to think that if the entire bird life of the world were to be destroyed the vegetation upon which we depend wholly for life would be eaten in about three years. So rapidly do insects multiply that one is unable to grasp the enormity of the figures setting forth the truth. For instance, let me take one instance in which Riley says that the hop aphis develops thirteen generations in a year, and at the end of the twelfth generation there will be ten sextillions of individuals. Our American naturalist, Forbush, says: "If this brood were marshaled into line, ten to the inch, it would extend to a point so sunk in the profundity of space that light from the head of the procession traveling at the rate of 184,000 miles per second would require 2,500 years in which to reach the earth!"

Insects destroy more than $1,000,000,000 worth of fruit and cereals every year. Birds eat insects!

A bird in the bush sings sweeter than two birds on a woman's bonnet.

Red-Tailed Hawk

Synonyms.—Hen Hawk; Chicken Hawk; Red-tail; Red-tailed; Buzzard.

Description.—*Adult:* Above dark brown, fuscous, and grayish brown, varied by rusty or ochraceous edgings, and outcropping whitish, especially about head and neck; primaries blackish-tipped, the first four deeply emarginate, the inner ones indistinctly banded; tail deep rufous, crossed near end by a single narrow bar of blackish; lighter from below,—vinaceous or pearly pink; under parts white or buffy white, rufous—and brown-shaded on sides of neck and breast, nearly meeting in center; throat and upper breast with dusky, lanceolate streaks; sides with rhomboidal spots or transverse bars of rufous and dusky in various patterns, nearly meeting across belly; shanks faintly barred with rusty; bill plumbeous; tarsus yellow, very stout; claws black. *Immature:* Similar to adult but more uniform in coloration,—little buffy or ochraceous; markings on sides of breast and belly blackish, clear-cut; tail entirely different,—grayish brown crossed by nine or ten distinct narrow bands of blackish. Such are the typical plumages, but the departures from them are wide and various. In winter resident birds often assume a partial albino plumage, with strongly marked black and white, and pure albinos are not rare. "Melanism" or blackening of plumage in various proportions is not unknown. Adult male length 19.00-22.50.

Recognition Marks.—Brant size; red tail of adult distinctive; otherwise known by large size, lighter under parts, and, with certainty, by stout tarsi.

Nest.—At middle or upper heights in trees; of sticks, carelessly lined with corn-pith, drying leaves, etc. Sometimes an old Crow's nest is refitted. *Eggs,* 2-4, bluish white, stained, spotted, or blotched with reddish brown. Av. size, 2.40x1.83 (61.x46.5).

General Range.—Eastern North America west to the Great Plains, north to about latitude 60°, south to eastern Mexico. Breeds throughout its range except possibly the extreme southern portion.

Among the Birds of Prey, this is one of the largest of the Hawks, and stands next to the familiar Sparrow Hawk in ease of identification. Only one of the birds which are commonly called Hawks is larger, and that one, the American Rough-leg, is found only during the winter months in small numbers in northern Ohio. Furthermore, the Rough-leg is a bird of the twilight, while the Red-tail is most active during bright days. But if you would know the Red-tail certainly you must learn to notice the uniformly colored tail. There may be one dark band near the tip, but the rest of the tail will be some shade of rufous or brown, without bands of any color. One also soon learns to see a certain majestic movement in the soaring flight, a more dignified wing stroke, and withal, a certain appearance of strength and power not manifest among the smaller hawks, particularly the smaller Red-shouldered.

In spite of the fact that this bird sometimes visits the poultry-yard, and may feast daintily upon sparrow or pigeon, I cannot help admiring him. His sagacity is shown in the selection of a nesting site, which is the taller and less easily accessible trees, and in his habit of showing himself as little as possible in the vicinity of his nest, except high above it. To the initiated the whereabouts of that carefully arranged bundle of sticks may be guessed from the manner in which the high-soaring bird behaves. Unless the nest is actually threatened there is no demonstration of hostility, but a dignified, watchful indifference to an unwarranted meddling with private affairs. But once threaten the nest and the speck in the upper air descends like a bolt out of a clear sky, swerving aside just at the point of contact and sweeping upward again for a renewed attack. Even the fiercest birds will not actually strike the human intruder, much as he may deserve punishment, but the angry scream and the booming air beneath the half-closed wings, try the nerves of the bravest, while he is perched in the lofty tree-tops.

Much abuse has been heaped upon this bird's head, the most of it unwarranted. Careful study has proved that chickens are molested only when other food is unobtainable. And when birds have been killed in the act of raiding the poultry-yard they have been young birds, for the most part. On the other hand, the harmful animals and insects which this hawk destroys far overbalance the depredations upon poultry. It is no more fair that all hawks should be killed because one occasionally destroys chickens than it is to kill all cats because one sometimes becomes a chicken killer.

The cry of Red-tail is unlike that of any other of the hawks, and may become a certain mark of identification during the late winter and early spring weeks. It is a long-drawn scream of warning and defiance, given on a descending scale. It is harsh and piercing, and commanding, uttered when danger threatens, when a rival for his lady's affections appears, and often when the mating season begins. Its character is unmistakable. Blue Jay cannot successfully imitate it, because his lungs lack the capacity.

The White-eyed Towhee (*Pipilo erythrophthalmus*)

By I. N. Mitchell

Length: 7½ inches.

The White-eyed Towhee is a geographical variety of the northern towhee or chewink. Its range is very limited and includes only the southeastern United States, where it is the most common in Florida. In Georgia and South Carolina it grades into the common towhee, which it closely resembles, though it is somewhat smaller; has less white on the plumage of the wings and tail, and the iris is brownish yellow or yellowish white instead of red.

The Florida Towhee, as the White-eye is frequently called, spends much of its time on the ground under the shade of the dwarf palm, where it scratches among the leaves. It is said that it is so active and the individuals so numerous that the sound of the scratching may be heard at quite a distance. One observer of this Towhee's habits says: "These birds are exceedingly inquisitive and will follow one for a long distance through the bushes. They are also sympathetic, for they will gather in large numbers around a wounded comrade, when they hear its cries, evincing the utmost compassion for its misfortune." In general it is a shy and retiring bird and is seldom seen far from its wooded retreats. It is so frequently seen among the saw-palmettos that it is often called the Palmetto Chewink or Towhee.

The call note of the White-eyed Towhee sounds much like the syllables jo-ree with the accentuation on the last syllable. Regarding its song, Mr. J. C. Maynard says that it does not sing in winter, "but by the first of March the males may be seen on the highest boughs of the small live oaks, pouring forth their song, which is lower and sweeter than that of the red-eye. This outburst of song is the prelude to the breeding season, and soon the birds are busily engaged in constructing their nests."

Mr. Oliver Davie says that the White-eyed Towhee has been found breeding as far north as South Carolina. Its nest consists of coarse weeds, pine needles and grass and is lined with finer grasses. It seems to nest both in pine trees, at heights from three to fifteen feet above the ground, and in the dense clumps of saw-palmettos. It has also been stated that the nest is sometimes built on the ground.

WHITE-EYED TOWHEE.
(Pipilo erythrophthalmus alleni).
Life size.

The Spirit of Nature Study

By Harry Edward Miller

By what twist of the mentality a multitude has come to misinterpret, to misunderstand, the spirit of nature study, and all that a fair acquaintance with nature means to humanity, is something almost incomprehensible to those who have ever felt an abiding, a steadfast friendship for the out-of-doors. It is beyond doubt true, a mob of mistaken men are persuaded that the study of nature is solely a fad, an occupation unworthy of the serious life; hence they will have nothing of it; hence their scoffing at those who listen devotedly to the voices of nature. No lover of the out-door world need reflect at length before he realizes that it is his critics, not himself, who are poor and deficient; it is those who scorn the ways of nature and the ardor of nature's devotees, the sincere ardor we always mean, who are the little, narrow-minded men with shrimpish souls, so that we wonder by what audacity they walk beneath the skies strewn with the mysteries of the starry worlds; we marvel how they can fare forth unashamed and unmindful in nature's dominion with unseeing eyes, with unlistening ears, with unattentive souls. Then, to crown their audacity, such critics may be heard lifting praise to the Almighty when they so boldly mock and ignore His handiwork spread out so richly on every side for their reverent attention. Constantly in the history of humankind, we meet the well established fact that the great of this earth have been lovers of nature's realm; they have found in nature a language that is unfailing and without limit in its variety; and not to be measured by any mortal in its appeal to the soul. Each one who knows something of such a love, who knows the spirit of nature study, is in harmony with the great of every age; while those to whom nature ever speaks while they answer not are never truly in sympathy with any of the world leaders, whether that leader be the Nazarene, or Plato, or Praxiteles, or Shakespeare, or Raphael, or Kepler, or Beethoven.

The hour will come when nature study will be almost as common and deemed nearly as necessary as the study of our language. Then the man with a crippled soul will be the exception, the rare exception! He will be pitied for his absence of that love for the world about us just as we now pity one born physically deficient. Sad is physical deficiency; but ah, the sadness of the soul's deficiency! For only then is the spirit an outlaw toward the Creator of the soul and all that is in the universe!

The language of nature is more natural than our own; it is the one original language; it is the primeval tongue co-existent with the birth of light at the dawn of the ages; it had its syllables, words, sentences, unknown chapters, uncounted volumes, magnificent libraries before the first man on this sphere was touched by life; it is the vast record from which all other records have been taken; it is not merely the history of a race or people, but is the history of every people none the less than of the tiniest insect, the frailest flower, the beam of

light, and the depths of sea and the heights of sky since the beginning of time. There are ever awaiting us the million voices that utter this language attesting the existence of the Creator, while disagreeing men quarrel over the accuracy of the Bible. Let the disputants turn to nature, where they will behold the first Bible antedating by the misty, forgotten cycles that work we distinguish as Holy Writ; let the blind forego their blindness, and it will be revealed to them how divinity is written in every seed and leaf; in the perfection of flower and bird song; just as much as in the star so distant that its light travels three years to come within the scope of our vision.

You to whom nature's realm means much, will listen with strange amusement to that oft repeated statement, "I have no time to give to nature." As well say we have no time for sleep or breathing if we desire life in its fulness; if we desire to live in this world and not to vegetate in our self-satisfied stupidity. Whoever neglects the great things of life, to which nature is of such overwhelming importance, does not really live; for he is a dead man among the living whose indifference causes him to be so much less of a man than God intended! And if that is not, that neglect, the very essence of irreligion, then we know not how to interpret such an admonition, "Remember thy Creator."

Once a man who was before unmindful becomes the loving student of nature he will be like the sleeper awakened. He will understand when his eyes are unsealed that not hitherto did he live, for erstwhile he walked within a universe where he should have been a master; he tasted only chaff and husks, and fool-like, sneered at those who went in to the banquet; he even demanded the reason for what seemed to him the ridiculous course of others no longer satisfied with the chaff and husks such as he in his misfortune deemed so important to life. But when the morning dawns after his long and heavy night; when the scoffer has become the lover, it is as if all things were created anew; it is as if he had stepped upon another planet; it seems to him that not until this hour of his redemption has he entered within the portals of immortality.

We hear that individual, familiarly styled a "hard-headed business man," endeavoring to prove how the study of nature is not "practical." Now listen, sirs, nothing is practical save that which God regards as practical! Nevertheless, we do assert that while a deepening affection for nature offers a profit to the spirit never to be weighed by material things; that shall never be estimated by linear measure nor calculated by cube or square root; that shall at no time be limited merely by the span of years that mark one life; yet there is a profit which will appeal to this most "hard headed," or rather, thick-headed man in the marts of trade. There is nothing in nature hampering to any duty of life honestly performed; there is much in nature which by developing the complete manhood, the glorious womanhood, aids us to conduct our duties more agreeably and to such better advantage that we become the better citizens. The right familiarity with nature arouses our best sagaciousness; it makes us keener observers; hence we become keener, clearer thinkers and more alert doers in the field of life. All the faculties that the workaday world asks us to put in operation

are brought to a higher development if we drink from the unsounded depths of nature's fountains. In the more just appraisement of values where the affairs of men are appraised as they should be; in the formation of that judgment we miss so often; in calmness; in that moderation producing temperate habits; in the development of ideals and the placing of them on a firm foundation; in the stimulating of the imagination; in the desire for universal justice and the fearless demand that the right shall prevail, nature ever exerts an unmeasured, incalculable beneficence. Let none say that these necessary faculties can be ignored in the struggle for existence. Let no man contend that he is a "practical business man" when, indeed, he stands at the very front of that blind army of impractical men.

But there is one thing against which resolute nature ever protests. She will respond to none who believe in making machines of men; she will meet no man half way or any of the way who maintains that other men should not be free as himself. The spirit of nature study has this fundamental, eternal commandment that the unjust burdens must be lifted from the spirit; that all shackles and chains, whether of industrial slavery, or otherwise, must be loosened from those they wrongly bind, until it can be said that all men and women, all the children in our care, are free beings just as they were designed to be. This is the one anarchy, upheld even by too many churchmen false to God and their brothers, that some shall be free while a multitude groans because they are struck down by a shameful social system; that some men shall be blessed by good homes and abundance while many of their brothers are thus denied. The voice of nature rises with a stern awfulness in its reiterated mandate that there must of a necessity be universal justice instead of the hell which the taskmasters have wrought. These abominations nature constantly abhors as unChristian: unwholesome competition in place of brotherly co-operation; unlawful capitalism that is a gangrene in society; the frightful wrong of permitting so much of the wealth to be centered in the hands of a few instead of distributing that wealth to benefit all classes, that very wealth which is really provided by nature herself for mankind and not merely for one little group of selfish men. The black crimes of society produce the misery that disintegrates society; hence all such sins are in opposition to nature, and no man, no woman who willingly tolerates these vile conditions can ever know what the true love of nature means. Once we have a more widespread, sincere nature study, then there will follow a more just order, a really Christian formation of the commonwealth—and that sort of commonwealth is yet to come into existence. In the day when fairness prevails, when love is not hindered or thwarted, the little warped human beings who protest over the change from injustice to justice; from misery to a more ideal state, will be swept aside as easily, with as little consideration as a twig is swept over the brink of the mighty Niagara. For mankind cannot give the right loyalty to nature and still remain a stumbling block in the path of a better order of society. The love of nature is forever a power beating down selfishness, that materialistic creed of degeneration which produces only sorrow; the love of

nature of a consequence requires the soul's expansion, whereas the presence of greed and selfishness, and the dwarfed, shriveled souls of men are responsible for keeping aloof the reign of universal brotherhood. Little use of talking about ushering in the Millenium while we suffer to exist those diseased social systems that make so many of the human family foes instead of friends; anarchists instead of builders; destroyers and unfaithful stewards before the Most High. And what shall we answer in the revelation of our Day of Judgment?

Therefore, we cannot slight the significance of loving nature study since within that study exists, when our souls know the truth of beauty and the beauty of truth, an influence that will regenerate the world.

Let us further remember that we cannot go to nature with an unsympathetic mood; we cannot go and ask nature, the jealous mistress, to do all for us while we are indifferent ourselves. There is ever much for us to do, for it was not said to the soul, let nature work out your salvation while you stand aside as an uninterested observer. If we would learn the miracles that the universe has kept for us to recognize, let us meet nature on a friendly footing, in a mood that seeks such recognition. Otherwise we will return with empty hands just as we went. What nature enjoins of us is no more than religion, or its handmaids, poetry, art, music, science, likewise require of those who would be numbered with the lovers of those precious things, which, sharing the immortality of the soul because they are the life of the soul, then, the soul is a traitor to itself when it refuses to heed the very elements that lift it to its redemption.

Moreover, we should all be nature students, which is to say, nature lovers, inasmuch as such a love persuades us to love our brothers as the most priceless objects nature has brought to us. We recall a saying by Heinrich Heine wherein that poet and philosopher contends, in substance, that not until we have become wholly reclaimed by this love of the out-door world can we sincerely and to the depths of being care for humankind. Heine was inclined to look upon all nature study as a sublime preparation for those who would truly know something of that passionate devotion to humanity whose chief exemplar is the Man of Galilee, the foremost nature lover ever sent by the Creator to share the experiences of other men.

The most wonderful affairs of the soul are mirrored in the wonderland of nature; and the unfathomed lure of nature is so interwoven with fascinating magic that the soul in tune with the infinite evermore heeds its beckonings. Nature speaks not in vain where there is a soul unfoldment, for that is the divine mission of nature, that is her purpose to build up the responsive soul for its higher estate; to speak as spirit unto spirit; to proclaim as one with divine intelligence the divinity of the soul's evolution as the supreme evolution in all the universe.

Lunch for the Winter Birds

With the arrival of cold weather most of us become more interested in good things to eat. Not only do we think we need more meat, but we like something hot both to drink and to eat, not only once, but usually three times a day.

In addition to the regular good feeding required in cold weather, we have set aside several feast days on which we tax our eating capacity to the limit of both comfort and health.

Also, we waste a lot of perfectly good food which we could give to the birds. It has become popular to know something about birds, and they have many interested friends who remember that after the cold becomes severe and the deep snows come, it is difficult for many of the birds to find sufficient food.

The Audubon Societies and other bird friends are each year providing food for all kinds of winter birds with very wonderful results.

There is scarcely a back yard where shrubs and trees have been planted that is not visited at some time in the winter by a hungry bird.

The Audubon Society desires to interest all who have an opportunity to feed the winter visitors, to share their good things with these interesting and valuable friends.

A piece of suet tied to a tree, seeds and crumbs scattered in the yard, a feeding shelf on a window ledge or attached to a tree, will repay many times the effort, in the pleasure you will derive from the entertainment.

Chicadees, nuthatchers, juncos, tree sparrows, the downy woodpecker, blue jays, and, in some suburbs, the cardinal, are among the possible visitors who may call on you.

If everyone who has the opportunity would spread a "bird table" in a convenient, sheltered place where it cannot be reached by stray cats, he would only be paying back a fraction of the debt we owe to our feathered friends for the efficient care with which they search the trees and shrubs for insects and eggs that have been carefully hidden away until next spring, when they would again ravage your yards and gardens if not destroyed.

Please try it and you will be surprised at the pleasure and results which will surely follow.

O. M. SCHANTZ.

Ruddy Duck (*Erismatura jamaicensis*)

Range: Breeds from central British Columbia, Great Slave Lake, southern Keewatin, and northern Ungava south to northern Lower California, central Arizona, northern New Mexico, northwestern Nebraska, southern Minnesota, southern Michigan, southern Ontario, and Maine; winters from southern British Columbia, Arizona, New Mexico, southern Illinois, Maine and Pennsylvania, south to the Lesser Antilles and Costa Rica.

The ruddy duck, or "dumb bird," as it is called in New England, alias the rook of the Potomac region, has a wide range in the United States from seacoast to seacoast, and formerly nested over much of this wide territory. That it is not unknown to sportsmen and others is attested by the fact that Trumbull in his "Names and Portraits of Birds" gives sixty-seven synonyms under which it appears. Some of these, as "deaf duck," "fool duck," "dumb bird," are indicative of its disposition; while others like "bull neck," "spine-tail duck," mark certain physical peculiarities. In appearance it is quite unlike any other duck, and when swimming, its plump, round body and uplifted tail serve to distinguish it to the merest tyro. It is extremely sociable and unites in large flocks, sometimes in company with other species. Over most of its range the little ruddy duck was formerly lightly esteemed for food, and consequently enjoyed comparative immunity from the pursuit of sportsmen and even from market gunners. As other more highly prized species diminished in numbers, the ruddy attracted more attention, and in waters like the Potomac River, where the rookies formerly gathered in fall by thousands, only a beggary remnant remains. Ruddies are the more easily killed because they do not readily take wing, but being expert divers endeavor, when pursued, to escape by diving. The gunner aware of this weakness has only to persist in pursuit of the birds, one after another, to secure most or all of a flock.

List of Forty-Eight Colored Plates

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