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Bird-Lore

AN ILLUSTRATED BI-MONTHLY MAGAZINE DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

EDITED BY

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Official Organ of the Audubon Societies

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From a photograph by A. J. Campbell

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Vol. V JANUARY — FEBRUARY, 1903 No. 1

The Mound-Building Birds of Australia

BY A. J. CAMPBELL, Melbourne
Author of "Nests and Eggs of Australian Birds"

With photographs from nature

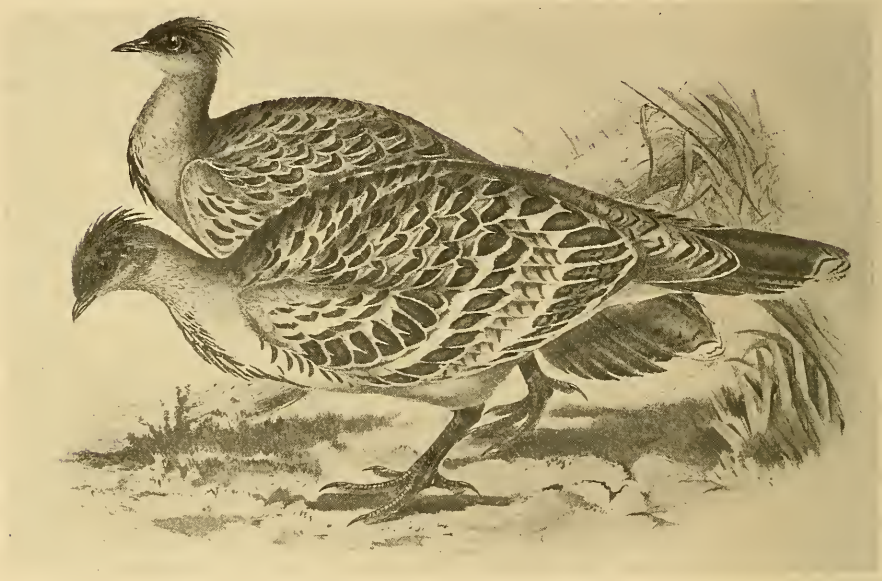
ENCOURAGED by the appreciation of my article on 'The Bower Birds of Australia,' which appeared in BIRD-LORE for October, 1900, I have ventured to give a sketch of our mound-building birds.

The mound-building birds are ornithological curiosities, not only of Australia, but of the world. There are three kinds, namely, the Mallee Fowl (*Lipoa ocellata*), the Brush Turkey (*Catheturus lathami*), and the Scrub Fowl (*Megapodius duperreyi*).

The Mallee Fowl, a remarkable and truly solitary creature, dwells in the drier and more arid scrubs of parts of the southern half of Australia, being partial to the mallee (a species of dwarf eucalypt) timber tracts; hence the common name 'Mallee' Hen or Fowl. This bird resembles very much in size and shape a grayish mottled domestic Turkey, but it is smaller, more compact, and stouter in the legs. It has no wattle about its head, but there is a tuft of dark feathers falling back gracefully from the crown. On account of this tuft some of the western native tribes call the bird 'Ngow-oo,' 'Ngnoweer,' meaning a tuft of feathers. Some of the eastern tribes called the bird 'Louan 'or 'Low-an-ee.'

The most striking feature in the economy of the Mallee Fowl is that it does not incubate its eggs in the usual manner of birds, but deposits them in a large mound of sand, where they are hatched by the sun's rays together with the heat engendered by decomposing vegetation placed underneath the sand and eggs. In constructing a new nest or mound, the bird selects a slight hollow,—invariably a shallow water-track in almost impenetrable scrub or bush. The spot is hollowed or scooped out and filled with dead leaves or other vegetable matter. Then all is completely enveloped with sand, which is scraped up for several yards around;

the birds using their strong feet for scraping, and their breast and wings for impelling the sand forward. The dimensions of an ordinary mound (which is usually more or less cone-shaped) by actual tape measurement, which I took on the spot, were ten feet in diameter at base by about two feet in height. There appeared to be about one hundred and fifty cubic feet of sand and rubbish. Notwithstanding the large dimensions of the mound, the portion of the center containing the eggs was only about fifteen inches in diameter. Only a pair of birds own a mound, which they commence to build (or to reconstruct an old one) about



MALLEE FOWL (*Lipoa*). After Gould

June or July, although the female does not lay until September or October. No doubt the mound is so prepared early to receive the winter and spring rains; the water collecting in the shallow course, and consequently running through and underneath the leaves, it is left open for that purpose (see illustration). An inch or two of dry, loose sand covers the leaves. Then comes a tier or layer of four eggs (Gould states eight), each being placed perpendicularly on its small end. The four eggs are placed four or five inches apart, forming a square. More sand covers them and another tier of eggs is placed opposite the interstices of the underneath tier, and so on, till a complement of twelve or even sixteen is sometimes reached. But it should be remembered that the mound is completely built up after it has received the necessary rain or moisture, and is opened every time the female lays; consequently a great amount of toil devolves

upon her and her mate in dismantling and rebuilding the mound on each occasion of laying. A dweller in the Mallee country, who has enjoyed exceptional experiences with Mallee Fowls' mounds, informs me there are always four eggs in the bottom tier, but sometimes six in the other tiers, except the topmost, which finishes with one egg only; the number of tiers being usually three, occasionally four.

During laying time, an egg is deposited every third day between 9 and 10 o'clock in the morning, or perhaps two eggs a week. A mound containing eggs is somewhat cone-shaped in dull or wet weather, but in warm

EGG-MOUND OF THE MALLEE FOWL
From a photograph by Dr. C. S. Ryan

and sunny days the top is hollowed out (usually about 10 o'clock A. M.), like a miniature extinct volcano, though not exposing the eggs. This enables the heat from the sun to penetrate about the eggs; therefore when the mound is filled in again (usually about 3 o'clock P. M.), the heat so absorbed is retained for a lengthened period. I once took the temperature of a mound near the eggs which registered ninety-three degrees. The egg is abnormally large compared with the size of its parents, and measures about three and five-tenths by two and three-tenths inches, weighing about six and one-half ounces. The shell is thin, elliptical in shape, and exteriorly of a beautiful soft pinkish red. As incubation proceeds, the eggs become stained, and a thin epidermis chips off. In two instances the term of incubation was (as nearly as could be ascertained in the bush) thirty-eight and forty-one days, respectively. From the position (large ends

upward) of the eggs within the mound, the chicks are hatched in an upright attitude, with their legs drawn up in front and toes near their beak; therefore it would be easy for the young, when delivered in due time from the shell, to wriggle through the loose sand and so free themselves from their great earthen incubator. In accordance with the natural law — the greater the size of the egg in comparison with the size of the parent, the more precocious the young — the young Mallee Fowl can fly at its birth, and thereafter probably leads an independent existence of its own.

It may be added that the call of the Mallee Fowl is a mournful, prolonged, coo-like note, which may be heard nearly a mile away. Being terrestrial in habit, its food consists chiefly of insects, seeds and berries, and tender shoots of plants. It can subsist without water, but sometimes drinks when it rains.

The Brush Turkey or Wattled Talegallus (*Catheturus lathami*) is another extraordinary mound-raising bird, and is a denizen of the dense coastal scrubs of eastern Australia. This bird is slightly larger than the Mallee Fowl, and is blackish brown in color, as are also the bill, eyes and feet. The skin of the head is pinkish and thinly dotted with short, hair-like feathers, while the neck is ornamented with yellow and red wattle.

During the season of 1891, within the shades of the luxuriant subtropical scrub of the Richmond river district, I was fortunate in finding an egg-mound (see illustration) which contained eight eggs embedded at a temperature of ninety-four degrees, or four degrees higher than the prevailing atmosphere at the time. The mound, rotund in form, was twelve feet in diameter at the base by two and one-half feet in height, and was composed chiefly of black earthy mould mixed with decaying vegetable matter. It is stated that the male birds generally perform the work of mound-building, the debris being scraped up or gathered in the claws and thrown backwards. One to three mated pairs frequent one mound. The females lay about twelve eggs each, which are placed, small ends downward, a few inches apart, in circular tiers at the depth of about an arm's length. The eggs are more or less elliptical in shape, slightly rough, without glossiness, and are pure white if not stained with the dirt of the mound. They are about the same size as those of the Mallee Fowl.

Concerning Brush Turkeys in captivity, the Messrs. Le Souëf Brothers, of the Melbourne Zoölogical Gardens, inform me that the young grow quickly, and at the age of nine months are hardly distinguishable from their parents. The birds keep well in confinement, but, being of a pugnacious nature, the males have to be separated when the breeding season arrives. A female was once watched depositing her egg. She first scratched a hole ten inches deep near the top of the mound and entered

to lay, her head and neck only being visible above ground. All the time she was occupied in the mound, the male persecuted her, apparently endeavoring to drive her away. As soon as the egg was laid, the male at once scraped a few leaves, etc., into the hole, and, getting in, trampled them well down around the egg, which he fixed in a perpendicular posi-

EGG-MOUND OF THE BRUSH TURKEY (*Catheturus*)
From a photograph, by A. J. Campbell

tion. The operation of scraping in debris was repeated several times, until the hole was filled.

The Scrub Fowl, or Megapode (*Megapodius duperreyi*), as a mound-builder (especially in the matter of great dimensions) is even a more extraordinary bird than either the Mallee Fowl or the Brush Turkey. The Megapode, which resembles a dun-colored domestic fowl with big feet, is restricted to the dense thickets of the northern coast of Australia, while its *extra*-Australian habitat extends to New Guinea and many Austro-Malayan islands.

On the opposite side of the creek to my North Queensland camps, Megapodes, on going to roost at evening, kept the scrub alive with their loud, chuckling calls, which were sometimes continued far into the night, especially if it was moonlight. In the thick labyrinth of undergrowth on the adjacent Barnard Islands, I came across many Scrub Fowls' mounds, each resembling so many cart-loads of sandy soil thrown together, and mixed with rotten vegetation. They were cone-shaped and of medium

size, being about four or five feet high; but laying had not commenced. While waiting in ambush for Rifle Birds (Birds of Paradise), Scrub Fowls would frequently pass close by me, running over the ground through the scrub. The Scrub Fowl, although the smallest of the three mound-building birds, raises by far the largest mound. The largest, according to the dimensions (maximum diameter fifty feet, height fifteen feet) furnished by Gilbert and Macgillivray, must have contained nearly nine thousand cubic feet of matter. Into these immense heaps the Scrub Hen appears to burrow for from six to sixty inches, according to circumstances, to deposit her egg — not like the Mallee Hen and the female Scrub Turkey, which open up their mounds for that purpose.

The beautiful buff-tinted eggs most resemble those of the Mallee Fowl, but are slightly smaller, the shell being extremely thin and fragile. It is said that only one pair of birds frequent the same mound (a point by no means settled), and that the complement of eggs to a clutch is eight or ten. The temperature of Megapode mounds has been registered at ninety-four or ninety-five degrees, or about the same as that recorded for the other species of egg-mounds.

EGG-MOUND OF THE SCRUB FOWL (*Megopodius*)
From a photograph, by D. Le Souëf

Making Bird Friends

BY LAURENCE J. WEBSTER, Holderness, N. H.

With photographs from nature by the author

HAVING become much interested in the feathered residents of our farm, my wife and I determined to add to their winter rations, and early in the season established a feeding place for them. We selected a protected location at the edge of a pine wood, where we fastened pieces of suet to numerous trees, and in a large box, placed on its side on the ground, we put straw, hay siftings and several kinds of seed. It was not long before the Chickadees and Red-breasted Nuthatches discovered the food and began to come regularly. Blue Jays and squirrels also found it and we were obliged to tack fine poultry wire over the suet to prevent them from taking whole pieces as fast as we put them up. Later we had Juncos, Tree Sparrows, White-breasted Nuthatches and Downy Woodpeckers.

After about a month the Chickadees and Red-breasted Nuthatches became so accustomed to us that we could approach within a few feet of them without their exhibiting any fear. It then occurred to us that we might tame them so that they would eat from our hands. As a beginning, we fastened a small box-cover to a limb of one of the trees where suet was kept, and filled it with chopped nuts. In a day or two the inquisitive Chickadees mustered sufficient courage to investigate this, and found the nuts much to their liking. The Nuthatches, however, did not seem to care for them and seldom visited the box. After the Chickadees had become well accustomed to going to the box, we succeeded, by very gradual stages, in getting them to light on it while held in the hand. Finally we discarded the box and held the chopped nuts in our hands, and they soon came to alight on our fingers as readily as on the box.

During all this time the Red-breasted Nuthatches were very much in evidence, but we did not succeed in getting them interested in the chopped nuts and therefore tried them with whole beechnuts. At first we wedged them into the crevices in the bark near the suet, so that they might become accustomed to finding nuts at that particular place. They found them very promptly, and those they could not eat at the time they would carry off and hide. We then tried holding two or three beechnuts in the hand directly under the place where they had been used to finding them, and, after patient waiting, we were rewarded by having a Nuthatch come to the spot. He investigated the new conditions thoroughly, then reached down and took a nut, which he immediately flew off with, but after a short time returned for another. This time the hand was held further from the tree, and he was obliged to put one foot on it in order to reach the nut. Then it was held five or six inches off, but he was equal to

the occasion and flew to the hand. After working off gradually to some distance, we moved fifteen or twenty feet. When this move was made he seemed much puzzled, but soon saw the familiar hand and flew first to a near-by branch and then directly to it. This process was repeated several times, until five birds were tamed.

On one occasion, a Nuthatch took a nut, but dropped it when alighting on a branch. Instead of flying down and getting it, he stood flapping his wings slightly while I stooped down, picked it up and handed it to him.

ON THE LOOKOUT

When the Nuthatches had become well used to taking beechnuts from our hands we tried holding a nut between the thumb and forefinger, to see if they would stay and eat it. At first they would hammer away on either side, trying to loosen it; but, if we held on tightly, would finally pound at the nut and soon break off enough of the shell to get the meat. Later they were perfectly content to stay on our hands and eat for several minutes at a time, and would light on our caps, our shoulders, or any part of our person almost as readily as on a branch. If one happened to catch us without a nut he would look all around between our fingers, under our hands, into the openings in our gloves and up our sleeves in search of one. Once or twice, when I had no glove on, one has mistaken my finger for suet, and has pounded it until he nearly drew blood.

Later the Red-breasted Nuthatches and Chickadees came to us in different parts of the woods, frequently a quarter, and occasionally half a mile from the original feeding-ground, and they would sometimes follow us for a considerable distance. They came to us, if within hearing, when we whistled the Chickadee's *phœbe* note, and we have had them

alight on our hands when we were on horseback; and once one of the Chickadees ate from our hands while we were in a canoe near the shore of the lake.

When we began to photograph them, we found that it took quite as much patience as taming them. The accompanying photographs were taken with a tripod camera with the lens a little less than three feet from the bird. In the first, I focused on the knothole in which we had placed suet, and then waited for a Nuthatch to come. The camera being so near, however, the click of the diaphragm shutter startled him,

A BIRD FRIEND

and he would move quickly enough to make a good picture impossible. I, consequently, had to make a business of clicking the shutter without exposing plates until he became used to the sound. This required time, and, it is needless to say, I spoiled more than one plate trying for pictures before I succeeded in getting a satisfactory one. I finally used an extra shutter for the "clicking," which enabled me to take the picture immediately after getting the bird used to the sound.

On March 27 we discovered one pair of our Nuthatches excavating a hole in a dead upright branch of a large sugar maple, some thirty or forty feet from the ground. As near as we could tell, the female did all the work, and she was a very busy bird until the nest was completed,—first carrying out chips and then carrying in the nesting material.

In making the excavation, she would carry off some of the chips and apparently hide them as she would a nut, others she would carry away and drop, and still others (generally the smaller ones) she would drop from the entrance to the hole.

During the whole nesting time the male was particularly tame, and would come to us whenever we were in the vicinity of the nest, follow us, alight on our hands and eat while we were walking. One day, after feeding from our hands for a short time, he flew to a small pool only a few feet away and took a bath; then, without waiting to dry his feathers, returned to finish his meal.

We were unable to take time to watch the nest carefully enough to obtain exact data, but on May 4 we saw both birds carrying food to the nest, and on May 12 saw the young peeping out of the hole. A few days after this we saw the whole family at the old feeding-ground, and they remained in our woods all summer, being about the only Red-breasted Nuthatches observed during that season.

The Return of the Nuthatch

BY E. M. MEAD

With photographs from nature by B. S. Bowdish

READERS of Bird-Lore may remember the photograph from nature of the White-breasted Nuthatch published in this magazine for December, 1901, which shows the bird on my hand with a nut she had just taken. In April of that year she disappeared, presumably for nesting, from Central Park, New York city, where I had tamed and fed her. The following winter I watched closely and inquired frequently of the many bird-lovers in the park if White-breasted Nuthatches had been seen, but none were reported, so I sorrowfully concluded that some misfortune had befallen my bird friend.

On my return to the park in October, 1902, about a mile north of the place where I fed and tamed the Nuthatch in 1900, I saw at various times two or three White-breasted Nuthatches, and others were reported. Then I placed, each day, bits of nut and suet in the crevices of the bark of trees, hoping my bird would be attracted, if, returning, she should chance to pass that way. My patience has been well rewarded, for the bird has apparently returned, but without her mate, and still enjoys as much — even more, perhaps — alighting on my hand and helping herself to the nuts she finds there. So fearless is she that she will take food from my lips, shoulder or lap. Even an open umbrella over my head has no terrors for her. Although she manifested some annoyance at the ap-

pearance of the camera within two feet of us for more than an hour, during which time twelve exposures were made, still she repeated all her little tricks, not only once, but several times. The series of pictures is quite characteristic of her manner of alighting and clinging to the fingers, thence making her way into my hand, very rarely flying directly into it. Owing to her limited powers of steering, due, I suppose, to the shortness of her tail-feathers, she seems to find it necessary to assume a particular pose on a tree trunk before essaying flight to the hand. As formerly, she flies away with what she cannot, or does not want to, eat at once, and hides it in the trees for future use, coming quickly back for more.

I feel sure it is the same bird, because the first day of her reappearance I was attracted by her evident desire to draw my attention to herself. As I was at the time in the company of several small boys, to whose presence she always rather objected, I did not attempt to call her to me; but the next day, at the same place, being alone, I held out my hand, and she immediately, without hesitation, flew to it for the nuts therein, and stayed with me until I was obliged to leave her. I have never seen her fly to anybody else, and all who have seen her with me have been thoroughly convinced that she recognized me.

WHITE-BREASTED NUTHATCH, SHOWING CHARACTERISTIC POSES ASSUMED WHEN ALIGHTING

The Christmas Bird Census

BIRD-LORE'S third annual Christmas Bird Census has aroused more than usual interest. Nearly twice as many reports as were sent last year have been received, and the area covered reaches from Prince Edward Island to South Carolina, and west to California. In most instances, the number of birds observed would astonish those people who believe that our woods and fields are deserted by birds in the winter. The abundance of the seed-eaters is especially noticeable, and, in view of the facts which lately have been determined concerning their food habits, emphasizes their great economic value.

All the reports are interesting, from the one which contains no birds to that listing nearly forty species, and some of them have records of more than usual value.

Charlottetown, P. E. I.—Time, 3 hours. Fine; wind, east, light; temp., 28°. Not a single bird seen. The early and severe winter weather of the beginning of December seems to have driven all birds to the South.—JOHN MACSWAIN.

Exeter, N. H.—Time, 7.15 A. M. to 12.55 P. M. Cloudy, a little snow; wind northerly, moderate; temp., 20°. Ruffed Grouse, 1; American Hawk Owl, 1 (allowed an approach to within eight or ten feet, and was started from thirteen perches); Downy Woodpecker, 2; Crow, 14; Blue Jay, 1; Snowflake, 2; Goldfinch and Pine Siskin (two flocks), 80; Tree Sparrow, 9; Golden-crowned Kinglet, 2; Chickadee, 45; White-breasted Nuthatch, 2; Brown Creeper, 2.—GEORGE H. SELLECK and WILLIAM EVERETT CRAM.

Randolph Center, Vt.—Time, 10 A. M. to 4 P. M. Cloudy, ground covered with snow and wind northwest, very light; temp., 17°. Shrike, 1; White-breasted Nuthatch, 2; Chickadee, 1. Total, 3 species, 4 individuals. The number of birds seen was very small, but it gives a fair indication of the winter bird-life here. I pass many days without seeing or hearing a single bird.—GILBERT H. TRAFTON.

Lowell, Mass.—Time, 8 A. M. Cloudy, snow on the ground; wind easterly, light; temp., 25°. Robin, 1. Same, 12 M. to 1.30 P. M. Snowing; wind easterly, light; temp., 25°. Crow, 2; Tree Sparrow, 5; Chickadee, 1. Total, 4 species, 9 individuals. —F. P. SPALDING.

Duxbury, Mass.—December 29, 1902, 8.30 to 4.30. Clear A. M., cloudy P. M.; two inches of snow on ground; wind southwest, fresh; temp., 24°. Herring Gull, 185; Black Duck, 94; American Golden-eye, 104; Downy Woodpecker, 1; Flicker, 26; Shore Lark, 32; Blue Jay, 16; Crow, 37; Meadow-lark, 27; Goldfinch, 79; Snowflake, 2; Tree Sparrow, 15; Junco, 36; Song Sparrow, 4; Swamp Sparrow, 1; Myrtle Warbler, 109; Mockingbird, 1 (has been several times observed since October 6); Chickadee, 38; Golden-crowned Kinglet, 2. Total, 19 species, 809 individuals.—GUY EMERSON, Brookline, Mass.

Worcester, Mass.—Time, 10.45 A. M. to 12.15 P. M. Dull, snowing; ground partly covered with snow at the beginning; wind east, slightly north, moderately strong; temp., 22°. Downy Woodpecker, 1; Blue Jay, 2; Crow, 4; Goldfinch, 7; Chickadee, 2. Total, 5 species, 16 individuals.—W. P. PARKER.

Boston, Mass. (Charles River, the Black Bay Fens and Riverway, Olmstead Park, Jamaica Park, and the Arnold Arboretum, being six miles of the city park system).—December 24, 9.30 to 3.30. Clear; ground bare, except remains of snowdrifts; wind

northwest, light; temp., 20°. Herring Gull, 35; Black Duck, 23; American Golden-eye, 101 (three on Jamaica Pond); Sparrow Hawk, 1; Downy Woodpecker, 2; Flicker, 15; Blue Jay, 6; Crow, 28; Purple Finch, 7; Goldfinch, 3; White-throated Sparrow, 9 (one in song); Tree Sparrow, 4; Junco, 3; Song Sparrow, 6; Cedar Waxwing, 9; Northern Shrike, 1; Myrtle Warbler, 2; Brown Creeper, 2; Chickadee, 19; Golden-crowned Kinglet, 5. Total, 20 species, 281 individuals.—HORACE W. WRIGHT.

Cambridge, Belmont and Arlington, Mass.—December 26, 1902, 9.30 A. M. to 4.30 P. M. Cloudy, about ten inches of snow on the ground; wind very light, westerly; temp., 32°. Sparrow Hawk, 1; Flicker, 3; Blue Jay, 2; Crow, 7; Red-winged Blackbird, 1; Meadow-lark, 6; Goldfinch, 3; Tree Sparrow, 30; Song Sparrow, 3; Chickadee, 12; Golden-crowned Kinglet, 16. Total, 11 species, 84 individuals.—HOWARD M. TURNER and RICHARD S. EUSTIS.

Brookline, Mass.—December 23, 1902, 6.30 A. M. to 11.45 A. M. Clear; no wind, very spring-like; temp., 36°. Herring Gull, 20; Black Duck, 5; American Golden-eye, 11; Sparrow Hawk, 1; Downy Woodpecker, 1; Flicker, 7; Jay, 6; Crow, 17; Goldfinch, 24; Junco, 15; Chickadee, 14; Brown Creeper, 7; Nuthatch, 2. Total, 12 species, 129 individuals.—CHARLES B. FLOYD.

Cambridge, Mass.—December 26, 8.30 to 2.30. Calm, cloudy, about eight inches of snow on the ground; temp., ranged from 27° to 32°. Sparrow Hawk, 1; Downy Woodpecker, 5; Flicker, 3; Crow, 10; Blue Jay, 5; Meadowlark, 1; Goldfinch, 31; Tree Sparrow, 20; Song Sparrow, 2; Brown Creeper, 3; White-breasted Nuthatch, 1; Chickadee, 10; Golden-crowned Kinglet, 10. Total, 13 species, 102 individuals.—ARTHUR C. COMEY and MERRILL GRISWOLD.

Nahant Beach, Mass.—December 27, 9.45 to 4.00. Clear; wind, light, southwest; about two inches of snow on the ground; temp., 25° and 34°. Holbœll's Grebe, 1; Horned Grebe, 5; Herring Gull, 400; Black-backed Gull, 15; Black Guillemot, 1; Red-breasted Merganser, 6; Old Squaw, 40; Golden-eye, 30; White-winged Scoter, 4; Crow, 25; Horned Lark, 23; Snow Bunting, 2; Northern Shrike, 1. Total, 13 species, 553 individuals.—ARTHUR C. COMEY and EDWARD M. DAVIS.

Woods Holl, Mass.—Time, 7 A. M. to 12 M. Cloudy, snowing; ground bare, later snow-covered; wind, northeast, light; temp., 29°. Horned Grebe, 12; Pied-billed Grebe, 4; Loon, 8; Black Guillemot, 2; Razor-billed Auk, 2; Dovekie, 1; Herring Gull, 35; Bonaparte Gull, 2; Cormorant, 1; Red-breasted Merganser, 20; Mallard, 1; Black Duck, 30; Old Squaw, 75; American Eider, 5; Velvet Scoter, 2; White-winged Scoter, 500; Surf Scoter, 25; Ruddy Duck, 1; Brant, 12; Bob-white, 10; Ruffed Grouse, 2; Screech Owl, 1; Belted Kingfisher, 1; Downy Woodpecker, 4; Flicker, 3; Blue Jay, 6; American Crow, 30; American Goldfinch, 20; Snowflake, 5; Slate-colored Junco, 50; Song Sparrow, 8; Swamp Sparrow, 1; Northern Shrike, 1; Brown Creeper, 10; White-breasted Nuthatch, 6; Chickadee, 40; Golden-crowned Kinglet, 6; American Robin, 2. Total, 38 species, 957 individuals.—C. C. PURDUM, M. D.

Assonet, Mass.—Time, 8 A. M. to 2.30 P. M. Wind, northeast, light, increased about 10.30 A. M., when snow started to fall; heavy snowfall; temp., 26°. Herring Gull, 1; Black Duck, about 50; Bob-white, 7; Ruffed Grouse, 2; Downy Woodpecker, 1; Flicker, 9; Horned Lark, about 30; Crow, about 200; Blue Jay, 5; Tree Sparrow, 3; Myrtle Warbler, 11; Golden-crowned Kinglet, 1; Chickadee, 73; Red-breasted Nuthatch, 2. Total, 14 species, 395 individuals.—JOHN DENWOOD.

Bristol, Conn.—Time, 6.45 A. M. to 2.15 P. M. Snowing; wind, northeast, light; ground snow-covered; temp., 23°. Bob-white, 6; Marsh Hawk, 2; Downy Woodpecker, 5; Blue Jay, 31; American Crow, 64; American Goldfinch, 29; Tree Sparrow, 1; Junco, 1; Song Sparrow, 1; Northern Shrike, 1; Winter Wren, 1; Brown Creeper, 2; White-breasted Nuthatch, 7; Red-breasted Nuthatch, 1; Chickadee, 43; Golden-crowned

Kinglet, 7; Bluebird, 2. Total, 17 species, 204 individuals.—Frank Bruen, R. W. Ford, and Newton Manross.

Edgewood Park and Edgewood, New Haven, Conn.—December 26, 1902, 10.15 A. M. to 12.15 P. M. Snowing, ground snow-covered; wind, northeast, light to medium; temp., 27°. Bob-white, 2; Downy Woodpecker, 2; Flicker, 3; Crow, 7; Goldfinch, 2; Song Sparrow, 4; Brown Creeper, 3; White-breasted Nuthatch, 1; Chickadee, 24. Total, 9 species, 48 individuals. Since December 15, Bluebirds have been either seen or heard nearly every morning.—A. A. Saunders.

Rochester, N. Y.—Time, 11.30 A. M. to 1.30. Cloudy, almost no wind; temp., 18°. Downy Woodpecker, 1; Crow, 3; Goldfinch, 3; Junco, 2; Tree Sparrow, 1; Brown Creeper, 1; White-breasted Nuthatch, 1; Chickadee, 3; Robin, 1. Total, 9 species, 17 individuals.—Lewis Stiles Gannett.

Auburn, N. Y.—Time, 8.40 A. M. to 2.30 P. M. Snowing heavily during preceding night and all Christmas day; wind, light, southerly, changing to strong northwest about noon; temp., 23°. Horned Grebe, 21; Herring Gull, 10; Ring-billed Gull, 1; American Merganser, 2; Red-head Duck, 19; American Golden-eye Duck, 17; Buffle-head Duck, 2; Ruffed Grouse, 1; Hairy Woodpecker, 2; Downy Woodpecker, 1; American Crow, 300; American Goldfinch, 1; Song Sparrow, 1; White-breasted Nuthatch, 8; Chickadee, 13; Brown Creeper, 2. Total, 16 species, 401 individuals.—Fred J. Stupp.

Rhinebeck, N. Y.—December 28, 1902, 2 P. M. to 4 P. M. Fair, light northwesterly wind; temp., 28°. Bob-white, 2; Red-tailed Hawk, 1; Barred Owl, 1; Crow, 5; Hairy Woodpecker, 1; Downy Woodpecker, 2; Flicker, 1; Brown Creeper, 2; White-breasted Nuthatch, 3; Chickadee, 20; Golden-crowned Kinglet, 2. Total, 12 species, about 42 individuals.—M. S. Crosby.

Central Park, New York City (59th Street to 86th Street).—Time, 10.30 A. M. to 1.15 P. M. About eight inches of snow on ground; snow or sleet falling throughout; no wind; temp., 34°. Herring Gull, about 150; Downy Woodpecker, 2; Flicker, 1; Starling, 3 (outside of park); White-throated Sparrow, 5; Song Sparrow, 4; Cardinal, 1; Brown Creeper, 1; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 4. Total, 10 species, 172 individuals.—Clinton G. Abbott.

Central Park, New York City.—Time, 9.45 A. M. to 12.45 P. M. Snowing heavily, ground covered; wind, northeast, brisk; temp., 34°. Herring Gull, 32; Downy Woodpecker, 2; Starling, 14; White-throated Sparrow, 14; Song Sparrow, 1; Cardinal, 3; White-breasted Nuthatch, 4; Golden-crowned Kinglet, 1. Total, 8 species, 71 individuals.—Isaac Bildersee.

Central Park, New York City.—December 24, 1902; time, 4 hours, 10.15 to 2.15. Partly cloudy, ground bare; temp., 26°–31°. Herring Gull, about 130; Downy Woodpecker, 3 females; Chaffinch, 1; White-throated Sparrow, 14; Junco, 1; Song Sparrow, 3; Cardinal, 1 pair; Brown Creeper, 2; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 2. Total, 10 species, about 160 individuals.—Charles H. Rogers.

Bronx Park, New York City.—December 26, 1902; time, 11.10 to 1.25. Cloudy, about eight inches of snow on the ground. Downy Woodpecker, 1 pair; Crow, heard; Starling, about 25; American Goldfinch, about 10; White-throated Sparrow, about 10; Tree Sparrow, 4; Junco, about 15; Song Sparrow, 2; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 1. Total, 9 species and about 70 individuals seen and one species heard.—Charles H. Rogers.

Huntington, Long Island.—December 26, 1902; time, 2 to 4.30 P. M. Cloudy, ground covered with snow; wind, northwest, light; temp., 30°. Flicker, 2; Downy Woodpecker, 2; American Crow, 5; American Goldfinch, 4; Junco, 12; Song Sparrow, 2; Myrtle Warbler, 4; Chickadee, 4; Brown Creeper, 1; Golden-crowned Kinglet, 2. Total, 10 species, 38 individuals.—Charlotte E. Lee.

Englewood, N. J.—Time, 8 A. M. to 1 P. M., 3 P. M. to 4 P. M. Heavy snow in the morning, cloudy in the afternoon; wind, northeast, light; eight inches snow on ground; temp., 31°. Downy Woodpecker, 1; Crow, 5; Blue Jay, 3; Cowbird, 1 male; Goldfinch, 3; Purple Finch, 3; Junco, 28; Tree Sparrow, 125; White-throated Sparrow, 2; Song Sparrow, 5; Myrtle Warbler, 36; Bluebird, 8. Total, 12 species, 220 individuals. —Frank M. Chapman.

Princeton, N. J.—Time, 10.20 A. M. to 2 P. M. Partly cloudy, ground snow-covered; wind, north, light; temp., 31°. Marsh Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 9; American Crow, 10; Blue Jay, 4; Meadowlark, 4; Purple Grackle, 1; American Goldfinch, 5; White-throated Sparrow, 17; Tree Sparrow, about 60; Junco, 11; Song Sparrow, 9; Cardinal, 4; Myrtle Warbler, 2; Brown Creeper, 3; Winter Wren, 1; White-breasted Nuthatch, 3; Red-breasted Nuthatch, 1; Tufted Titmouse, 5; Golden-crowned Kinglet, 2; American Robin, 2. Total, 21 species, 155 individuals.—W. M. Norris, Jr.

Princeton, N. J.—Time, 9.48 to 11.14 A. M. and 4.40 to 5.45 P. M. Weather partly fair, partly overcast; ground snow-covered; temp., 31°. Marsh Hawk, 1; Flicker, 1; Meadowlark, 17; American Crow, 150 (estimated); Song Sparrow, 3; Tree Sparrow, 2; White-throated Sparrow, 1; Goldfinch, 2; Brown Creeper, 2; Tufted Titmouse, 3; Golden-crowned Kinglet, 7. Total, 11 species, 188 individuals. — Jack Fine and Randolph West.

Moorestown, N. J.—Time, 7.22 A. M. to 6.40 P. M. Cloudy, snowing briskly; two inches snow on ground; wind, northeast, light; temp., 31°. Snowing ceased about 7.48 A. M. Sun cast shadow 10.05 A. M.; strong northwest wind with snow flurries about 3.30 P. M. Wilson's Snipe, 1; Marsh Hawk, 3; Red-tailed Hawk, 3; Red-shouldered Hawk, 2; Sparrow Hawk, 3; Downy Woodpecker, 7; Horned Lark, 50; Crow, several hundred; Blue Jay, 1; Meadowlark, 29 (one sings); Rusty Blackbird, 4; Goldfinch, 16; White-throated Sparrow, 17 (one sings); Tree Sparrow, 56; Snow Bird, 63; Song Sparrow 36 (two sing); Fox Sparrow, 1; Cardinal, 11; Northern Shrike, 2; Carolina Wren, 1; White-breasted Nuthatch, 2; Crested Titmouse, 7; Chickadee, 7; Golden-crowned Kinglet, 5. Total, 24 species, 326 individuals, not counting Crows.—William B. Evans.

West Chester, Pa.—Time, 7.30 A. M. to 5 P. M. Gentle snow, to cloudy to nearly clear; no wind; temp., 20°. Turkey Buzzard, 28; Red-tailed Hawk, 10; Hairy Woodpecker, 1; Downy Woodpecker, 5; Flicker, 2; Phœbe, 1; Horned Lark, 132; Crow, 500; Rusty Grackle, 1; Meadowlark, 36; Junco, 58; Goldfinch, 12; Tree Sparrow, 18; Song Sparrow, 13; Cardinal, 1; Brown Creeper, 1; White-breasted Nuthatch, 5; Winter Wren, 2; Golden-crowned Kinglet, 3. Total, 19 species, about 830 individuals. —Jno. D. Carter.

West Chester, Pa.—Time, 8.30 A. M. to 12 M.; 2.30 P. M. to 4.30 P. M. Light snow; wind, west to northwest, light; temp., 25° to 30°. Red-tailed Hawk, 1; Sparrow Hawk, 2; Long-eared Owl, 1; Downy Woodpecker, 9; Hairy Woodpecker, 1; Crow, 30; Blue Jay, 1; Meadowlark, 23; Junco, 71; Tree Sparrow, 50; Song Sparrow, 25; Cardinal, 14; Brown Creeper, 2; Tufted Titmouse, 1; Bluebird, 2. Total, 15 species, 223 individuals.—Thomas Jackson, Robert Sharpless, C. E. Ehinger.

Bridesburg Meadows and Frankford, Philadelphia, Pa.—Time, 10.30 A. M. to 2.30 P. M. Cloudy, sun shining occasionally; two and one-half inches of snow; wind, west, calm; temp., 35°. Herring Gull, 2; Red-tailed Hawk, 1; Red-shouldered Hawk, 1; Sparrow Hawk, 2; Long-eared Owl, 1; Crow, 80–85; Redpoll, 8; Field Sparrow, 2; Tree Sparrow, 10–12; White-throated Sparrow, 4 or 5; Song Sparrow, 35–40; Cardinal, 1; Junco, 40–45; Winter Wren, 1 (sang); Brown Creeper (heard); Chickadee (heard); Bluebird, 5. Total, 17 species, about 210 individuals.—Richard F. Miller.

Glenside, Pa.—Time, 9.15 to 11 A. M. Overcast, new snow on ground; slight north wind; temp., 32°. Red-shouldered Hawk, 1; Sparrow Hawk, 1; Long-eared Owl, 1; Downy Woodpecker, 2; Crow, 30; Goldfinch, 1; Tree Sparrow, 25; Junco, 20; Song Sparrow, 2; Cardinal Grosbeak, 2; Brown Creeper, 1; Golden-crested Kinglet, 3. Total, 12 species, 89 individuals. Time, 2.30 to 4 P. M. Spitting snow, moderate west wind; temp., 33° to 25°; (a different ground). Red-tailed Hawk, 1; Sparrow Hawk, 1; Downy Woodpecker, 5; Crow, 2; Junco, 75; Song Sparrow, 3; English Sparrow, 14. Total, 7 species, 101 individuals. Total for the day, 14 species, 190 individuals.—Samuel H. Barker.

Overbrook, Pa.—Time, 8 A. M. to 11.30 A. M. Sky a uniform gray and a fine snow falling, afterwards clearing, but partly cloudy; about two inches of snow on the ground; wind, northwesterly, light; temp., 31°. Red-tailed Hawk, 2; Downy Woodpecker, 6; Flicker, 9; Crow, 40; White-throated Sparrow, 6; Tree Sparrow, 24; Junco, 12; Song Sparrow, 2; Cardinal, 1; Winter Wren, 2; White-breasted Nuthatch, 4. Total, 11 species, 108 individuals.—Chreswell J. Hunt.

Merlin, Pa.—Time, 7.40 A. M. to 11.50 A. M. Cloudy, ground snow-covered; wind, northwest, light; temp., 28°. Red-tailed Hawk, 2; Red-shouldered Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 4; Crow, 485; Blue Jay, 5; Meadowlark, 14; Junco, 160; Tree Sparrow, 230; Song Sparrow, 17; Cardinal, 2; Nuthatch, 2; Robin, 7; Bluebird, 1. Total, 14 species, 931 individuals.—Roy T. Reed.

Roherstown, Pa.—Time, 8 A. M. to 1 P. M. Cloudy, ground snow-covered; wind, southeast, light; temp., 28°. Cooper's Hawk, 1; Downy Woodpecker, 1; Horned Lark, 12; Crow, 600; Meadowlark, 1; Junco, 68; Tree Sparrow, 5; Song Sparrow, 11; White-throated Sparrow, 2; Cardinal, 1; White-breasted Nuthatch, 7; Tufted Titmouse, 7. Total, 12 species, 719 individuals.

Durham, N. C.—Time, from 9 A. M. to 10 A. M. Light north wind; ground bare; slightly cloudy and very cold; temp., 28°. Turkey Vulture, 3; Hairy Woodpecker, 1; Tree Sparrow, 4; Song Sparrow, 12; Carolina Wren, 5; Brown Creeper, 1; White-breasted Nuthatch, 1; Tufted Titmouse, 2; Carolina Chickadee, 5. Total, 9 species, 34 individuals.—Ernest Seeman.

Beaufort, S. C.—Time, 11 A. M. to 12.30 P. M. Clear; light west wind; temp., 40°. Mourning Dove, 10; Turkey Buzzard, 14; Red-bellied Woodpecker, 1; Flicker, 2; Phœbe, 1; Blue Jay, 5; Vesper Sparrow, 9; Meadowlark, about 100; Field Sparrow, 1; Song Sparrow, 1; Cardinal Grosbeak, 5; Loggerhead Shrike, 4; Myrtle Warbler, 3; Mockingbird, 13; Carolina Chickadee, 1; Ruby-crowned Kinglet, 1. Total, 16 species, 171 individuals.—Abby Christensen.

Knoxville, Tenn.—Time, 11 A. M. to 1 P. M. Clear; ground bare; wind, north, light; temp., 27°. Flicker, 8; Crow, a colony; Goldfinch, 12; Tufted Titmouse, 3; Carolina Chickadee, 6; Wren, 1. Total, 6 species, 36 individuals plus Crows.—Magnolia Woodward.

Lexington, Ky.—Time, 10 A. M. to 12 noon; 2 P. M. to 4 P. M. Cloudy, with light, dry snow; ground bare; wind, west to northwest, brisk; temp., 15°. American Crow, 200, estimated; Bronzed Grackle, 2; Chickadee, 2; Golden-crowned Kinglet, 2. Total, 4 species, 206 individuals.—R. H. Dean.

Medora, Jackson Co., Ind.—Time, 9 A. M. to 11.30 A. M.; 1.30 P. M. to 4 P. M. Cloudy, snow flurries; wind, northwest, strong; temp., 20°. Hairy Woodpecker, 13; Downy Woodpecker, 9; Red-bellied Woodpecker, 1; Red-headed Woodpecker, 7; Flicker, 25; Crow, 9; Blue Jay, 13; Junco, 154; Tree Sparrow, 132; Goldfinch, 4; White-throated Sparrow, 2; Cardinal, 7; Towhee, 13; Tufted Titmouse, 36; Black-capped Chickadee, 2; White-breasted Nuthatch, 10; Red-breasted Nuthatch, 1; Bewick's Wren, 3. Total, 18 species, 441 individuals.

Mount Carmel, Ill.—December 22, 8 A. M. to 11.30 A. M. Fair from 8 until 9, from 9 until 12 rather heavy rain, very muddy; wind, light, southwest; temp., 40°. Canada Goose, 60; Killdeer, 6; Mourning Dove, 5; Sparrow Hawk, 1; Hairy Woodpecker, 2; Downy Woodpecker, 5; Red-bellied Woodpecker, 6; Flicker, 13; Blue Jay, 9; Crow, 15; Meadowlark, 60; American Goldfinch, 7; Tree Sparrow, 50; Junco, 150; Song Sparrow, 25; Cardinal, 12; Carolina Wren, 3; Bewick's Wren, 2; White-breasted Nuthatch, 4; Tufted Titmouse, 20; Chickadee, 10; Bluebird, 7. Total, 22 species, 472 individuals. Meadowlarks, Bewick's Wren and one Song Sparrow were singing.—CHAS. F. BRENNAN.

Peoria, Ill.—Time, 10 A. M. to 2 P. M. Clear, with occasional snow flurries, one inch of snow on the ground; wind, northwest, very strong; temp., 4°. Rough-legged Hawk, 1; Hairy Woodpecker, 1; Downy Woodpecker, 4; Prairie Horned Lark, 1 (heard); Crow, 7; Blue Jay, 5; Junco and Tree Sparrow (three flocks, about equally divided), about 125; Cardinal, 3; Brown Creeper, 2; Chickadee, 9; White-breasted Nuthatch, 2. Total, 12 species, 160 individuals.—W. H. PACKARD and C. S. VANDEUSEN.

Rock Island, Ill.—Time, 11.40 A. M. to 12 M. Sky mostly clear, a few fleecy clouds; about one inch of snow; strong northwest wind; temp.,—1°. Downy Woodpecker, 2; Chickadee, 4. Total, 2 species, 6 individuals.—BURTIS H. WILSON.

Delaware, Ohio.—Time, 2 to 3.45 P. M. Snowy, ground covered; wind, northwest, high; temp., 20°. Bob-white, 12; Mourning Dove, 2; Downy Woodpecker, 1; Blue Jay, 4; Junco, 20; Tree Sparrow, 2; Song Sparrow, 8; Cardinal, 2; White-breasted Nuthatch, 4; Tufted Titmouse, 2; Chickadee, 6. Total, 11 species, 63 individuals.—IDA NEWELL.

Cadiz, Ohio.—Time, 11.20 A. M. to 4.10 P. M. Cloudy; two and one-half inches of snow; wind, west, moderately strong; snow flurries; temp., 14°. Bob-white, 24; Mourning Dove, 7; Cooper's Hawk, 1; Hairy Woodpecker, 11; Downy Woodpecker, 9; Red-headed Woodpecker, 17; Red-Bellied Woodpecker, 4; Flicker, 1; Blue Jay, 1; Goldfinch, 13; Tree Sparrow, 125; Junco, 40; Song Sparrow, 16; Cardinal, 9; Carolina Wren, 3; White-breasted Nuthatch, 14; Tufted Titmouse, 33; Chickadee, 20; Bluebird, 6. Total, 19 species, about 354 individuals.—HARRY B. MCCONNELL.

Oberlin, Ohio.—Time, 10 to 12 A. M. Snowing and drifting, three inches of snow; wind, strong, west by south; place, streets of Oberlin, Arboretum and Cemetery; temp., 16° to 20°. Sharp-shinned Hawk, 1; Northern Flicker, 4; Blue Jay, 3; Tree Sparrow, 4; Slate-colored Junco, 1; Song Sparrow, 4; Towhee, 1; Cardinal, 3; White-breasted Nuthatch, 1. Total, 9 species, 22 individuals.—LYNDS JONES.

Creston, Ohio.—Time, 9 A. M. to 1 P. M. Cloudy; wind, west and strong, with fine sleet and snow; temp., 20°. Mourning Dove, 6; Hairy Woodpecker, 2; Downy Woodpecker, 5; Red-bellied Woodpecker, 2; American Goldfinch, 2; Tree Sparrow, 7; Slate-colored Junco, 2; Song Sparrow, 4; Cardinal, 8; Carolina Wren, 1; White-breasted Nuthatch, 6; Tufted Titmouse, 12; Chickadee, 7. Total, 13 species, 64 individuals.—ROBT. L. BAIRD.

Waterford, Oakland Co., Mich.—Time, 2 P. M. to 5.30 P. M. Four inches of snow on ground; northwest wind; very cold. Ruffed Grouse, 1; Marsh Hawk, 1; Barred Owl, 1; Saw-whet Owl (?), 1; Hairy Woodpecker, 2; Downy Woodpecker, 4; Prairie Horned Lark, 12; Blue Jay, 2; American Crow (heard), 1; American Goldfinch, 40; Tree Sparrow, 9; Brown Creeper, 3; White-breasted Nuthatch, 1; Chickadee, 5; Golden-crowned Kinglet, 20. Total, 15 species, 101 individuals.—ALEXANDER W. BLAIN, JR.

Port Sanilac, Mich.—December 28, 12 M. to 2 P. M. Cloudy; ground covered with snow; wind, southwest, moderate; temp., 34°. Mallard, 25; Shore Lark, about 50; Crow, 2; Junco, 4; Tree Sparrow, 2; American Goldfinch, 7; Snowflake, about 150. Total, 7 species, 240 individuals.—HARRIET W. THOMSON.

Waupaca, Wis.—December 26, 8 A. M. to 4 P. M. Clear, eight inches of snow on ground; light west wind; temp., 10°. Ruffed Grouse, 4; Hairy Woodpecker, 2; Red-headed Woodpecker, 4; Blue Jay, 12; Snowflake, 7; Tree Sparrow, 18; White-breasted Nuthatch, 2; Chickadee, 12. Total, 8 species, 61 individuals.—F. A. Potts.

Winneconne, Wis.—December 28, 1902, 8.45 to 12.15. Clear in morning, becoming cloudy after ten o'clock; light south wind; three to four inches of snow on ground; temp., 15°. Hairy Woodpecker, 5; Downy Woodpecker, 7; Blue Jay, 13; Crow, 12; Tree Sparrow, 1; Slate-colored Junco, 1; Brown Creeper, 2; White-breasted Nuthatch, 12; Chickadee, 10. Total, 9 species, 63 individuals.—Henry P. Severson.

North Freedom, Wis.—Time, 9 A. M. to 11.30 A. M. Cloudy, eight inches of snow; wind, cold, brisk, northwest; temp. averaged 2°. Bob-white, 10; Ruffed Grouse, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Blue Jay, 1; Pine Siskin, 30; Tree Sparrow, 5; Junco, 3; White-breasted Nuthatch, 2; Chickadee, 2. Total, 10 species, 56 individuals.—Alick Wetmore.

Albuquerque, New Mexico.—Time, 10.45 A. M. to 5 P. M. Clear; wind, northwest, light; temp., 40°. Sharp-shinned Hawk, 1; Red-shafted Flicker, 3; Desert Horned Lark, 400; Dusky Horned Lark, 200; American Raven, 3; Red-winged Blackbird, 20; Western Meadowlark, 6; Brewer's Blackbird, 15; House Finch, 300; Intermediate Sparrow, 60; Western Tree Sparrow, 25; Oregon Junco, 10; White-rumped Shrike, 2; Slender-billed Nuthatch, 1; Western Robin, 1. Total, 15 species, 1,047 individuals.—W. Gray Harman.

Santa Barbara, Cal.—December 26, 1902, 9.45–11 A. M., 12–1 and 3–4 P. M. Clear, calm; temp., 65°. Baird's Cormorant, 4; Red-throated Loon, 1; Valley Partridge, 6; Cooper's Hawk, 1; Western Redtail, 1; Nuttall's Woodpecker, 3; California Woodpecker, 3; Red-shafted Flicker, 6; Nighthawk, 1 (7 P. M.); Anna's Hummer, 1; Say's Phœbe, 2; Black Phœbe, 4; California Jay, 7; California Purple Finch, 1; House Finch, 59; Arkansas Goldfinch, 58; Golden-crowned Sparrow, 7; Spurred Towhee, 3; California Brown Towhee, 20; California Shrike, 5; Hutton's Vireo, 8; Audubon's Warbler, 78; American Pipit, 1; Pasadena Thrasher, 7; Dotted Cañon Wren, 2; Plain Titmouse, 2; Wren-tit, 6; Bush-tit, 81; Ruby-crowned Kinglet, 3; Western Gnat-catcher, 2; Alaska Hermit Thrush, 2; Western Bluebird, 14. Total, 32 species, 399 individuals.—Anna Head.

Questions for Bird Students

II

7. What bird has learned to sing the song of the Canary?

8. Mention an instance in which a bird is known to have nested far north of its regular breeding limits.

9. How often has the Chipping Sparrow been known to feed its young during one day?

10. How many birds have been recorded from British Columbia?

11. What Hawk is believed to track its prey in the snow, following it on foot?

For Teachers and Students

Bird-Lore's Advisory Council

WITH some slight alterations and additions, we reprint below the names and addresses of the ornithologists forming BIRD-LORE'S 'Advisory Council,' which were first published in BIRD-LORE for February, 1900.

To those of our readers who are not familiar with the objects of the Council, we may state that it was formed for the purpose of placing students in direct communication with an authority on the bird-life of the region in which they live, to whom they might appeal for information and advice in the many difficulties which beset the isolated worker.

The success of the plan during the three years which it has been in operation fully equals our expectations; and from both students and members of the Council we have had very gratifying assurances of the happy results attending our efforts to bring the specialist in touch with those who appreciate the opportunity to avail themselves of his wider experience.

It is requested that all letters of inquiry sent to members of the Council be accompanied by a stamped and addressed envelope for use in replying.

With this issue we present the second series of portraits of members of the Council, the proposed publication of which has brought us many hearty approvals from our readers.

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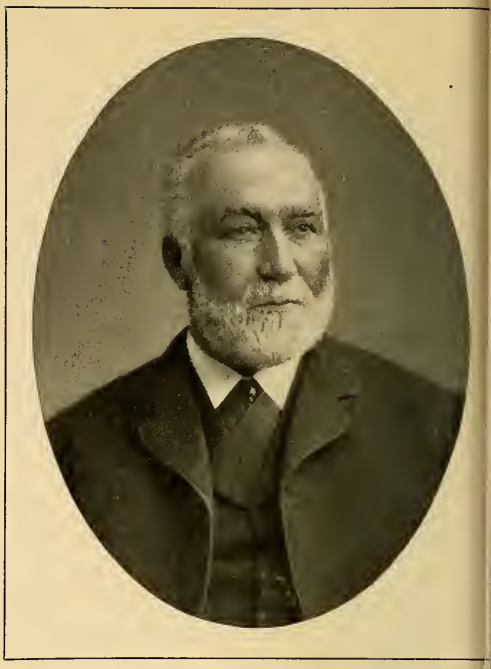

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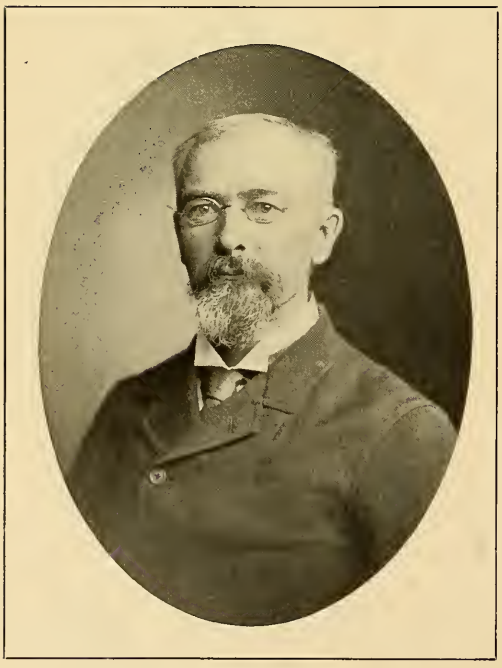

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BY FRANK M. CHAPMAN

SECOND PAPER

Time of the year.—Why should a bird build its nest at a certain time of the year? Some variation in nesting dates, it is true, is shown by all species of birds, but they do not affect the truth of the statement that most species have a definite nesting season when, year after year, they may be found occupied with household cares. In March, near New York city, we look for the Barred Owl; by April 15 the Bluebirds have returned to their favorite box; about May 10 the Phœbe will have finished its mossy structure; while the middle of June will have come before the Cedarbird and Goldfinch are domiciled.

Time of the nesting season

In a general way, it may be answered that the nesting period, as a whole, is determined by those seasonal changes which, independent of latitude, divide the year into winter, spring, summer and autumn. In the extreme North it is possible for birds to nest during only a small portion of the year; here the relation between the nesting period and the season is obvious enough. But in the South the same reason does not hold good, for, as far as climate is concerned, birds might rear their young any month in the year.

So we look for a deeper reason why there should be this regular, annual nesting season, and we find it in the bird itself. In the bird world, as in the plant world, there exist cycles of physiological development. The tree leaves, blossoms, fruits, loses its foliage and rests; then, all in their due time, the same events are repeated in their proper order. Thus the bird migrates (if it be a migratory species), mates, builds its nests, lays its eggs, ncubates, rears its young, molts, acquires a new plumage and migrates to iwinter quarters.

Birds and trees

There are, of course, exceptions to this program, as where a bird raises more than one brood or has more than one molt; but these are only variations in the underlying physiological laws which, through a regular series of phenomena, prepare the bird for the nesting season. Probably their simplest manifestation may be found among the sea-birds of the tropics, which, as regards climate and food, live all the year under practically the same conditions, and still have their annual nesting season, going to their breeding grounds with the utmost regularity.

The insect-, seed- and fruit-eating species, however, require an abundant supply of food during the nesting season, when, within a comparatively limited area, they must find sustenance for their young as well as for themselves. Now, while it is true that in the tropics food is to be had the year

round, it is far more abundant and varied in the spring and summer than at other seasons. Then, with the coming of the rains, the trees renew their foliage, blossom and fruit; then insects become more active and far more numerous, and, coincident with these developments, the instincts of the nesting season become active in birds.

Confining ourselves to the birds in which we are more particularly interested, we have seen that some species nest early and some late. Why is this? The character of the food of the young is the most obvious cause determining the exact date of a bird's nesting. Hence those birds of prey which feed their offspring on mammals or birds are our first nesters, while those birds which rear their broods on insects or fruit nest later.

Food of the young

But is not a bird's nesting time also dependent on whether it be migratory or resident? This is a difficult question to answer, since it is by no means easy to determine whether or not a species is resident, in the strict sense of the word. Among resident species, of not dissimilar feeding habits, there is much difference in nesting habits. The White-breasted Nuthatch, for instance, near New York city, nests in the middle of April, while the Downy Woodpecker waits until a month later. The Bluebird nests in the first half of April, the Cedarbird the latter half of June. Just why this difference should exist is one of the things we should like to know. Possibly a study of the food of the young birds may answer the question. Some migratory birds arriving in this latitude at about the same time also nest at widely different dates. Robins and Red-winged Blackbirds come from the South at about the same time, in late February or early March; but the Robins nest nearly a month earlier than the Blackbirds. Here, again, the difficulty of distinguishing breeding birds from transients complicates the problem; and only careful, prolonged field study will tell us whether the first comers among these and other summer resident birds are breeding birds or migrants to a more northern nesting resort. Haunt also exercises some influence in this case. The early-nesting Robins find favorable sites in evergreens long before the marshes the Blackbirds love afford concealment for their nests. The Woodcock, on the other hand, nests shortly after its arrival; perhaps because a nesting site is at once available.

Nature of haunts

Consequently, in addition to those physiological influences which induce an annual nesting season as one of the phenomena in the cycle of events making the bird's year, the date of a bird's nesting appears to be governed by (1) the nature of the food of its young; (2) whether it is resident or migratory, though this remains to be determined; and (3) the condition of its nesting haunts. To these

will doubtless be added other causes, as we become more intimate with the facts involved.

Why should some birds raise only one brood, and others two or even three? We should look for an answer to this question primarily in the length of time required by a species to rear its brood. If the period from the beginning of the nest to the day when the young are able to care for themselves is so short that the parent birds are still in the physiological condition incident to nesting time, the rearing of a second brood may perhaps be expected; and, under similar circumstances, a third may follow. The English Sparrow is reported to have raised six broods in a season; but, so far as I am aware, no native bird is known to have raised more than three; and authentic instances of this kind are rare, so difficult is it to keep the same individuals under continuous observation. Doubtless, most of the records of late breeding on which the assumption of third broods is based, are due to the failure of earlier attempts at nesting.

Number of Broods

But while the reason above given may explain why certain birds do not raise more than one brood, it does not tell us why, among birds in which the period of incubation and growth of the young are about the same, some species should rear only one brood while others have two or three.

Time of arrival from the South

The time of a bird's arrival on the nesting grounds should, of course, be considered here; and we must also take into account the time of a bird's departure for its winter haunts, without in the least being able to say why it should go at a definite time.

Still, with both permanent residents and migrants, which come and go at about the same season, single- and double- or even triple-brooded birds may be found. For instance, of our permanent residents, the Song Sparrow rears two broods, and, on occasions, three, while the Chickadee has but one; and, among migrants, the Robin is two-, or, rarely, three-brooded, and the Purple Grackle, which comes to us fully as early as the Robin and remains nearly as long, is one-brooded.

I confess no satisfactory reason for this difference occurs to me. Doubtless, a tabulation of our birds with regard to the date when they begin to nest, time occupied in rearing a brood, and number of broods reared, would throw some light on the subject; but much of this information, particularly that relating to the time required for incubation and growth of the young, is still to be acquired.

(TO BE CONTINUED)

Mounted Birds in Illustration

EDITOR OF BIRD-LORE :

My Dear Sir—The use of photographs of stuffed birds as illustrations in bird-books has become an insidious stumbling-block in the path of those you are trying to lead to see the beauty of life in all its forms, and an affliction to the more intimate bird-lovers, especially to such as have a more than usually developed sight sense.

The fact that the average bird-student cannot tell the difference between a photograph of a live bird and one from a skilfully mounted skin is all the more reason against the use of the latter; since he needs protection from deception. In fact, we agree that beginners in all fields should be be fed, mentally, on the purest food.

The camera gives us, as by miracle, Life, manifest in the thousand exquisite details of the bird's appearance, and utterly unachievable save by the creature's spontaneous self-adjustment. And now that we have tasted this feast for the mind and the eye, the possibility of looking unpained at the mummy picture is gone.

To the seeing few, such pictures are exactly as depressing as similar reproductions of human mummies would be. While the mind may be acquiring from them some facts about birds' markings, etc., the heart is feeling something of the horror one would feel at a corpse. Surely the dullest-sighted bird-student must ultimately grow to see their more than corpse-like ugliness. In fact, a dead body has still its anatomical structure, not imitable by wire and cotton wadding.

Since Nature and Beauty are infinite, a photograph of a live, free animal, or of a true artist's picture of the animal, will grow forever upon the observer; while one of those horrible "fakes" charms, at best, only for an instant, and then looks steadily worse and worse; as one's acquaintance grows.

Life is so the whole thing for us that, even where a marvel of taxidermy cheats us for a moment, the ghastly death fact, once out, spoils all enjoyment.

An artist's picture of the same animal drawn from life might be no truer in action, and yet not pain one by the false claim made by the actual surface, the hair, claws, etc., preserved in taxidermy. The lasting effect of the artist's picture upon the beholder would be *life;* while of the taxidermist's, it would be *death*. Taxidermy itself, even with all its ugliness, is free at least from deception ; since it cannot give motion to its productions. The actual animal would move, the stuffed one does not. But a *picture* of the latter has no such guarantee against deception.

Of course, if a great figure-painter chanced to have, instead of his human figure gift, a similar one for animal or bird painting, he would

utterly surpass photography, though not on its own lines, by virtue of the divine element of intuitive choice and elimination,—a thing denied to photography.

But, as the case stands, photography's exquisite revelations go far beyond all art productions in the same field.

MONADNOCK, N. H., Nov. 15, 1902. ABBOTT H. THAYER.

What Bird is This?

Field Description.— Length, 8 inches. Above dark brownish, the head streaked, the back spotted with white; below white, streaked with reddish brown; feet feathered; eyes yellow.

NOTE.— Each number of BIRD-LORE will contain a photograph, from specimens in the American Museum of Natural History, of some comparatively little-known bird, or bird in obscure plumage, the name of which will be withheld until the succeeding number of the magazine; it being believed that this method of arousing the student's curiosity will result in impressing the bird's characters upon his mind far more strongly than if its name were given with the picture.

The species figured in December is a female or young male Purple Finch.

Notes from Field and Study

Attracting Birds

To attract birds to our yard, I placed a low tree stump in the garden and kept a large flower-pot saucer on it, filled with water. Birds of many kinds came there to drink and bathe. When the Bluebirds arrived in the neighborhood I put a Bluebird house out on a pole, so that it was about ten feet from the ground. In less than two hours a pair of birds were inspecting the little tenement.

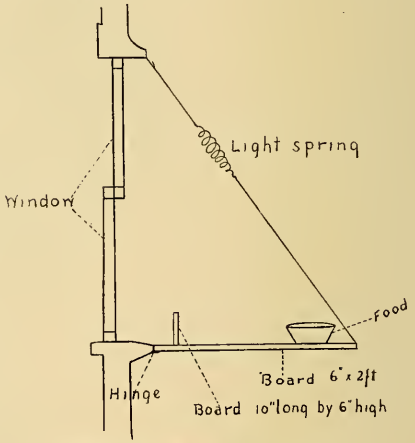
The Robins came next. When I discovered a Robin building in the cherry tree I made a mud-bath for him,—that is, I arranged a low dish filled with a mixture of garden soil and water. This preparation was no more than placed under the tree when the male bird came. He hopped into it and quickly made his little mud-balls, returning several times. This attracted more than one pair of Robins. In fact, three built in the different trees.

Third, came the Chipping Sparrows. For them I scattered horse-hair about, and kept a dish of water on the ground. Two of this species built in the yard.

The Orioles appeared in May. I tried to call their attention by dropping colored yarns and strings about in the grass and on the bushes. They came and wove their home among the elm-tree boughs. The male Oriole cared for the young ones and was kept busy taking food to them. On one occasion I saw him in the street picking and pulling at something. After he had flown away, I found the remainder of a tent caterpillar cocoon; he had extracted the contents and given it to the little ones.

The cherries ripened by July, and many species of birds came to the tree. It was curious to note how differently they ate the fruit. The Robins pulled off the cherries and flew to the sidewalk, where they picked them to pieces; the Bluebirds attacked only those that had fallen on the ground; while the Oriole ate one as soon as he pulled it from its stem. The Kingbird frequently visited the tree. Instead of sitting on a branch and pulling at one, as the Robins did, he poised himself in the air and tugged at the cherry until it was wrenched from its stem. Then he flew to the near birch and balanced the fruit by giving it little tosses in the air, two or three inches above his head, catching it every time it fell. Finally it disappeared down his throat.

During the season seven birds built upon the premises—and why? If it was the bird bath, the mud and the nesting material about the yard, then birds can easily be attracted by others.—MARY E. DOLBEAR, *Tufts College, Mass.*



An Anti-Sparrow Food-Shelf

Mr. W. W. Grant of Summit, N. J., sends us the accompanying plan for a window food-shelf, to which, he writes, such comparatively wild birds as Tanagers, Flickers and others come, but which the English Sparrow will not, after one trial, visit. A board is hinged to the window-sill, and from the far end (see cut) a string is run to the top of the window, with a light spring between. When a bird alights on the platform, the latter will swing up and down, the amount of swing depending on the birds and the weight of the spring, to which the string is attached.

Book News and Reviews

THE BIRDS OF NORTH AND MIDDLE AMERICA. By ROBERT RIDGWAY. Part II. Bull. No. 50, U. S. Nat. Mus., Washington, 1902. 8 vo. xx + 834 pages; xxii plates.

We have already expressed our high appreciation of the first part of this great work, treating of the Finches, and can accord to this second part equally sincere praise. The families included, with the number of species and subspecies given in each, are as follows: Tanagers, 112; Blackbirds, Orioles, etc., 111; Honey Creepers, 29; Warblers, 181.

Experience with Part I of the work proves in practice its great utility; and we imagine each succeeding part will be more cordially welcomed than its predecessor, as use brings a realization of the enormous value of the book.—F. M. C.

LONDON BIRDS, AND OTHER SKETCHES. By T. DIGBY PIGOTT. New Edition, revised and enlarged. London, Edward Arnold. New York, Longmans, Green & Co. 8vo. xiii + 256 pages; 8 plates.

'London Birds,' 'The Birds of the Outer Faroes,' 'The Shetlands in the Birds' Nesting Season,' 'The Last English Home of the Bearded Tit,' 'St. Kilda from Without,' and the 'Haunts of the Shearwater' are titles of some of the chapters in this volume and indicate the nature of its contents. The author has evidently drawn on his more interesting experiences afield, and these he recounts in so readable a manner that the book is a more than usually attractive one of its class. We commend it, therefore, to our readers as a work in which they will find much information pleasingly presented.—F. M. C.

THE STORY OF A MARTIN COLONY. By J. WARREN JACOBS, Waynesburg, Pa. Published by the author.

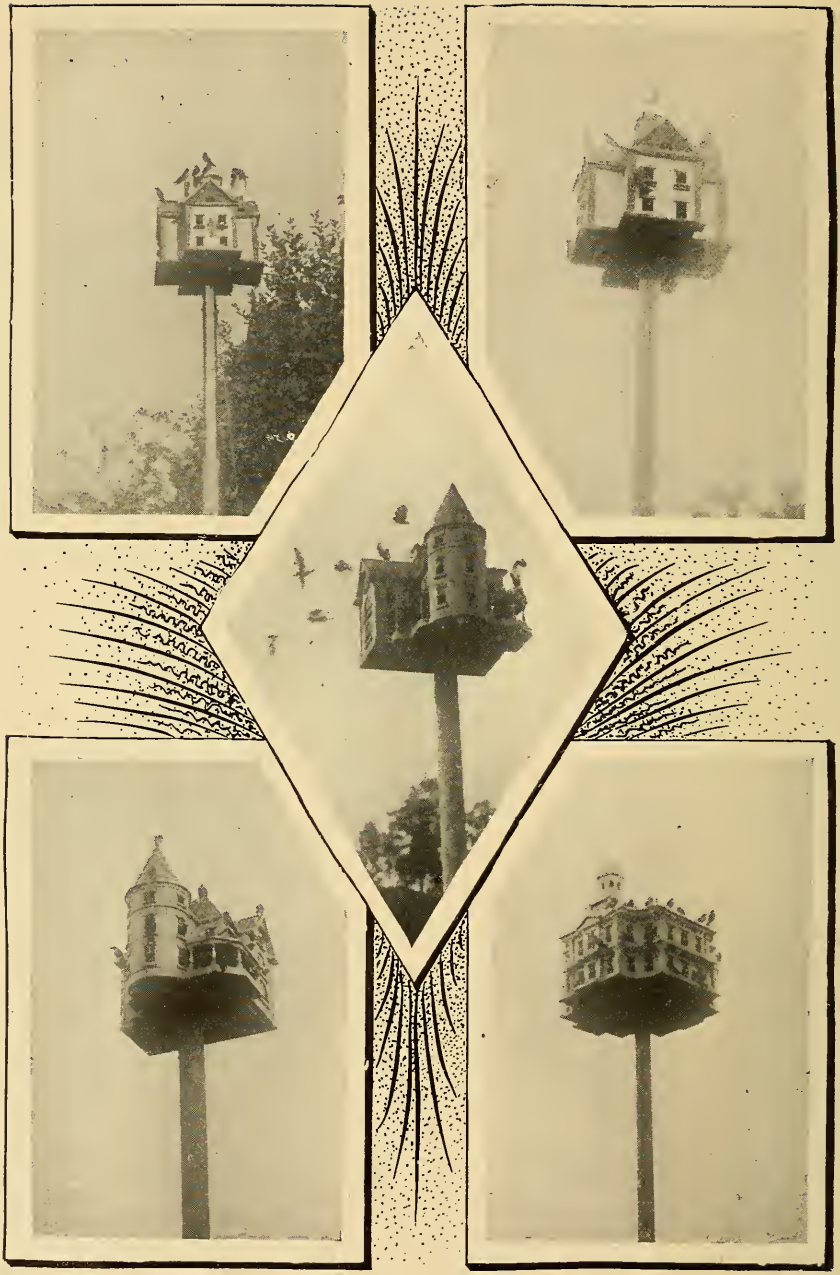
Mr. Jacobs' experience with Purple Martins is exceedingly interesting and possesses both scientific and practical value. His first Martin house was erected in 1896. It contained twenty rooms and was tenanted that year by eight birds, who succeeded in rearing eleven young. The following year this house was occupied by twenty birds and the number of young raised was thirty-five.

The third year a second Martin house, of thirty-four rooms, was erected, and twenty-eight birds took possession of it that season; while twenty-four birds nested in house number one; the total number of young reared being between ninety and one hundred. The fourth year (1899) a third house was added and the colony grew to one hundred and six birds, thirty-two in each of the first two houses, and forty-two in the new house. The number of young which reached maturity this season was between one hundred and fifty and one hundred and seventy-five. At the end of only four years, therefore, the colony contained nearly three hundred birds!

Mr. Jacobs now constructed several Martin houses, which were erected by other residents of Waynesburg, and, in due season, were claimed by the birds for which they were designed.

It is a highly significant fact that, in nearly every instance, the new houses were taken possession of by males (and probably, also, females) of the previous year, the progeny, doubtless, of the birds already established. As long as additional nesting-sites were afforded the birds, it appears that they continued rapidly to increase. If, however, additional quarters had not been available the birds would, naturally, have been obliged to search for them elsewhere; when, if a home had not been discovered, there would have been no increase in the total progeny of the original colony — an interesting illustration of how effectually the numbers of a species may be governed by the lack of suitable nesting-places.

We must refer the reader to Mr. Jacobs' paper for further details of this welcome contribution to our intimate knowledge of birds' habits. We may add, however, that



MARTIN HOUSES
(From 'The Story of a Martin Colony,' by courtesy of its author)

among the elements of his success were houses placed at least thirteen feet from the ground and with rooms not less than five inches square and six inches high; the destruction of cats and of about three hundred English Sparrows annually; and the prosecution and *conviction* of that species of the genus *Homo* who labors under the delusion that every feathered creature was intended to form a mark for his shot-gun or rifle. We congratulate Mr. Jacobs on his success in protecting his Martins from these, their unnatural enemies, and on his attractive presentation of the results of his studies.—F. M. C.

A Biological Investigation of the Hudson Bay Region. By Edward A. Preble. N. A. Fauna, No. 22, Division of Biological Survey, U. S. Dept. of Agriculture, 1902.

On June 14, 1900, Mr. Preble, accompanied by his brother, left Winnipeg, and on the 17th reached Norway House. June 23, with two Indians for guides, the trip was resumed in a Petersborough canoe, in which they arrived at York Factory, on Hudson Bay. Thence to Fort Churchill they voyaged in a sail-boat. From this point Mr. Preble made a three weeks' boat-trip, and on rejoining his brother at Fort Churchill they at once started on their return trip, Winnipeg being reached September 22. This, in brief, is the outline of a trip of over 1,200 miles, attended by no little hardship, and the successful outcome of which may evidently be attributed to no small amount of pluck, endurance and perseverance.

Mr. Preble's report on his expedition includes a detailed review of the work of previous natural history explorers, and, of course, the results of his own observations. Fifty-seven of the one hundred and thirty-four pages of his report (pages 75–131) are devoted to birds, his list including all the species which have been recorded from the Hudson Bay Province of Keewatin.

We cannot comment on this list in detail; but we can at least commend it from both a field and a study standpoint as a thoroughly good piece of work.—F. M. C.

The Ornithological Magazines

The Condor.—Several faunal papers of unusual interest make up the principal contents of the November-December number of 'The Condor.' Two of these, Grinnell's 'Birds of the Little Sur River, Monterey County,' and W. K. Fisher's concluding paper on 'The Redwood Belt of Northwestern California,' treat of the peculiar avifauna of the humid coastal region. The former contains an account of the characteristic birds seen on a three days' trip, made in July, to a section of Monterey county which is almost unknown ornithologically. The latter gives an annotated list of land birds of the redwood belt in Humboldt and Del Norte counties, from which it appears that three subspecies of Song Sparrows (*Melospiza cinerea cleonensis*, *M. c. phœa* and *M. c. morphna*) have been taken at Crescent City, in the last-named county. Under the caption 'A List of Birds Collected in Norton Sound, Alaska,' McGregor gives the results of several weeks' work in the summer of 1900. Among the birds collected were three Old World species, the Siberian Yellow Wagtail, the Willow Warbler and the Wheatear, on which the notes might have been considerably extended with advantage. There are many facts in regard to the habits of these birds in Alaska which are important, but most authors apparently do not make an effort to obtain notes on habits or else consider them of little value and give merely a record of the specimens obtained.

An article on 'The Least Tern at San Diego,' by F. W. Kelsey, illustrated by an excellent photograph of the nest and eggs, and an account of the breeding of 'The Holbœll Grebe in Montana,' by P. M. Silloway, complete the list of general articles. Mr. Silloway describes, with some detail, a marsh, a square mile or more in extent, at the head of Swan Lake, Montana, which was inhabited by a small colony of some five pairs of Grebes in the summer of 1902. For two weeks or more this area was systematically examined until, as he says, "it appeared to me that I had located [and collected] *every* nest of *C.*

holbœlli in the swamp." Seven sets were collected, apparently including one or two second layings and comprising in all twenty-eight eggs—not a large series, it is true, but evidently representing *all* the eggs of the colony. Why it was necessary to take every set in the swamp, when collecting ostensibly for scientific purposes is not explained; but such destructive methods of collecting could hardly be justified any more than the work of the plume-hunter gathering skins for market.

A brief editorial announces the sad news of the death of Chester Barlow on November 6, 1902. In Barlow's death 'The Condor' has lost its editor and guiding spirit; and the Cooper Ornithological Club an energetic secretary and enthusiastic member. The influence which he exerted in California was unique and is well described in the brief statement, "Barlow has done more to spread an interest in ornithology and to stimulate bird study on the west coast than any one man, living or dead."—T. S. P.

The Osprey.—The July issue of 'The Osprey' appeared about December 15, and contained, besides the continued article by Doctor Gill on the 'General History of Birds,' three other papers, as follows: 'Notes on Birds of the Pribilof Islands,' by Dr. D. W. Prentiss, Jr.; 'A Study of the Genus *Perisoreus*,' by R. H. Howe, Jr., and 'The Cerulean Warbler a Summer Resident near Washington,' by W. R. Maxon. There also is a beginning of an obituary notice of Dr. James G. Cooper, by Dr. William H. Dall.

Doctor Prentiss, in his notes on the 'Birds of the Fur Seal Islands,' presents some very interesting matter relative to the habits, abundance and local distribution of the birds of that far-off group of islands. The observations on the twenty-five species enumerated were made during a two months' visit in the summer of 1895. By a slip of the pen, the name of the Common Puffin, *arctica*, is substituted for that of the Horned Puffin, *corniculata*. In another case, the scientific name of a Gull is coupled with the common name of another, so that it is not clear whether the notes are intended to refer to the Glaucous-winged Gull or the Point Barrow Gull, which latter species was not uncommon about the islands in July, 1899.

In his study of the genus *Perisoreus*, Mr. Howe states that the type of *Peroriseus o. griseus* was from the 'British Columbia region,' apparently being unaware that it really came from the eastern slopes of the Cascades of Washington, where it was secured by the reviewer in the summer of 1897. This error in placing the type locality may account for his remarkable statement that it is impossible, as a rule, to separate specimens of *griseus* from Nova Scotia examples. As a matter of fact, it is doubtful if any forms among the American representatives of the genus show greater differences than these two, which he claims he is unable to separate.—A. K. F.

Book News

We have received a communication from Messrs. Dana Estes & Co., publishers of Coues' 'Key,' from which we quote as follows:

"'Messrs. Dana Estes & Co. announce that the fifth revised edition of the 'Key to North American Birds,' by Dr. Elliott Coues, will be ready in the spring of 1903. The reason for the unusual delay in its publication may be briefly stated. When Dr. Coues died, in 1899, he left the manuscript wholly finished; but the copy was rendered hard to decipher, without the exercise of most intelligent care, by reason of innumerable interlineations, erasures, abbreviations, 'riders,' and detached notes, written in a minute and sometimes difficult handwriting. His sudden death left the copy in such shape that the task of revision and preparation for the press required double the amount of work that had been anticipated. The publishers, however, have had the good fortune to obtain the services of a thoroughly equipped ornithologist, who has read the proof with the most painstaking care, which has been ably supplemented by the efforts of a number of professional proof-readers."

Bird-Lore

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OFFICIAL ORGAN OF THE AUDUBON SOCIETIES
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Bird-Lore's Motto:
A Bird in the Bush is Worth Two in the Hand

THE articles on the Nuthatches in this number of BIRD-LORE are especially interesting for the evidence given of the permanent residence of an individual bird at one locality throughout the year; and also of the return of a migratory bird to the same locality on successive winters.

ON another page we print a protest from Mr. Abbott H. Thayer against the publication of photographs of mounted birds. With much of what Mr. Thayer says we are in thorough accord. Still we feel that his condemnation of the use of mounted birds for illustrative purposes is too sweeping. The attempt to pass off a photograph of a mounted bird for that of a living one is a moral and scientific lie, for which there is no excuse.

Nor should we for an instant defend the publication of photographs of poorly-mounted birds; such, for example, as disfigure the pages of numerous modern bird books.

It is possible, however, to mount a bird perfectly,—so perfectly that the better the beholder knows the bird in nature the more satisfaction will he receive from the art of the taxidermist; and its expression will prove a stimulus to his memories of the bird in life. If this is not so, if perfection in taxidermy be impossible, let us abandon at once our effort to bring nature within the walls of our museums; our strivings so to display animals that they will not only be interesting and truly educational to those who do not know them, but will give pleasure to those who do.

While we trust it is needless for us to say how heartily we endorse Mr. Thayer's high estimate of the value of the camera in portraying birds, good photographs of birds in nature are not often available, when a photograph of a well-mounted bird, *presented as such*, will, we think, prove more desirable than the average drawing.

OUR statement in the last number of BIRD-LORE, that only five ornithological journals in this country have lived to see their fifth birthday, having apparently been misunderstood, we think it well to name the magazines in question, premising the list with the explanation that by "ornithological magazine" we mean a magazine devoted wholly to the interests of birds or bird-study. With this restriction, then, the list stands: (1) 'The Auk,' which, as a "continuation of the Bulletin of the Nuttall Ornithological Club," established in 1876 and continued for eight years under that title, is now in its twenty-seventh volume, being the oldest, as it is the foremost journal of ornithology in this country; (2) 'The Ornithologist and Oölogist,' established in 1875 as 'The Oölogist' and issued under that title for five volumes, when the name was changed, as indicated, and held until the final issue of this pioneer amateur journal, in October, 1893; (3) 'The Oölogist,' established in 1884 as 'The Young Oölogist,' issued for two volumes under that name, and now in its nineteenth volume; (4) 'The Wilson Bulletin,' established in 1895, and now in its fifteenth volume; (5) 'The Osprey,' established in 1896 and now in its seventh volume, the last number received being dated July, 1902. To this honor roll are now to be added 'The Condor,' 'The Journal of the Maine Ornithological Society,' and BIRD-LORE, all of which celebrate their fifth birthday with their first issues for 1903.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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The Spread of Bird Protection

Bird protection has not only come to stay, but the legislative aid it is receiving, as well as the commotion it is raising in hostile quarters, must convince the most careless that it has now passed safely through that crucial period of "first enthusiasm" so fatal to many well-intentioned reforms of the genus *Fad*.

The increasing list of state societies, Oklahoma and Nebraska being the last recruits, tells of local interest; while at the recent meeting of the National Committee at Washington, D. C., a plan of work was outlined that will not only strengthen and supplement the educational work of the state societies, but supply the only means of their joining hands, so to speak, across debatable and remote borderlands, where individual effort, however earnest, cannot aid the migrant birds. This interest must not cease at our own shores even; we can aid in hastening international protection by refusing to receive at our ports of entry birds of other countries allied to our own species, for it is only in this way that the universal temptation of plume-hunting, for a certain class, can be cured, in spite of some short-sighted and selfish arguments to the contrary that were successfully combatted in the pages of this journal.

It is BIRD-LORE'S aim, especially in this department, to record all matters bearing upon what is known as the Audubon

Movement, so that it shall live up to its title as the organ of these societies, and furnish the necessary information and encouragement to those desiring to join in the work. It is impossible for the editor continually to repeat what has appeared for the last four years in these pages in answer to personal letters asking, "What is the Audubon movement? How do you join a society?" etc., etc.; and friends of the work, or those desiring to become such, are referred to the nearest library for files of this magazine.

In order that all may keep in touch with similar work in other countries, BIRD-LORE has had the good fortune to secure a series of papers upon Bird Protection Abroad, by Dr. T. S. Palmer, the first, covering India, appearing in this issue.

Let us read them carefully, for the sooner we learn that not only national but international coöperation is the only cement that will hold together the stones of individual effort that are to build the protective wall against which the shot of plume- and pot-hunter is to rattle in vain, the sooner shall that wall rise in its might to be one of the grandest monuments of the best spirit of modern civilization.

M. O. W.

BIRD PROTECTION ABROAD

I. Bird Protection in India*

By T. S. PALMER

The large number of Indian birds used by the millinery trade this season renders the subject of bird protection in India one of general interest. Apparently, the first movement for the protection of birds in British India was a proposal to secure the passage of a game law, which was discussed as early as 1869–72. Nothing came of this movement until 1879, when the government of Madras secured the passage of an act "To provide for the protection of game and acclimatized fish in the district of the Nilgiris." The area thus protected comprised a vast mountain range with an approximate area of 725 square miles and supporting, in 1881, a population of about 91,000 persons, of which less than 2,000 were Europeans. In 1881, at the suggestion of Surgeon-General G. Bidie, the government of Madras sought to extend similar protection to birds other than game, and especially to such species as were killed for their plumage; but the proposal was not regarded with favor by the government of India. In the same year the government of Bombay endeavored to secure sanction of a bill to protect nine species of game birds and such other species as were used for food; but this was also vetoed "on the grounds that the public interests involved did not appear sufficiently strong to warrant interference with the habits of the rural population, in the manner contemplated." Three years later another local government was refused permission to impose a tax of five rupees on every bird and hare brought into Kasauli, a Punjab station, during the close season, ostensibly because the tax could not be legally imposed.

Meanwhile, in July, 1884, the East India Association, of London, became interested in bird protection and brought the subject to the attention of the government of India. This movement finally resulted in the passage, in October, 1887, of 'The Wild Birds' Protection Act,' which still remains in force. This act contains four sections with a number of provisions, among which may be mentioned the following: (Sec. 1) The Act extends to the whole of British India; (Sec. 2) The term 'Wild Birds' includes the Peacock and every bird of game; (Sec. 3) Local governments may make rules for the territory under their administration, defining a wild bird, defining the breeding season for each species, and prohibiting possession or sale during the breeding season, or the importation of the plumage of any wild bird during such season; violations of the rules to be punished by a fine (not exceeding five rupees for a first offense and ten rupees for a second offense) for each bird, and confisca-

*Based mainly on publications of the English Society for the Protection of Birds. See Leaflets No. 36, 'India and her Wild Birds,' by Sir Charles Lawson; No. 37, 'The Protection of Wild Birds in India,' by Surgeon-General G. Bidie; Annual Reports for 1900 and 1901. Copies of these publications may be obtained through the Hon. Secretary of the Society, Mrs. F. E. Lemon, 3 Hanover Square, London, W.

tion of such bird or plumage; (Sec. 4) Local governments may extend the protection of the Act to 'any animals of game other than birds.'

In order to promote bird protection and arouse more general interest in the subject, four branches of the English Society for the Protection of Birds have been established in India. These branches (beginning with the main one) have been formed in the following cities: Lucknow, 1900 (secretary, W. Jesse, La Martinière College); Bombay, 1899 (secretary, E. Comber); Junagad, Gujarat, 1899 (secretary, Labhshanker Laxmidas); and Colombo, Ceylon, 1895 (secretary, S. G. A. Julius). Through the efforts of these organizations, and through appeals made to the Viceroy, Lord Curzon, the government of India was induced to issue a circular in August, 1900, addressed to the local governments, inviting attention to the Wild Birds' Protection Act of 1887, and requesting information as to the plume trade, and the destruction of wild birds, particularly insectivorous species. In 1901 the Society was instrumental in securing new regulations for the protection of Egrets and Herons throughout Burma. Under these regulations killing from April 15 to October 31 is prohibited, and the possession of recently captured Herons or the importation of plumage during the breeding season is forbidden.

In 1902 an important step in advance was made by the government by the issue of the following order, which appeared in the 'Gazette of India' of September 20, and which we quote as it was published in a letter by Henry Beauchamp to the 'London Field' for October 18, 1902:

"SIR: You were kind enough to publish a contribution from me on this subject a few months ago. A step has now been taken by Lord Curzon's Government which will go a long way towards protecting birds in India from indiscriminate slaughter for the sake of their skins and feathers. It is contained in the following notification in the 'Gazette of India' of September 20:

"'In exercise of the power conferred by Section 19 of the Sea Custom Act, 1878 (viii. of 1878), the Governor-General in Council is pleased to prohibit the taking by sea or by land out of British India of skins and feathers of all birds other than domestic birds, except (*a*) feathers of ostriches and (*b*) skins and feathers exported bona fide as specimens illustrative of natural history.'

"By this very simple measure the Government of India has put an effectual stop on the export trade in birds' feathers and skins; and it is solely the export trade which encourages slaughter, the demand for skins and feathers in India itself being practically *nil*. One of the most curious features of this particular trade hitherto has been the enormous export of gay-plumaged birds' skins to the Straits and to China, where they are made into festival robes for use by rich Chinamen. This will now be effectually prevented. Indeed, as regards the whole question generally, I cannot help thinking that the Government of India has hit upon the simplest, easiest and most effective of all devices, and that there will now be no need for a Wild Birds' Protection Act, for, generally speaking, the natives of India do not kill wild birds 'for the pot.'—HENRY BEAUCHAMP, *Madras, September 25.*"

Although the natives as a rule do not kill birds, in most cantonments and municipal towns a few men called shikarees earn a living by killing game and other birds for sale. These shikarees rely chiefly on snares, bird-lime, and nets, to capture their game, and they often travel long distances on foot or by rail to reach places where birds are abundant. As the destruction of birds, especially of those killed for the sake of their plumage, is due chiefly to the demands of foreign trade, it is hoped that the non-export order, in connection with other existing laws and orders, will exert a potent influence in preserving the native species.

Reports of Societies

North Carolina Audubon Society

The North Carolina Audubon Society has been in existence for nearly ten months, and is gradually getting its forces together into a complete and substantial organiza-

tion. The society was organized on March 11, 1902, at the State Normal and Industrial College at Greensboro. It has since been incorporated under the laws of the state as the North Carolina Audubon Society, for the study of birds and the preservation of game. Thus the object of the Society is twofold: the protection of our song-birds and the better enforcement of such game regulations as we now have. An attempt is being pushed to secure better legislation in both these directions.

The officers of the Society are: President, J. Y. Joyner, state superintendent of public Instruction, Raleigh; vice-president, Mr. W. H. Blair, president of the Peoples' National Bank, Winston-Salem; secretary, T. G. Pearson, Greensboro; and treasurer, R. N. Wilson, Guilford College.

There are four classes of membership. Regular members, at a fee of twenty-five cents annually, number at present about three hundred; junior members, who pay ten cents annually, amount to five hundred. There are, besides, nearly fifty honorary life members and sustaining members. The life members come in on a single payment of $10, while the sustaining members support the Society to the extent of $5 each, annually. That the membership continually increases is due to the enthusiastic efforts of Mr. Pearson, the present secretary, to whom the Society owes its organization, and who has from the first given it a large share of his time and thought.

There are branch societies in a number of the city schools of the state, and a canvass of all the schools is to be undertaken in time. It is proposed to put circulating libraries of bird books into the rural schools of the state wherever it can be done. A considerable amount of literature in the form of leaflets has been sent out, giving statistics and general information about birds. Classification blanks and note-books as aids to bird-study have also been distributed. We are glad to report that the business men of the state, and especially the sportsmen, are becoming interested, and we hope to have more to report later.—R. N. Wilson, *Treasurer.*

After further interesting and helpful discussion of various phases of Audubon work, the committee adjourned, subject to the call of the chairman.

First Annual Report of the Audubon Society of Vermont

The first annual meeting of our Society was held October 3.

During the year regular meetings have been held on the first Monday of each month. The meetings have been well attended and the programs both varied and interesting. Meetings of the Executive Board have been held after the regular meetings, and whenever called to consider and act on the business of the Society.

In February, special meetings were arranged for the junior members, to be held Wednesday afternoons once a month. The school committee gave the use of certain school rooms for the purpose. The meetings have been very successful, and we now have a large junior membership. A number of bird walks have been taken during the summer. They have been very delightful excursions for those who could attend them. Our local work has been very satisfactory, and we feel that it has created much interest in bird-study in our town. Many people have remarked that birds have increased in this vicinity since the organization of the Society.

Two traveling libraries, of nine volumes each, have been secured; some of the books being donated, the others purchased. These libraries have been sent out to the district schools in the town, giving much pleasure and stimulating interest in birds and all nature-study.

Our constitution and by-laws have been printed, and we have sent out copies of them, together with leaflets obtained from the Massachusetts and New Hampshire Audubon societies. Our state laws for the protection of birds are very good, and there is a general interest felt in the protection of song- as well as game-birds in this part of the state. We have formed two branch societies, one in Putney, the other in Williamsville, and have made efforts to form others throughout the state. We hope the influence of our

Society will increase and that it will accomplish something in the important work of protecting our native birds.

Mrs. F. K. Barrows, *Secretary*.
October 21, 1902.

Annual Report of the Connecticut Society

At the fourth annual meeting of the Connecticut Audubon Society, held in Stamford, on May 25, 1901, Mr. C. D. Hine, Secretary of the State Board of Education, addressed the audience on the educational value of bird-study. Following out the thought given us by Mr. Hine, at this meeting, the Executive Committee have worked together on educational lines during the past year, seeking to have the children in the schools taught the high value of nature- and bird-study, leading them to the thoughts of high minds, training them in right thinking, and bringing them to right impulse of doing, in the protection of birds, and in general humanity.

The Society now distributes to schools and village libraries, through the Board of Education, eighteen libraries of books on birds and nature, thirty-eight sets of bird charts, and three illustrated lectures.

The Board of Education asks us for 100 libraries, and a chart for every public school in the state, saying that all could be well used. It is our wish this year to raise money to purchase these books and charts. During the past seventeen months the Executive Committee have held thirteen meetings to transact the business of the Society. The membership of the Society has been increased by ten adult members, fifteen teachers, 690 junior members, and 3,637 associate members,—a total of 4,352. The associate members are children who do not pay a fee and do not receive a certificate, but who sign a pledge to protect birds, and who receive an Audubon button. You will notice that the majority of the new members are children, and you will then see the result of the work which has been done in schools by the teachers, and through our local secretaries. We have local secretaries in thirty-seven towns in the state. Reports have been received from twenty of them, and they tell of such great interest in this work among the children, and such a desire to keep the bird charts permanently in the schools.

Quoting from some of these reports, one says, "The intelligence in regard to birds grows each year, and even the Crow has his friends." From Madison, Conn., we hear that "interest in bird song has been kept up and increased so much that, as regards work in the schools, there are almost literally no more worlds to conquer; our teachers all being members of the Audubon Society and enthusiastic bird students, the efforts of the local secretary are not required to arouse interest among the young people. She is, however, sure of a welcome and an eager response when she drops in at some district school to ask a few questions about nests and rare feathered visitors. In most of the schools, the smallest child knows from fifty to one hundred birds, while not the roughest boy in Madison now dreams of molesting a nest of eggs or young; with the result that never before has our village been so thronged with tuneful neighbors. The birds may be said to have conquered Madison."

In Stamford the local secretary presented two libraries to the different schools. She says: "Principal, teachers and scholars alike forward in every way Audubon work by their enthusiasm and earnestness, the result being 1,476 new junior or associate members." Our Hartford secretary says, "If people only knew what a pleasure it is to talk to the enthusiastic little children, more would go to work in the public schools. The path is all smoothed for us by the very charming principals and teachers; and the children themselves do half the talking, and would do it all, if one did not want a little say one's self."

Added to this educational work, the Society has posted the state game laws in forty towns, in all express offices, and in one hundred and twenty-six summer hotels, and is now contemplating putting them in saloons, thinking that some would see them in that way who would not perhaps notice them elsewhere. Respectfully submitted,

Helen W. Glover, *Secretary*.

BLUEBIRD AT NEST

Photographed from nature by A. L. Princehorn, Glen Island, N. Y.

Bird-Lore

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A Sierra Nighthawk Family

BY FLORENCE MERRIAM BAILEY

NEAR our camp on the crest of the Sierra Nevada above Donner Lake, when moving our pack-train from one of the narrow streaks of grass between the timber and rock of the summit across a bare granite ridge to another patch of feed, we happened on a family of Nighthawks. The two old birds had been seen here before, beaten back by the wind which swept fiercely over the bleak northern ridge; and now, as we crossed a shelf of rock and gravel, with only here and there a lone pine or hemlock, the brooding bird sprang from under the bell-mare's feet, trailing off in distress.

At first sight she looked as big as a Grouse, and when second glance proved her a Nighthawk I was puzzled to tell what there was about her trailing to give the curious effect of height. Hurrying my horse down, and leaving him with the rest of the bunch, I came back to study her at leisure. As I approached, she promptly started up again. In the suddenness of her spring and the confusion of her fluttering she appeared to be walking on the tips of her wings; but in reality, as she raised her body on her long pinions, she dropped her tail straight down, keeping it down while she trailed, in that way giving height to her figure. When she lit she simulated the wounded bird better than any I have ever seen decoy, fairly flopping down as if her feet had been amputated, and fluttering her wings in utter helplessness.

She lit on a flat granite surface, and her streaks and mottlings matched the markings of the rock so well that at a little distance only her white wing-spot caught the eye; but she let me come so near that I could see her white superciliary, creamy throat-patch, wide flat head and reticent mouth.

After hunting vainly over the rocks and gravel for some time, I discovered a piece of egg-shell, its faint greenish ground color almost hidden by specks of brown; but, after diligent search, I went back to camp without finding the former occupant of the shell.

The next day the horse rustler reported that he had taken the horses over the granite ridge again, and that this time the brooding bird had let him pass within two feet of her without rising. If she were getting as stoical as that she ought to sit well for her picture; so, taking the camera, we started for the granite knob. A strange nesting site it surely would have been for any other bird, but it was perfectly characteristic fo a Nighthawk's choice,— bare and open under the heavens.

This time the old bird was sitting, with her two young beside her, at the foot of a piece of gray granite in a ring of stones, which they matched perfectly, their plumage reproducing both the black specking

THE OLD NIGHTHAWK
Photographed from nature. (From the Biological Survey)

and the brown weathering of the granite. It was hard to see the birds even without concealing vegetation, for, besides the disguise of their coloring, they sat on the gravel close to the rocks and against a couple of the long cones of *Pinus monticola*. They crouched so close and shut their eyes so tight that they suggested horned toads with wide, flat bodies and slits for eyes.

A number of snap-shots were made of the three birds at ten and then at seven feet without disurbing them, and when the mother had flown other photographs were taken of the young alone. To get a better view, I took up one of the little fellows, and he sat quietly in my hand till his picture was taken, when he and his brother woke up to their alarming situation and ran off in opposite directions.

They wobbled like Owls on their weak little feet, raising their wings to steady themselves. When I went to catch one of them he tripped over a pine-cone, and rolled over and over like a ball of feathers till I was afraid he would fall off the cliff. The other youngster, when nearly caught, opened wide his big mouth and hissed, throwing up his long wings threateningly in a way that might well have frightened a saucy chipmunk.

The distracted mother, after trailing, had thrown herself prone upon the ground, with wings outstretched by her side; but when I put my hand over the little one and it gave a frightened cry she raised her head high, and, as I came closer, trailed again in distress.

The youngster's agitation was of much shorter duration. In fact, he apparently went to sleep in my hand, and when put down ran only a few feet, then stopped, shut his eyes and promptly dropped asleep, looking like a round stone on the sand.

The third day after I found them, the little tots were trotting over the rough ground fairly well, by holding their white-spotted wings outspread for balance.

The old birds never fed them while I was watching in the daytime, so, remembering their crepuscular habits, we went to visit them just after sunset. Both old birds were away when we got there, and the young were not by the pine-cones this time, either; but as we turned to look for them something stirred almost under our feet, and there they were, sitting side by side on the ground. We hurried by to a boulder from behind which we hoped to watch them unobserved, and had not waited long when the mother flew in over the rocks. To our chagrin, she discovered us instantly, passed right by over the youngsters' heads, and, after flying around, lit on a rock and sat silently facing us, looking like a most unbird-like black stone in the dim light.

After a little she flew down to the ground nearer the young, calling them with a low, soft *chuck*, *chuck*. They raised their heads and answered with their odd little hissing note and started toward her, half running and half flying. On reaching her they stretched out their necks, and she opened her capacious bill and fed them with what seemed unnecessary violence, for, as my husband explained in an undertone, the crop is close under the bill—he had once found one filled with live, squirming insects.

When the mother had flown, the male came, discovered us, gave a sharp *peent*, *peent*, and circled around, hovering close to inspect us. The young were fed once more while we stayed; but this time it was so dark we could barely see them through the glass, so we rose from our hiding-place and carefully made our way down over the boulders to camp.

COOTS IN WESTLAKE PARK, LOS ANGELES

GULLS ON SANTA CATALINA ISLAND

TWO VIEWS OF CALIFORNIA BIRD-LIFE

Photographed from nature by John Rowley

A Family of Barn Owls

BY THOMAS H. JACKSON, West Chester, Pa.

With photographs from nature by the author

OWLS, as well as other birds, are largely influenced in the choice of nesting sites by the nature of their surroundings.

The Barn Owl in many parts of the country nests in holes in the banks of water-courses or ravines; or, where ruined and deserted buildings are accessible, such places are often used in which to rear their young.

Here in eastern Pennsylvania, where the Barn Owl is generally quite an uncommon resident, only a single nest has come under the personal notice of the writer, and it was in the hollow of a large tree.

BARN OWLS, ABOUT THREE WEEKS OLD

Early in May, 1902, I found a nest of this species containing six eggs, one on the point of hatching. The site was a large cavity in a red maple tree about twenty feet from the ground, and just beside a stream in the midst of a large tract of swamp land—an ideal spot for meadow-mice and other food that go to make up the menu of these birds.

A visit to the tree one week later found five young birds and one egg in the nest, the young birds differing much in size.

The female was at home on this occasion and made a fine display of temper.

There was no semblance of a nest other than the rotten wood and some rubbish, made up largely of broken pellets and a few feathers, the former revealing the bones and hair of meadow-mice. The young at this date, May 11, had not opened their eyes.

BARN OWL, ABOUT FIVE WEEKS OLD

About three weeks later, May 30, another visit found only three young Owls at home. Two of these, as shown in the accompanying photograph, were much larger than the other,— doubtless due to the interval in hatching.

Their eyes were open, and they made a loud, hissing noise when disturbed, but gave no sign of fear or anger at this age.

They were entirely covered with a yellowish down, and had more the appearance of young Vultures than Owls, owing to the great apparent length of head and beak.

My next and last visit to the nest was made June 14, and in the interim the young Owls — now only two in number — had made much progress toward maturity. The facial disks were well formed, and the wing- and tail-feathers had begun to appear, although they still retained their downy coats. In disposition the change they had made was equally

marked, for they fought desperately with beak and talons in their protest against being photographed.

It would be a matter of great satisfaction to see the Barn Owl become an abundant resident here, independent of its great usefulness to the community; but, as long as nearly every owner of a gun looks upon any wild bird as legitimate game, there is little hope of any increase among our feathered friends.

BARN OWLS, ABOUT FIVE WEEKS OLD

Questions for Bird Students

III

12. What Sparrows may be expected to reach Portland, Conn., from April 1 – 10?

13. What Warblers are due at Oberlin, Ohio, from May 1 – 10?

14. What migrants should visit Central Park, New York City, in April?

15. How many species of birds have been noted by a single observer in one May day in southern New Jersey?

16. How many birds have been recorded from within a radius of eight miles of Wellesley College, Mass?

Correct answers to the first series of questions have been received from Ruth Galpin, A. A. Saunders and Frederick J. Stupp; and to the second series of questions from Ruth Galpin.

The Heath Hen in New Jersey

In preparing a report on the game-birds of New Jersey for the game commission of that state, the editor of BIRD-LORE recently visited Barnegat, N. J., to secure from professional gunners there information in regard to the game-birds of the region. In discussing the status of the Ruffed Grouse, Mr. George H. Van Note spoke of a "Grouse" which was said to be common west of Barnegat "about thirty years ago." The identity of the bird was not suspected at the time; but later, on referring to Mr. Stone's excellent 'Birds of Eastern Pennsylvania and New Jersey,' it was learned that Turnbull, writing of the Heath Hen in 1869, said, "Now very rare. A few are still met with in Monroe and Northampton counties, Pennsylvania, where I have shot the species. Within the last year or two it has also been found on the Jersey Plains." ('Birds of Eastern Pennsylvania and New Jersey,' p. 27.)

Both date and locality given in the last sentence quoted agreed with the information received from Mr. Van Note, who, in response to a request, wrote the following exceedingly interesting letter, adding more to our knowledge of the Heath Hen in New Jersey than was previously recorded, and rendering plain the cause of its extinction. It will be remembered that the Heath Hen is now confined to the island of Martha's Vineyard, and that it became extinct on Long Island as early as 1844 (see Giraud's 'Birds of Long Island,' p. 195).

MR. VAN NOTE'S LETTER

BARNEGAT, January 31, 1903.

MR. FRANK M. CHAPMAN:

Dear Sir:—I have been away from home. On my return, I find your letter, and will answer it by saying that the Grouse you speak of were the color of a Quail. The male bird had a top knot and some long feathers under his throat, in which there was a pouch that he would fill with wind and blow, which could be heard for two or three miles. The noise was like that of a man blowing in a conch-shell, and was a means of calling other birds to it. They were as large as a Guinea Hen. They would have several places to collect; generally a clear place on the Plains. When together, the male bird would start around with his wings on the ground, like a Turkey gobbler, giving a sort of a whistle. When flying they would raise ten to twelve feet high and go straight as a line. They bred on the plains, and were always found on them. There were lots of them forty years ago. The way they killed them at that time was to dig a hole in the ground and remove all the sand, so as to make the ground level, then hide in this hole until they came to you. If you

killed one the others would stay and fight it, and you could keep on shooting until you killed as many as you liked. If you missed the first shot they would fly away. This kind of gunning went on until about thirty years ago. There were lots of them left, plenty of deer and other game, until the gunners from the cities heard of it. They gunned in all seasons, and soon killed them off. Since that time there has not been a Grouse killed on our Plains. I have seen five deer in one look, and now there is not one left in Burlington or Ocean county. These Plains I speak of are twelve miles west of Barnegat. There are several hundred acres in each and they are about three miles apart, with swamps and woods between them. The Plains are covered with small pines about three feet high. All through them there is a little vine that bears red berries about the size of a cranberry and keeps sound and good the year round. It is called the grouse berry. This berry the Grouse lived on in winter. In summer they lived on tea-berry and others.

Yours respectfully,

GEORGE H. VAN NOTE.

HEATH HEN

From a mounted specimen in the American Museum of Natural History

Nesting of the Ruby-crowned Kinglet

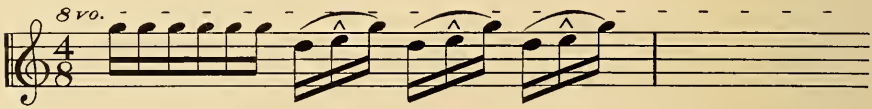
BY ANNA HEAD

ON the edge of a Sierra meadow, on the shore of Lake Tahoe, there is a grove of tamarack trees, growing in very open order. The roots remain submerged until July. As the water that has flooded the meadow subsides, a growth of lush grass and mosses, starred with dwarf mimulus, violet and strawberry blossoms, covers the ground, and later the spikes of the white orchid and quaint elephant-heads appear. Here the bird-lover will do well to spend many hours, in spite of, or perhaps it would be truer to say, because of, the swarms of gnats, flies and mosquitoes that find here a congenial breeding-place. Attracted by these are several species of Flycatchers, Arctic Bluebirds, Wrens and all the host of insect-feeders. The dead and dying trees furnish food and house-room for several kinds of Woodpeckers, while Blackbirds and Robins forage in the rich soil at their feet.

One bright morning in the middle of July I was seated on a warm, soft tuft of moss, at the foot of a tamarack tree, watching the assiduous attentions of a pair of Sierra Sapsuckers, whose rich red breasts and heads made them a conspicuous mark as they fearlessly came and went to the hole near the top of a bare tamarack pole, where their young kept up their weird, incessant chant, rising and falling like the wind in a knot-hole. Soon my attention was attracted by a mite of a bird which kept hopping about me in a circle, often coming as near as five feet, and uttering a cry of distress which sounded like "Quilp! quilp!" or "Help! help!" as I soon interpreted it.

"Evidently some one else has a nest close by," I said, and began searching the tree under which I sat, but without success. So I sat down again to watch. The little fellow was worth watching,—a neat, graceful little figure, not over four inches long, with olive-green back, whitish wing-bars, pale gray under-parts, and a white ring about the eye, which increased its apparent size. As he clung to a twig head downward, I could plainly see the flaming crown of the Ruby-crowned Kinglet.

My motionless attitude partially reassured him, and soon he went to another tree and sang out clearly his song, consisting of a prelude of rapid high notes, followed by a group of three triplets, which seemed to say, "Too many, too many, too many!" The tone is surprisingly full and penetrating for so small a bird, and the quality is indescribably sweet. I have made an attempt at a musical notation.



From the song I at once recognized a tiny bird which I had heard singing high in a live-oak last winter near Santa Barbara. How pleasant to find him again in his chosen home!

He was soon joined by his little mate, colored exactly like himself, but lacking the flaming crown-ornament, and much quieter in her ways. Often I saw them with insects, and thought they would surely carry them to the nest, but I had long to wait before they quite overcame their timidity. Finally they both flitted to a tree from which a branch covered with thick twigs and tufts of pine needles hung down within about ten feet of the ground, somewhat in the form of a basket. The female stayed there a long time, with a big moth in her beak. This, however, did not at all interfere with her articulation, for she continued to call "Help! help!" and "a-tittup! a-tittup!" as well as if her mouth was empty. Finally she made a quick and noiseless dive into the hanging basket, and slipped away without the moth.

There was the nest, well hidden among the twigs, which made the greater part of the framework. Among these were loosely stuffed and woven a great mass of green moss and dried grasses and seeds. The outside dimensions were six by five inches. It could hardly be called pensile, as it depended so much for support on the twigs. When taken down after the little ones had no further use for it, it proved to be warmly lined with a pint or more of feathers of all sorts. Among these I recognized many of the Red-shafted Flicker, Blackbirds, Grouse, Purple Finch and Blue Jays. I was glad to see that they had some trophies of their enemy, for never a morning passed that the brave little father did not have to attack and drive away one of these marauders,—not from the immediate neighborhood of the nest, for he was never allowed to get near it, but from the very edge of the glade. This tiny bird effectually policed the whole bird city, and must have saved the other birds much trouble. Surely he proved his right to the name of Kinglet.

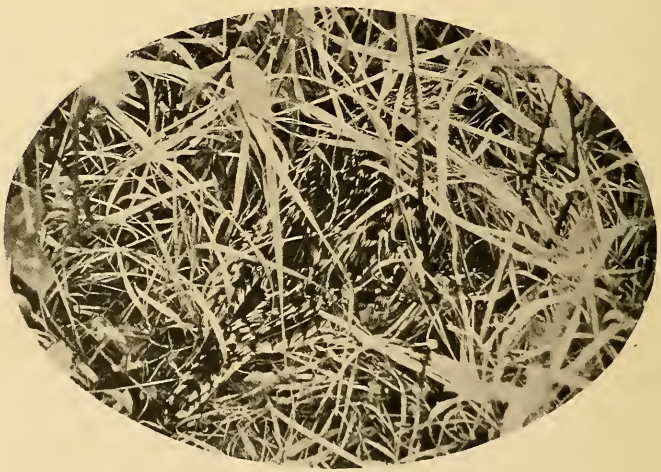
The spring was very late this year. Snow fell on the first of June, so it was not surprising that the young were only just hatched on July 13. Day by day I watched the busy little parents, till they grew quite familiar, though they were always anxious if I came nearer than within ten yards of the nest tree. They were busy every minute feeding with tiny flies, moths and small green caterpillars their numerous brood. I never succeeded in counting them, for the nest was quite inaccessible, but when I saw them, on July 21, dispersed among the pine saplings, I did not wonder at the father's song, "Too many, too many, too many!" Now that his brood had escaped the prowling Jay and chipmunk, and had safely slipped out of their frail nest and divided the risk, since all his eggs were no longer in one basket, the little man seemed somewhat less anxious. He was less inclined to fight with all the world, and carried his responsibilities somewhat more lightly. He still came close

up to me and looked me in the eye, as if to intimidate me, while he exclaimed "a-tittup! a-tittup!" but soon disappeared and either fed his brood silently or led their uncertain flight from sapling to sapling.

The young have an odd appearance of being larger than the parents, owing to the plumage being fluffy and not so neatly preened as in the neat, alert older bird. They are of a light gray, more like a Bush-tit with short tail, and lack the flame-colored crown-ornament of the male and the greenish shade that distinguishes both older birds. Their note is the finest, most needle-like chirp imaginable; and it was no longer a wonder that I could not hear it while they were still in the nest. Following this sound, I distinctly saw one only a few feet above me. His mother came and fed him silently, with as much unconcern as if I had been far away.

I returned to the nest and chopped down the tree, hoping to take the nest home. I found it too loosely built and too dependent upon many growing twigs of the tree to be removed, and the whole limb was too bulky. I was rewarded for my pains, however, by finding a perfect little egg, which was so well protected by the mass of feathers that it did not break when the tree crashed to the ground. This egg appeared rather of a cream-color than a buff, and had no distinguishable spots, though the texture seemed somewhat granular. It was decidedly pointed at one end and very broad at the other, measuring .55 x .47.

Early on the morning of August 3, I heard again the high musical song of the male. The fine insect-like chatter of the young was all about me in the boughs that formed my shelter, so I knew that the family was still keeping together and gaining strength for their long journey to the south, where I hope to meet them again next winter.



BARTRAM'S PLOVER ON NEST

Photographed from nature by J. E. Seebold, at Carlisle, Pa. May 25–June 1, 1902

OSPREY TEARING FISH

OSPREY WITH FISH

Two pictures by Ernest Harold Baynes of an Osprey which he had reared and so tamed that it returned to his home when released several miles away.

For Teachers and Students

How to Study Birds

THE NESTING SEASON

BY FRANK M. CHAPMAN

THIRD PAPER

Mating

The first evidence of the near approach of the nesting time among birds is furnished by the phenomena of the mating season. Chief among these are song, and the sounds produced in various ways which take the place of song, display of plumage, fighting, dancing, and the numerous peculiar evolutions through which birds give vent to their feelings at this period when their physical vigor is at its height.

As a rule, these exhibitions are given only by the male; and the question at issue is, are they simply expressions of the intense vitality of the season, or are they designed to attract the attention of the female, and thus aid the bird to win a mate? There is a wide field for study here; in fact, so few really satisfactory observations on the mating habits of wild birds exist that no conclusive explanations of the origin of their customs and costumes have been advanced.

Song is undoubtedly a means of announcing a bird's presence, and it is also a challenge, as well as a reply, to a rival. Nothing so stimulates song as song. The crowing of cocks admirably illustrates this. While singing continues after a mate has been secured, is not song ever addressed directly to the female? Are there never song contests among males, with a near-by, attentive female for the prize?

In fighting for a mate, action and cause are so closely related that the development of spurs, for instance, is generally attributed to that form of natural selection which brings success to the strongest, best-equipped fighter and enables it to transmit its own desirable characters to its offspring. This, however, is a matter primarily to be settled by the males. Two or more males meet, battle, and the victor gets the prize of a mate; but whether the mate has any voice in the matter is unknown. Consequently, in those more peaceful forms of sexual activity when rival males attempt to outdo each other through display of plumage, naturalists are not agreed whether these exhibitions are designed to please the female,—who presumably would then select the most attractive performer,—or whether they are only a relief or outward expression to the emotions of the mating season.

Opportunities to make observations bearing on these questions are not

only infrequent, but the observations themselves are apt to be inconclusive or susceptible of more than one interpretation.

As an excellent species on which to conduct a series of observations during the mating season, the student is commended to the English Sparrow. What significance have its battles, struttings and general vociferousness when it is mating?

THE NEST

Mortality of the Nesting Season

Probably less than twenty, possibly not more than ten, per cent of the eggs laid by birds bring forth chicks which reach maturity. So great, therefore, is the mortality among birds during nesting time that the continued existence of a species depends largely upon the degree of success with which it encounters the enemies of the young bird in the egg or in the nest.

Enemies of Nesting Birds

It will add to our appreciation of birds' resources, and most assuredly to our sympathy with bird-life, if, before studying the nest and nesting habits of birds, we merely mention some of the enemies and dangers which threaten birds at this season. They are of two kinds: First, the elements; second, predatory animals, including parasites.

High winds, heavy rains, floods, hail-storms, excessive heat, are among the weather phenomena often fatal to the life of the nest; while, in this region, chief among the animals that prey upon birds' eggs, or young birds, are Crows, Jays, cats, squirrels, opossums, minks, weasels, skunks, snakes, and man, who either directly, as an egg collector for the table or cabinet, or indirectly, in mowing fields or otherwise altering birds' nesting haunts, has more than won a prominent place among the enemies of the nest.

Importance of Instincts

With such an array of adverse conditions and relentless foes the bird who lives to acquire the powers of adults of his kind may be said to have escaped nine-tenths of the dangers to which bird-flesh is heir. One realizes, therefore, how important it is for birds to select a site, build a nest, and care for their young in a way which has proved to be most desirable for their species; and how readily lack of instinct or inability to conform to new conditions may mean failure to rear a brood and, in the end, extinction of their race.

Selection of a Site

The nature of a bird's nesting site appears to be determined by (1) the necessity for protection; (2) habit, whether arboreal, terrestrial or aquatic; (3) haunt, whether in woodland, field, marsh, etc.; (4) temperament, whether social or solitary; (5) conditions of the young at birth.

Protection may be secured by hiding the nest, by placing it in more

or less inaccessible locations, in trees or on cliffs, or by frequenting some isolated island not inhabited by predatory animals.

Influence of Habit

Habit frequently influences the character of the situation in which the nest is placed. Thus it is customary for arboreal birds to nest in trees, and for terrestrial ones to nest on the ground. There are, however, exceptions to this rule. For example, Herons, Spoonbills and Ibises are terrestrial, in feeding habits at least, but their nests are usually placed in bushes or trees. Here the helpless condition of the young at birth requires a well-formed nest built in a more or less inaccessible situation. Again, the Nighthawk is, in feeding habit, a bird of the air, but the eggs are laid on the ground, the præcocial young apparently not requiring the shelter of a nest. With the Ducks that nest in holes in trees, sometimes forty feet or more from the ground, the reason for departure from the type of site chosen by the larger number of their family is less evident.

Influence of Haunt

It is to be expected that the character of a bird's haunts should be reflected in its nesting site; and, as a result, we have some most interesting variations in site among birds of the same family but of different haunts. Hawks, for example, are usually wood-inhabiting, and the ideal Hawk's-nest is placed in a tree; but the Marsh Hawk builds its nest on the ground, in its marshy haunts. So the Burrowing Owl, of the prairies, nests in holes in the ground; while the wood-haunting members of its family usually select holes in trees. Consequently it follows that, when there is marked variation in the character of a bird's haunts, there is apt to be a corresponding variation in the nature of its nesting site. The Red-winged Blackbirds living in reedy marshes weave their nests to the reed-stems, while those birds of the adjoining alder swamps place their nests in alder bushes. Mourning Doves nest in trees in the east, on the ground in the treeless parts of the west. To one who has been accustomed to see Night Herons' nests in swamp maples, sometimes seventy feet from the ground, it is not a little surprising to find the same species building a nest at water-level among the reeds, as it does on the great 'quill-reed' marshes of the west.

Variation in Haunt and Site

Variations in Site

While many species show little or no variation in the character of their nesting sites, others place their nests in many and widely different situations even under the same conditions. Robins, for example, aside from nesting in trees at varying heights, place their nests on window-sills, in arbors, summer-houses, or barns, on fence-rails, etc.; and in cases of this kind it is of importance to learn whether those birds which depart from the prevailing type succeed in rearing their young.

On Gardiner's Island, L. I., where there are no predatory animals,

and, with the exception of Crows, practically no bird enemies, Robins build their nests in almost any situation, even on the ground, with equal chances of rearing their young. Here, too, the Fish Hawks nest, not only in trees, but also in the most exposed situations on the beach; and because of the protection afforded by an insular home where the foes of birds are happily absent, their eggs and young are as safe as those of tree-nesting birds.

It is not probable that in instances of this kind certain birds have deliberately or intelligently abandoned the customs of their species; but the tendency to vary, being unchecked, finds expression under conditions where new habits may be successfully formed. Doubtless the same tendency exists in the Fish Hawks nesting on the mainland; but there the struggle for existence is so much more intense that any departure from habit may be attended by disastrous results. Environment is thus the mould in which habit is cast.

Which Sex Selects the Site?

Through these generalizations we come to the most practical, definite side of the subject, and ask which bird of the pair chooses the nesting site. With some species it is known to be the male, with some the female, and with others doubtless the situation must be approved by both sexes. Very few exact data on this subject exist, however, and there is here abundant opportunity for original investigation.

Return to the Same Site

The return, year after year, of the same birds to the same nest is a well-established fact, particularly among the birds of prey,—the Fish Hawks being good illustrations. With smaller birds it is more difficult to prove a case of this kind, though there is abundant evidence to show that they return to the same locality and select the same, or nearly the same, nesting site. A pair of Wood-thrushes that nest on my lawn select each year a certain maple, and approximately the same limb.

Site of the Later Nests

When a second or third brood is reared a new nest is usually built, when it is of interest to compare its site with that chosen for the earlier nest to ascertain how much variation the same individuals may exhibit.

(TO BE CONTINUED)

Death of Thomas McIlwraith

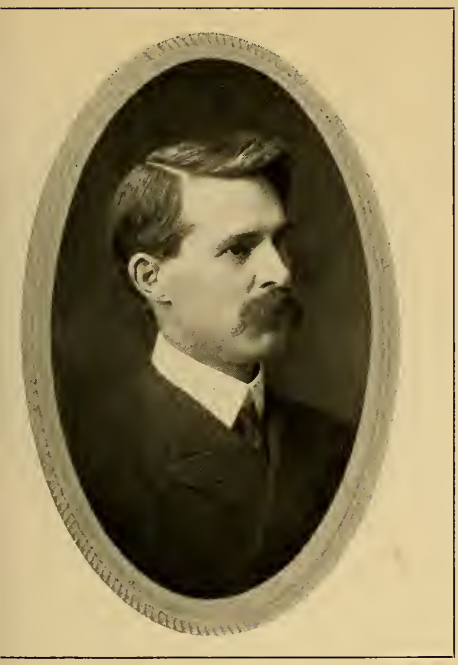
Thomas McIlwraith, a member of BIRD-LORE'S Advisory Council, whose portrait appeared in the last issue of this magazine, died at his home in Hamilton, Ontario, in the seventy-ninth year of his age, on January 31, 1903.

Mr. McIlwraith was born in Newton, Ayr, Scotland, December 25, 1824, and came to Hamilton in 1853. Seven years later he published, in the Canadian Journal, a list of birds which he had observed in the region. This was followed by a more extended list, published in the Proceedings of the Essex Institute for 1866. In 1886 the first edition of his 'Birds of Ontario' appeared, and the second edition of this useful work (1894) is still a standard. Mr. McIlwraith was one of the twenty-five founders of the American Ornithologists' Union.

What Bird is This?

Field Description.—Length, 5.25 in. Line in front of crown, band behind ears, line over eye, throat and breast pale yellow, fading into whitish belly; back grayish olive-green streaked with black and whitish, outer tail-feathers, with more or less white; two white wing-bars; sides streaked with black.

NOTE.—Each number of BIRD-LORE will contain a photograph, from specimens in the American Museum of Natural History, of some comparatively little-known bird, or bird in obscure plumage, the name of which will be withheld until the succeeding number of the magazine; it being believed that this method of arousing the student's curiosity will result in impressing the bird's characters upon his mind. The species figured in February is the Saw-whet Owl.



O. G. LIBBY, *North Dakota*

W. B. BARROWS, *Michigan*

W. CLYDE TODD, *Western Pennsylvania*

H. NEHRLING, *Wisconsin*

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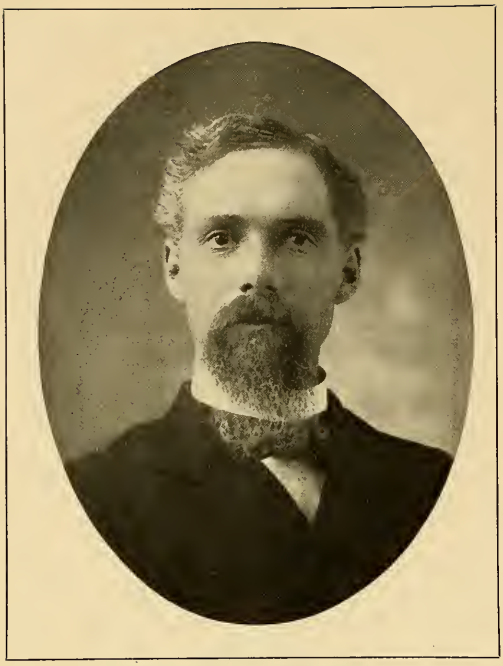

W. W. COOKE, *Indian Territory*

CHARLES KEELER, *California*

E. H. BARBOUR, *Nebraska*

M. J. ELROD, *Montana*

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Notes from Field and Study

A Swimming Crow

On the 17th of May of last year I visited a locality about a dozen miles from Boston which is a specially interesting one, both botanically and ornithologically — one of those swamps which form Canadian islands in our Transition fauna and flora — but the strangest thing I saw that day was not connected with any of the rare birds or plants which are found there. It was the sight of a Crow going in swimming! It was a sick Crow evidently, and I came upon him just as I was emerging from the wooded swamp out upon an open marsh. He was flapping and floundering his way along the ground toward a brook which separates the meadow from the woods, and as I approached he reached the dilapidated bridge that crosses the stream, and tumbled, whether accidentally or purposely, from one of its loose timbers into the water. When I got to the bridge I found him afloat in an eddy of the brook about six feet away from me, right side up, but with his head entirely under water and apparently held there deliberately! He kept his head submerged for some time—a full minute, I should say —and I was beginning to think I had met with a case of bird suicide, when he took it out and shook it and floated off into the current. Here he looked like a Duck, sitting up in the water as if entirely at home in that element. As he drifted down stream, he put his head under water again, but this time only for a few seconds. As there is a bend in the brook at this point, the current carried him across to the other side, and he floundered out and up the bank through the bushes into the woods. I could see no injury to his wings—his feet never came into full view—but it was evident that he could neither fly nor walk, and, from his apparent disregard of my presence, it seemed to be a case of sickness. Perhaps he had a bad headache — or perhaps he may have been suffering from the attacks of some parasite. A friend has suggested that the hiding of the head may have been prompted by the desire for concealment, as in the case of the Ostrich and the sand. But why should he have taken to the water in the first place? I cannot help thinking that his bath was an intentional one. At all events, the soaking of the head was deliberate and not due to helplessness or clumsiness. Has any one else had a similar experience?—Francis H. Allen, *West Roxbury, Mass.*

Nest-Building Habits of the Chickadee

Although the Chickadee sometimes breeds in the abandoned nests of Woodpeckers, and sometimes deepens and enlarges knot-holes, it more frequently does all the work of excavation itself. For this purpose it usually chooses an old stump, or an upright dead limb so dry and punky that the bark is falling off. The wood must be soft, otherwise the bird's bill is too weak to work in it.

The chips are not flirted out upon the ground after the manner of the Downy Woodpecker, but are invariably carried out in the bill to a short distance from the hole and then dropped. Both male and female work together, and appear to share equally in the labor. One enters the hole, remains long enough to gather a billful of wood—usually from ten to thirty seconds—then emerges and flies to some contiguous branch, where it drops the chips. Then it returns to a perch near the hole, or sometimes to the edge of the opening, where it waits for its mate, now inside, to emerge. When the latter pops out, in it goes without a moment's delay. The mate, having similarly disposed of its load of chips, returns in readiness to enter when the other leaves. With brief intermissions this rotation is often kept up for hours at a time. The distance which the birds carry the chips varies, but it is usually only to some convenient twig from twenty-five to seventy-five feet

away. Sometimes both will fly all day to the same place, so that the ground beneath looks as if lightly sprinkled with sawdust. When engaged in this work, they are very bold and will sometimes allow themselves to be photographed without showing any fear.

The Chickadee has also a peculiar habit of beginning nests very early in the spring, which are seldom completed and never occupied. On March 13, 1902, a pair began carrying chips out of a knot-hole and did desultory work there for several days. March 18, 1901, a pair commenced an excavation in a dead limb of an apple tree and finished but did not breed in it, perhaps because of the annoyance caused by House Sparrows. Another pair made and lined a nest in an apple tree within twenty feet of a house, but eventually deserted it. It is common to see a pair do a few hours' work in a knot-hole, where they soon find the wood too hard for them. In a single season I have seen half a dozen nests begun near my residence in this village, none of which were ever occupied for breeding purposes.—Roscoe J. Webb, *Garrettsville, Ohio.*

Snowflakes in Trees

While walking along an old highway in March, 1902, I was attracted by the twitter of Snowflakes which apparently came from a field near by. I stood for several minutes trying to locate them in one of the numerous patches of dried grass where the snow had been blown away, but with no success.

Thinking I might be mistaken, I looked over to the woods beyond the field, and there, perching in the top of a tall red oak, which stood some distance in from the edge, were about one hundred Snowflakes (*Plectrophenax nivalis*). I could hardly believe it at first, as I had always heard that they never perched on trees. There could be no mistake, however, as they flew in a few minutes and alighted in an old corn field, where I was able to approach near enough to clearly distinguish their markings and identify them all as Snowflakes.—Laurence J. Webster, *Holderness, N. H.*

California Nature Books

The coming pilgrimage of ornithologists to the Pacific coast prompts us to include several articles and pictures illustrative of California bird-life in this issue of Bird-Lore.

For the same reason we append a list of books with which visiting ornithologists would do well to provide themselves, as follows: 1. 'Handbook of Birds of Western United States,' 'A-Birding on a Broncho,' Florence Merriam Bailey (Houghton, Mifflin & Company); 2. 'Check-List of California Birds,' Joseph Grinnell (Palo Alto, Calif.); 3. 'Bird Notes Afield,' Charles Keeler (Elder & Shepard, San Francisco); 4. 'The Mountains of California,' John Muir (The Century Company); 5. 'Mountaineering in the Sierra Nevada,' Clarence King (Charles Scribner's Sons); 6. 'Our National Parks,' John Muir (Houghton, Mifflin & Company).

The Michigan Ornithological Club

From a circular issued by Bradshaw H. Swales, Secretary-Treasurer, 135 Warren Avenue, E., Detroit, Michigan, we learn that the Michigan Ornithological Club was organized February 13, 1903, and the following officers were elected: President, A. B. Covert, of Ann Arbor; vice-president, Dr. P. E. Moody, of Detroit; secretary-treasurer, Bradshaw H. Swales, of Detroit; editor and business manager, Alex. W. Blain, Jr.

It was decided to publish a quarterly magazine, termed 'The Bulletin of the Michigan Ornithological Club,' after the former club publication. The annual dues were made $1, including the club organ. A Committee on Bird Protection was appointed.

The object of the club is the advancement of ornithology of the Great Lake region. One of the principal objects will be the compiling of an authentic state list, and, to this end, an observer is needed in every county or at least every section of the state. Very little is known of the birds of many sections of Michigan, and the secretary will be pleased to receive county lists.

Book News and Reviews

NATURE AND THE CAMERA. By A. RADCLYFFE DUGMORE. Illustrated by photographs by the author. New York. Doubleday, Page & Co., 1902.

Mr. Dugmore's well-known nature photographs are a sufficient guarantee of his fitness to prepare a manual on methods in nature photography, and he has placed the lesson of his own experience clearly before his readers. There are chapters on the outfit, exposing, developing, etc., photographing birds and their nests, animals, reptiles, insects, fish, trees, shrubs and flowers, all so well illustrated as to show that the author practices what he preaches. Particularly would we call attention to the photograph of the Woodcock facing page 22, which, made with an isochromatic plate and a ray filter, and printed in sepia, is as beautiful and satisfactory a picture of this bird on its nest as we ever expect to see.

The photographs of reptiles, fish, etc., are equally good, and serve to confirm our opinion that Mr. Dugmore is the leading nature photographer in this country. A slip on page 7 makes a decrease of one-half in the diameter of the diaphragm, calls for only twice, instead of four times as long an exposure, and may lead the amateur into difficulty if it be not corrected.—F. M. C.

THE DEVELOPMENT OF COLOR IN THE DEFINITIVE FEATHER. By R. M. STRONG; Bull. Mus. Comp. Zool., xl, No. 3; pp. 146–186, pll. i–ix, Oct., 1902.

Ornithologists constantly deal with the color of birds' plumage, but the character of the color, whether it be due to pigments, feather-structure or both, are matters to be determined by the histologist and physicist. The ornithologist can describe results, but a determination of the processes which have brought them to pass requires a special training and knowledge of technique, such as few ornithologists possess. It was therefore exceedingly fortunate that Dr. Strong's interest in birds should have led him to devote portions of two years, while working in the Harvard Zoölogical Laboratory, to a study of the colors of feathers. The results of his labors form a contribution to science of the first importance and are of especial interest to students of birds.

It is not possible at this time to present even an abstract of Dr. Strong's researches, but we may at least state that they not only revealed no evidence of repigmentation of a grown feather or of a change in the color of existing pigment, but induced him to believe that changes of this character are not possible.—F. M. C.

FIELD NOTES ON SOME BAHAMA BIRDS. By J. L. BONHOTE. From the 'Avicultural Magazine,' Vols. VIII and IX. Brighton, England, 1903. 8vo. Pages, 33; plates, 6.

The birds of the Bahamas, so far as specimens are concerned, are well known; but few of the many naturalists who have visited these islands have had Mr. Bonhote's opportunities to study Bahaman birds in their haunts. His 'Field Notes,' therefore, form an acceptable and important contribution to our knowledge of Bahaman bird-life.

Six excellent photographs from nature of birds and birds' nests add not a little to the interest and value of this paper, the picture of the Noddy on its nest being an especially good bit of bird photography.—F. M. C.

A PARTIAL BIBLIOGRAPHY OF THE ECONOMIC RELATIONS OF NORTH AMERICAN BIRDS. By CLARENCE M. WEED. Technical Bulletin, No. 5, New Hampshire College Agricultural Experiment Station, Durham, N. H. 1902. Pages 139–179.

Professor Weed has here brought together a useful collection of titles of publications relating directly or indirectly to the economic relations of North American birds. Beginning with Wilson, in 1808, he has diligently explored the literature of ornithology, entomology, and agriculture for titles bearing on his subject; and many of

those included we do not recall having seen referred to by ornithologists. We note, however, that no reference is made to Aughey's important paper on the 'Food of the Birds of Nebraska' (First Annual Report of the U. S. Ent. Comm., for the Year 1877); to King's extended report on the 'Economic Relations of Wisconsin Birds,' occupying nearly two hundred pages in the Wisconsin Geological Survey for 1882, or to Warren's 'Report on the Birds of Pennsylvania, with Special Reference to the Food Habits,' etc.—F. M. C.

A Nature Wooing at Ormond-by-the Sea. By W. S. Blatchley. Nature-Study Publishing Company, Indianapolis. 1902. 12mo. 245 pages, 12 plates, numerous text-cuts, map.

The author's every-day experiences as a field-naturalist interested in plants, insects, shells, reptiles, birds and mammals are here so pleasantly and instructively recounted that his book may be read with both interest and profit. Particularly should it appeal to those in quest of general information concerning the more characteristic phases of animal life in Florida.

Of unusual importance was his discovery of a bone of the great Auk in an Ormond shell heap; a discovery subsequently confirmed by Prof. C. H. Hitchcock (see Bird-Lore IV, 97).—F. M. C.

The Birds of Wyoming. By Wilbur C. Knight. Bull. No. 55, Wyoming Experiment Station, Laramie, Wyo. 8vo. 174 pages, 48 plates.

This Bulletin enumerates the 288 species and subspecies of birds which have been found in Wyoming, discusses their status as Wyoming birds, and, in some instances, their habits and economic value. Forty-eight admirably printed, full-page, half-tone plates, from original drawings by Mr. Frank Bond, figure upward of a hundred species, and add greatly to the educational value of the work, which should have a most stimulating effect on the study of birds in Wyoming. It is to be regretted, however, that the author should be so far behind the times as to consider bird-killing synonymous with bird study. —F. M. C.

The Ornithological Magazines

The Auk.—'The Auk' for January, 1903, opens with a discussion of 'The A. O. U. Check-List; Its History and its Future' by J. A. Allen. If each priority seeker, not merely content with digging deeper than his predecessor, will only upturn literature down to the bed-rock foundation of 1758, then we may hope for an end of the name changes of the last twenty years. The nomenclatural broth seems to be spoiled by too many inefficient cooks.

E. W. Doran would have reform in 'The Vernacular Names of Birds,' but, as Dr. Allen shows on a later page, reformers have a hard road to travel when current usage blocks the way. Of interest to the general reader is an article by A. W. Anthony, on the 'Migration of Richardson's Grouse.' They advance "by walking up to the tops of the hills and ridges and as invariably flying as near to the top of the next as their gradually descending flight will carry them." Then we have 'Arizona Bird Notes' by H. Brown and 'The Diary of a Cardinal's Nest' by G. F. Harvey, the latter with a half-tone of the nest in a conservatory. The half-tones accompanying E. H. Eaton's account of 'An Epidemic of Roup in the Canandaigua Crow Roost' are suggestive of a battlefield. In 'An Ornithological Visit to Los Coronados Islands, Lower California' we find among the birds mentioned a new insular, full species Song Sparrow, *Melospiza coronatorum*. The conversion of the Spanish word into Latin, as well as the recognition of a new species in an already much confused group, affords food for reflection. There are 'Notes concerning Certain Birds of Long Island, N. Y.,' by W. C. Braislin, among them the capture of *Larus minutus*, thus further establishing its credentials as a North American visitor. The proceedings at the twentieth congress of the A. O. U. are reviewed by the secretary, J. H. Sage; and after the usual 'General Notes,' 'Recent Literature,' etc., there follows as a supplement the 'Report of the A. O. U. Committee on the Protection of North American Birds' by W. Dutcher,

illustrated with two half-tones and two maps.—J. D., Jr.

The Condor.—The leading article of the January number of 'The Condor' is appropriately devoted to a memorial, by Taylor, of Chester Barlow, the founder of the journal, and is illustrated by a portrait as frontispiece. Grinnell follows with an account of his writings, with a list of titles arranged in chronological order. Barlow's literary activity extended over an even decade; and during this period he found time to publish more than fifty articles, besides numerous editorials and short notes. Although he wrote in a style which could be enjoyed by the merest beginner, it is said, with much truth, that his work had a wider influence on scientific ornithology than if he had confined his energies entirely to systematic or philosophic fields.

The general ornithological articles of this number include 'Nesting of the Townsend Solitaire,' by Anthony; 'Nesting of the Abert Towhee,' by Gilman; 'Notes on Pine Siskins,' by Bowles, and the 'Band-tailed Pigeon in San Diego County,' by Sharp. These are followed by numerous short notes, a feature which will be given more prominence in future. Another new feature is a series of portraits of eastern ornithologists, beginning with a portrait and brief sketch of Mr. Robert Ridgway.

'The Condor' begins its fifth volume under new management, Walter K. Fisher taking the editorship and Joseph Grinnell becoming business manager. The journal has a bright future before it, and we wish it success.—T. S. P.

The Wilson Bulletin.—In No. 41 of the 'Wilson Bulletin' Lynds Jones gives an account of 'All Day with the Birds' in Lorain county, Ohio. On May 7, 1902, in company with two friends, he tramped almost continuously for over fourteen hours through woodland and field, and succeeded in observing 113 species, which exceeds by one entry all previous records for a single day.

Among other noteworthy papers the following may be mentioned: 'Among the Vultures of Asia Minor,' by H. C. Tracy; 'Some Bluebirds, Boxes and Troubles,' by Frank Bruen; 'Winter Birds,' by Lynds Jones; 'The Cuban Tody,' by J. W. Daniel, Jr.; and 'My Summer Boarders,' by W. J. Mills.

As usual, there is considerable of interest in the departments of general notes and correspondence.—A. K. F.

Book News

Ernest Seton's interesting article on The National Zoo at Washington, 'A Study of its Animals in Relation to their Environment,' which originally appeared in 'The Century,' has been re-published by permission of The Century Company and its author in the Smithsonian Report for 1901.

We understand that the "Author's Autograph Edition" of Dawson's 'Birds of Ohio' is being rapidly subscribed for. Information concerning this work may be had of the Wheaton Publishing Company, 1216 The Hayden, Columbus, Ohio.

The Outlook Company will issue, this spring, an important work by W. E. D. Scott, giving the results of his long-continued studies of the birds in his aviary and including some most valuable observations on the inheritance of habit.

Houghton, Mifflin & Co. announce for early publication 'True Bird Stories,' by Oliver Thorne Miller.

Little, Brown & Co. have in preparation a one-volume edition of Chamberlain's 'Nuttall,' which will contain all the text and illustrations of the two-volume edition.

Bird-students who are interested in the life-histories of birds will do well to subscribe to 'The Emu,' the organ of the Australian Ornithologists' Union, edited by A. J. Campbell, and published by Walker, May & Company, Melbourne.

Mr. E. R. Warren, of 20 West Caramillo St., Colorado Springs, Colorado, has issued a list of subjects, chiefly birds and mammals, of which he can supply either prints or lantern-slides made from photographs from nature.

Bird-Lore

A Bi-monthly Magazine
Devoted to the Study and Protection of Birds
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES
Edited by FRANK M. CHAPMAN
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Bird-Lore's Motto:
A Bird in the Bush is Worth Two in the Hand

The editor desires to express his gratitude to the many friends whose hearty commendations of BIRD-LORE, on the occasion of its fifth birthday, have indeed been deeply appreciated.

Accepted vs. Rejected Manuscripts

Many of BIRD-LORE'S readers are kind enough to send to the editor carefully prepared accounts of their observations afield, for the offer of which we are truly grateful, but many of which, we regret to say, we are compelled to return. Long articles lack of space usually forces us to refuse, but many shorter ones are rejected because, in our opinion, they do not possess sufficient merit to be worthy of publication.

It is not possible to state in each instance why a certain article is not deemed desirable, and we shall therefore attempt to explain here, at least in a general way, the requisites of an acceptable contribution to BIRD-LORE'S pages.

While BIRD-LORE does not publish technical papers on systematic ornithology, it nevertheless claims to be a scientific journal. That is, it is devoted to a recognized branch of science and aims to give its readers (1) original observations possessing scientific value. These may be novel in character or they may confirm previously recorded observations; (2) practical assistance in the study of birds and suggestions as to subjects and methods; (3) general information in regard to recent ornithological publications and editorial discussion of current events and matters of general interest; (4) articles and reports relative to bird protection.

To be more specific, let us examine the contents of the last issue of BIRD-LORE, published before this editorial was thought of. It includes the following articles: (1) 'The Mound-building Birds of Australia,' contains much information in regard to the singular nesting habits of these birds, and is largely based on original observations; (2) 'Making Bird Friends,' description of methods employed in taming wild birds, and a record of the breeding of a pair of Red-breasted Nuthatches which had been tamed the preceding winter; evidence, therefore, that these individuals passed the greater portion of the year, if not the entire year, at one place; (4) 'The Return of the Nuthatch,' the apparent return, as a winter resident in Central Park, New York city, of a White-breasted Nuthatch which had wintered in the same locality two years previously; seeming to show, therefore, that a bird may have a regularly frequented winter as well as summer home; (6) 'The Christmas Bird Census,' returns from over fifty localities of approximately the number of individuals seen under stated conditions. Such records have a general interest and, because of their definiteness, a scientific value. BIRD-LORE would always be willing to publish careful, detailed notes of this kind did space permit. Subjects seven to eleven all fall under the second of our specified headings; that is, they are designed to be of practical assistance to students or to suggest or discuss methods of study; (12) 'Attracting Birds' is both practical and scientific; it contains data on attracting birds as well as definite observations on their habits; (13) 'An Anti-Sparrow Food Shelf,' is of an eminently practical nature. The remainder of

the magazine falls under heads three and four, and consists of reviews, book news, editorials, and the Audubon Department.

Now, on the other hand, let us examine several articles about to be returned to their authors, which do not seem to meet our requirements. The first, describes a 'free lunch counter' and names the birds that come to it. We should be glad to give it space if we had not repeatedly published similar articles, some of them illustrated. (See BIRD-LORE, I, 19, 195; II, 177; III, 18, 74, 202; IV, 90; V, 30.) The second, gives extracts from the note-book of an evidently enthusiastic student. We can readily imagine the pleasure with which the observations recorded were made, but they do not appear to possess either scientific importance or general interest.

The third, records the occurrence of a bird far beyond the known limits of its range. Only a single individual was seen, the observer was not familiar with the species in life, and the incident, if recorded, would ever be open to question. We cannot see, therefore, that science would be the gainer by the publication of this communication, so we return it.

The fourth manuscript treats of 'Our Sparrows.' It describes their plumages and some well-known habits, but contains no original matter nor indeed any information which is not accessible to every one with one or two bird books. It would make an excellent article for almost any other magazine than one devoted to bird-study!

The fifth article records with some detail its author's experience in seeing an albino bird. It is always interesting to see a bird of this nature, but its mere existence is of not the slightest scientific importance. Albinism may occur in any animal and is merely an indication of an abnormal physiological condition. It is due to lack of pigment, and this fact once known, a white Crow is of no more *scientific* interest than a black one. If, however, a white bird should be seen which appeared to be aware of its conspicuousness and was apparently far wilder than other individuals of its species, then we should have a possible case of cause and effect which would be well worth recording.

Our sixth manuscript is in the nature of a story. The birds are humanized, each being given a name. The author appears to stick to the known facts in the history of the species under consideration, but we feel we are here on dangerous ground. Ernest Seton's success in this manner of presenting natural history lore has tempted many authors to imitate his methods, but the results have in most instances only emphasized the ease with which one steps over the border line of fact into the limitless field of fiction.

The seventh to tenth contributions are in verse. It is to be expected that the emotions excited by an acquaintance with the "world's best minstrels" should seek expression through a poetic medium; but to write rhymes is one thing, to write poetry quite another. In almost every instance we sympathize with the sentiment to which the author would give form but, alas! even the love of birds, inspiring as it is, cannot *make* poets. This subject of form of expression leads us to speak of another kind of manuscript which BIRD-LORE rarely receives and never returns. It may or may not set forth a fact of scientific import; its value lies less in *what* it tells than in *how* it is told. This is the true *literature* of ornithology. Such literature is to be found in the writings of Richard Jefferies and John Burroughs. One sees the bird through the man's subjective interpretation of it in its place in nature. After all, is not this the best type of ornithology which leads us to see birds in nature most clearly and most truly? Is not he the greatest ornithologist who brings to all the people a knowledge of the beauties of bird-life? Even rarer than the poet's gift is this power to write of the living bird with such insight, sympathy and eloquence that even to those who know it best the written word will reveal before-unthought-of charms. But to us all is given the power to observe carefully and record accurately, and in time it may be our fortune to make a valued addition to the world's knowledge if not to the world's literature.—*Englewood, N. J., Feb. 6, 1903.*

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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Free Lectures—Free Bird Charts—Free Circulating Libraries

(Read at Annual Congress of Audubon Societies held in Washington, D. C., November 19, 1903.)

In the above-mentioned order should these three factors hold place in the educational work of the Audubon Societies; and as it is upon the worth of its educational work, especially that in the public schools, that the whole future of the movement for bird protection hinges, the importance of these factors cannot be overestimated.

The lecture logically holds first place, as it is undoubtedly the best means of, we may almost say, compelling the attention of those who are but slightly interested in birds, if at all. Many people of all ages will go to look at pictures, merely as pictures, the subject-matter being of secondary importance, while the interest thus aroused may be held and developed by other methods. Thus a well-constructed, well-illustrated free lecture should be the first equipment of all associations for bird study, while the terms *well-constructed* and *well-illustrated* have more than a mere nominal significance.

Whatever may be the scope of other lectures,—and if a society can afford to have lectures of several grades all the better,—the

first, which is to be the entering wedge, must be as popular in scope as it is consistant with accuracy and the dignity that should always be a part of Audubon work if it is to escape the ridicule of many who are always waiting opportunities to accord it.

Only the most familiar birds of the locality should be treated, in order to make the subject a part of every-day life and in every way intimate. Scissors and paste selections and mere detailed descriptions of birds repel even if they chance to catch the ear of the listener,—the pictures should be allowed to speak for themselves and the text be a skilfully woven narrative to keep the bird portraits and the views of their haunts and homes in unison. For there is always one thing to bear in mind in composing the text of a lecture to be read by every one and everywhere,—the author is not the speaker.

When a lecture is spoken or even read by its author, he, if he is worth listening to, paints a picture by color of tone and expression, touches lightly on the unimportant and lingers over that which is appealing. But the free circulating lecture appears in text of cold type; it is usually read by some one who may not have had the time to even glance it through by way of preparation, and who is also perhaps handicapped by an equally inexperienced man at the lantern, who keeps the subject and illustrations at odds by misplacing the slides and inserting the Great Blue Heron in place of the Hummingbird; so if the thought of the lecture be as lifeless as the type that expresses it, it has no reason for being.

Instead of saying, as many have—"Anything will do for a free lecture; it is going among a people who know nothing"—I hold that the writing of such a work is among the most difficult bits of bird literature, for it is akin to writing a sermon that shall both read and speak well, and we all know how few of the best specimens of oratorical art will bear this test.

Given your text, then comes the difficulty of gathering a well-colored set of from fifty to seventy slides of birds, etc., for its illustrations, though this is an easier matter than four years ago, when bird photography was a new art. Yet still another note of warning. For this first lecture, it is wise to have only the most distinct and individual bird pictures, with little background, after Fuertes' method, a style for which the late Dr. Coues was a fighting champion and rightly, the haunts to be given upon separate slides.

The bird photographed in its haunt by an expert is of great beauty and value to the student or nature-lover, but it is apt to be inadequate and confusing to those in the kindergarten stage of identification. The novice is more attracted by the picture of even a ridiculously fat Bluebird perched on a fence-rail than in a shadow dodging about a telegraph pole, which he is informed by the taker is a Bluebird leaving its hole. We have many bird photographers whose work is simply marvelous, but their pictures are seldom accessible for the free lecture, and in bird photography the next grade below the best produces guessing pictures more complicated than the prize puzzles in the Sunday papers.

I was recently offered 'a bargain' in the way of photographs 'from nature' to illustrate school work. The slides came to me numbered, but ahead of the list of subjects. I tried to name them. Most of them were nebulous; one, however, I placed beyond doubt: it seemed to be the shadowy form of a skunk in the grass, with his plumy tail outlined against the sky. Imagine my feelings when, on comparing the number with the list, I found it marked—'Meadow Lark rising from nest'!

If our model, the Massachusetts Society, allows such a use, I would suggest that if photographed separately the birds from its valuable charts would, supplemented by seasonal landscapes, make an excellent set of slides for the first lecture of any society unable to pay for specially designed pictures.

Having your lecture, slides and a good oil or acetylene lantern (the best will be cranky enough) packed in a strong, metal-cornered box, the final move is to select a

keeper for the same—a wise, patient person—to see that the outfit is in order whenever sent out, to 'chase it,' like the agent who looks up run-away freight cars, when it does not come home promptly, and to book the applications for its use.

This is all extremely arduous work, requiring a knowledge of railway and express routes, as well as accuracy and quick wits, for engagements must be booked with due regard to distances and locality; and many frantic telegrams will be received saying 'We expect the hall full to-night and the outfit has not come'—this about four o'clock in the afternoon and the place fifty miles away. The right sort of manager must be able to telegraph some cause for detention or suggest a remedy. If the state is a large one, there should be one head office and several sub-stations in the various counties, where the outfit may be kept a month at a time for local use.

When this free lecture has been heard and seen at the public schools of a section curiosity will awaken, and questions as to the identity of birds will follow. Then comes the opportunity for supplying the teachers with the bird charts issued by the Massachusetts Society. As interest grows, and teachers and pupils alike begin to query and think, the free libraries should slip in to fill a demand that will be, if our own experience counts for anything, unending.

Here in Connecticut, though much outside work has been done, the public school is our chosen field, and the wise and hearty coöperation of the State Board of Education our greatest aid.

It is through this Board that we now circulate our material. Lectures, charts, libraries—all free, and freely transported—even as the money and labor that provided the material was freely given. This fall, when we asked if the interest in bird-work continued, and if this material was still in demand, the reply came—'Give us more books, more charts; we need one hundred libraries and a chart for every school.' Meanwhile, at the end of four years' service, our three lectures,—one popular, one economic, and addressed to farmers particularly, and one for children,—are still quietly working their way in remote places, as it were, breaking the turf in unplowed fields for the sowing of the knowledge whose fruit is Bird Protection.—Mabel Osgood Wright.

Reports of Societies

Sixth Annual Report of the Pennsylvania Audubon Society

On looking back over the past year of Audubon work in Pennsylvania, I can see that we have made steady progress.

Over 9,000 circulars, 1,000 copies of the bird laws and 200 United States Agricultural Department circulars on shipment of game were distributed during the year. The membership has increased to over 7,000, in which sixty-two of the sixty-eight counties of the state are represented.

Miss Hilda Justice has continued in charge of the traveling libraries with much success. Twelve libraries of ten books have been in circulation in the state, and have been used in sixteen schools for twenty-nine periods of three months each. Teachers have written very appreciative letters respecting their use and the benefits derived from them by the children. Any school may obtain the use of a library by communicating with Miss Hilda Justice, Clappier street, Germantown, Philadelphia.

During the past year we have been in receipt of numerous complaints, relative to illegal shooting of insectivorous birds, notably Flickers and Robins, with the idea that the officers of the society can cause the arrest of the gunners. In order to show exactly how these arrests can be obtained, we would call the attention of our members to the following:

"The constable of each township or borough in Pennsylvania is the person authorized by law to arrest violators of the bird laws, and he must make a report under oath to the Court of Quarter Sessions of his county at each term, of all violations occurring in his township or brought to his notice.

"Members of the Audubon Society wishing to have violators of the law arrested

Bird-Lore

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OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

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The Tortugas Tern Colony

BY DR. JOSEPH THOMPSON, U. S. N.

With photographs from nature by Dr. Alfred G. Mayer; reproduced by permission of the Museum of the Brooklyn Institute of Arts and Sciences

ABOUT eighty miles to the westward of Key West, the Florida Keys terminate in a group of seven small islands, two of which, Loggerhead and Garden Key, are inhabited. Loggerhead Island is so called because of the great number of Loggerhead turtles (*Thalassochelys caretta*) that visit it in the spring for the purpose of digging holes in the sand and depositing their eggs; Garden Key is the site of Fort Jefferson, one of the largest fortresses in the country.

One mile southwest of Garden Key is a small island, about two hundred yards long by seventy-five wide, and in no place more than four feet above high tide. The vegetation consists of a few scrub palm trees, a dense growth of bay cedar bushes, patches of Bermuda grass and some cacti. This island is known locally as Bird Key, and has received its name from the fact that for as long as any one can remember it has been the chosen nesting spot of a large colony of Terns. Year after year these birds return to lay their eggs and raise their young, in spite of the relentless persecution to which they have been subjected by the natives, who have gathered their eggs for eating purposes. There have been years when not a single individual was raised, every egg having been taken shortly after it was laid.

It is admitted that the birds have decreased in numbers, and, in view of the treatment accorded them, it is remarkable that they have not been completely exterminated.

Last year (1902) was the first one that the A. O. U. model law was in effect in the state of Florida. Its enforcement would be an easy matter in such an out-of-the-way place, but in spite of the efforts of Mr. Dutcher, of the A. O. U., and in the face of a letter of promise from the commanding officer of the station to afford protection to the birds,

they suffered very seriously, no measures being taken by the latter to punish those who made raids on the birds' eggs.

During the first week in May, some years at the end of April, the Noddies (*Anous stolidus*) arrive. The first day will bring from a dozen to a score of individuals, the next two or three times as many. On the third and fourth days the number is beyond accurate count, and by the end of the week it is probable that the entire colony has arrived. As nearly as can be judged it contains about three thousand individuals.

It is believed that all matrimonial matters have been arranged before

YOUNG NODDY

the birds arrive, for within a day after the arrival of the earliest birds nest-building was begun.

The Noddy's nest is a bulky, but fairly compactly constructed one, made principally of twigs and dry seaweed, but they are prone to incorporate almost anything of suitable size or shape,— rags, bits of glass, old crab shells, etc. The top is only slightly concave, without downy lining, but frequently has several dozen small shells strewn loosely about.

By preference, the nest is situated well toward the center of a bay cedar bush, three to four feet from the ground, but before long all the favorable building sites are taken and then the birds build almost at random—some on tufts of grass only a few inches above the ground. These nests are apparently very hastily constructed and the workmanship

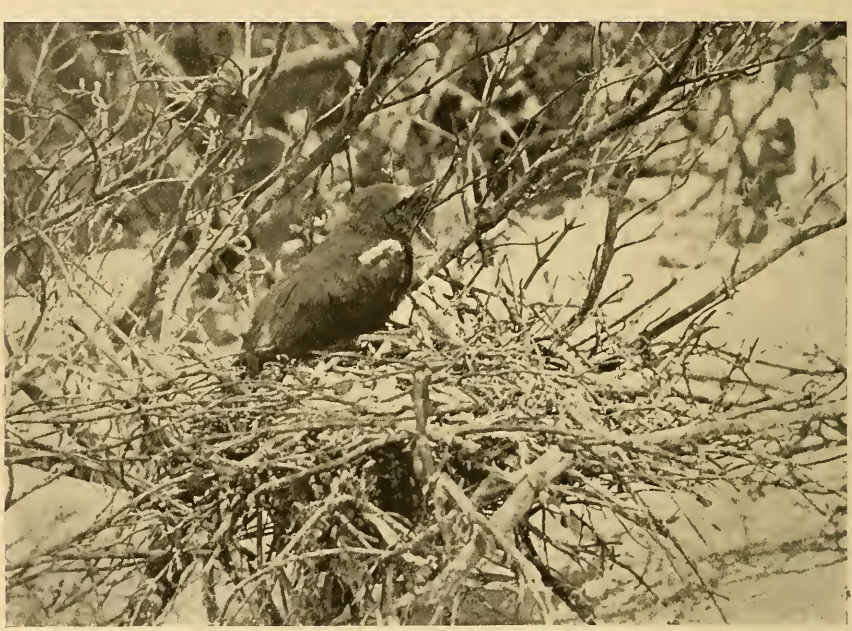
NODDY ON NEST

NODDY, NEST AND EGG

is bad; they are thin and flimsy and the first to suffer from the violent winds that at times pass over the group.

Within a week after the arrival of the birds the first eggs are to be found. Last year the counts were as follows: May 8, one; May 9, five; May 10, ten; May 11, twenty-three; May 12, thirty-seven new eggs. The counts were now abandoned, as one was liable to overlook an egg and include it in the enumeration of a following day.

The eggs require from thirty-five to thirty-six days to hatch. These figures are given upon only seventeen counts, but in that number the period was a constant one, apparently. The majority of the young are a dull



YOUNG NODDY CALLING FOR FOOD

black, unmarked; a few, however, have white blotches on back and wings, while less than one per cent are almost pure white.

The female (presumably) broods the eggs nearly constantly, only fishing a little in the early weeks of incubation. Toward the end of this period all food is brought by her mate.

The male (presumably) flies to sea many miles and returns with a crop full of sardines. Then he perches on the edge of the nest and the female takes hold of his bill and gives his head a rather violent shaking for a second or so. This seems to act as a stimulus to him to disgorge, and the food coming up will be eagerly picked from the back part of his throat by the female and devoured. At other times the entire contents

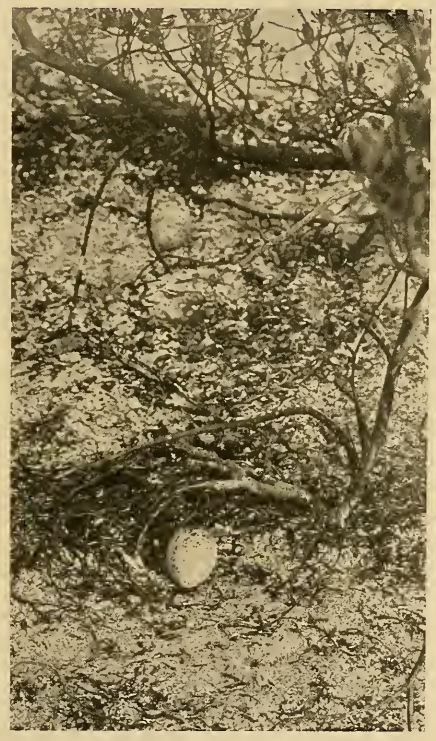
of the crop will be deposited on the rim of the nest and this will be eaten by the female.

The young are fed by both parents upon food disgorged in a similar manner. They are among the most helpless of young wild birds, being absolutely dependent upon their parents for food until they are over three months old.

For the first two months they remain in the nest; after that they are in and out of it, resting near by on branches, and when frightened descending to the ground and seeking shelter among the roots and in neighboring tufts of grass.

It is a rather humorous sight to see one of these great overgrown babies with an adult appetite patiently waiting for meals to be brought and scolding vigorously when the supply has given out. They are fully four-fifths the size of the adult before competent to care for themselves.

Normally but one egg is laid by a pair, but if it is injured or lost its place is promptly taken by another. One of the nests, during a storm, was broken, and the egg, then two weeks old, rolled into such a position that it was impossible for the birds to get at it. The following day the birds built a superstructure to the nest, and within a week another egg was laid, and their housekeeping proceeded without further interruptions.



EGGS OF SOOTY TERN

This ability to control the size of the family presents a physiological problem of great interest. Normally, it consists of one young; but the possible number is apparently very large, as the same nest can be robbed many times of its egg and yet another will be deposited.

Another fact of great interest is the psychological change in the birds' characters as evidenced by their attitude toward man during the breeding season. These birds live on the high sea two-thirds of the year, and then are not easy to obtain with a shot-gun; but, when brooding, the mother-bird can be approached and easily taken in the hand. Toward the end of the season they can be picked up and handled, and when

replaced on the nest will settle down immediately on the egg; thus showing how overpowering is the instinct to care for the young.

Toward the end of September the birds begin to leave. They leave in great flocks, and at night. The entire exodus consumes, apparently, but two or three days; and some morning the observer will find the island absolutely deserted, save for a few crippled birds that have been injured and are unable to follow their comrades.

About a week after the coming of the Noddies another species, the Sooty Tern (*Sterna fuliginosa*), makes its appearance. These arrive in larger flocks, and they all seem to reach the breeding place within about four days.

MAN-O'-WAR BIRDS

Within a week of the arrival of the first one their eggs are to be found. No nest is built, but usually a trace of a saucer-shaped depression is scratched in the sand. The favorite laying site was under the bay cedar bushes at the northern extremity of the island. There the ground had a fair covering of dried leaves, but hundreds of birds laid apparently at random, in the open, under the piazza of a little house, and in places where no sunshine got to them.

For about the first two weeks the eggs are brooded only at night, but as time goes on they are better cared for, but by no means as closely attended to as are those of the Noddy.

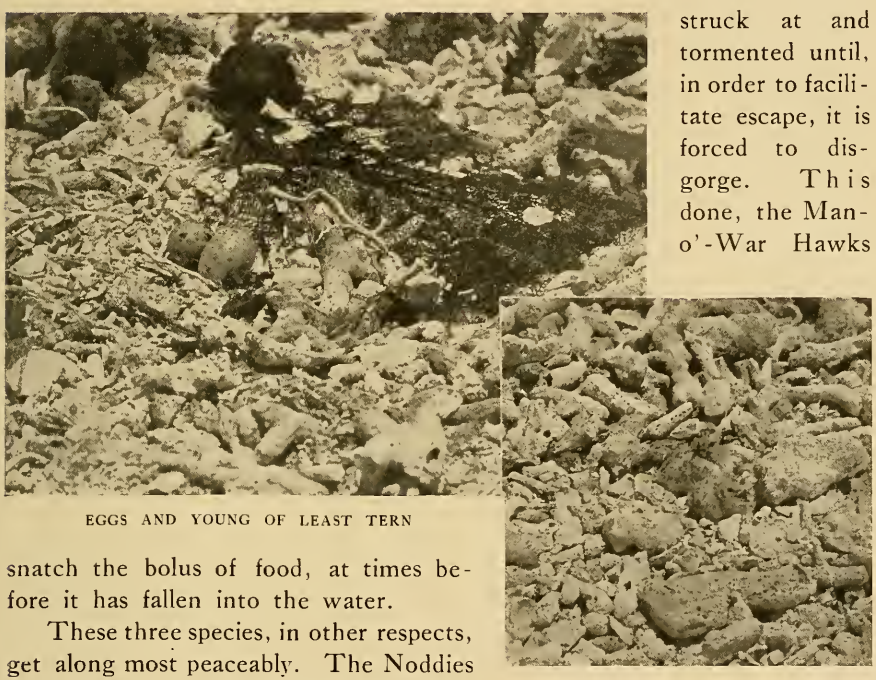
The Sooty Tern is far more difficult to approach than the Noddy, being of a much more nervous temperament, and when disturbed it will rise uttering a warning cry which is distinct from calls used on other occasions. This will be instantly taken up by the entire flock, as it rises in a great cloud, to circle a few times over the island and then settle down again.

The Noddy is a silent bird, except for a prolonged hoarse, gutteral note uttered when molested or when squabbling. The Sooty Tern, on the other hand, is a most talkative bird. It has notes resembling more a

staccato laugh than anything else to which it may be compared; also a few low and musical tones, used when a pair are communicating with each other, as when the male has returned from a fishing expedition. Their warning note is a high and shrill *e-e-e—e*.

Normally, in the Tortugas, there are, on an average, a score of Man-o'-War Hawks (*Fregata aquila*), but when the Terns arrive their number is increased to over three hundred. They come not for the purpose of breeding, but to rob the Terns of the food they are bringing back to their mates.

One that has been fishing and is returning with a cropful of food will be attacked, struck at and tormented until, in order to facilitate escape, it is forced to disgorge. This done, the Man-o'-War Hawks snatch the bolus of food, at times before it has fallen into the water.



EGGS AND YOUNG OF LEAST TERN

These three species, in other respects, get along most peaceably. The Noddies and Terns do not pay the slightest attention to each other; the only quarreling that occurs being when a Man-o'-War Hawk perches too near to the nest of a Noddy, when the mother-bird flies up, scolding, and makes a few ineffectual darts at the offender.

The third, and last, species known to breed in the Tortugas is the Least Tern (*Sterna antillarum*). A few years ago they came to Loggerhead and nested in fair numbers on the southwestern extremity of the island; but of late, according to the keeper, they have not done so. "It's too bad," he added, "because the eggs are delicious eating."

This year about thirty couples raised families of from one to three

young on Long Key. The faintly mottled white color of the eggs and young affords a perfect example of protective coloration.

These birds breed about the end of July. One cannot get close enough to them to ascertain if the eggs are brooded, or for how long.

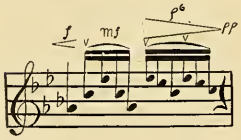
This year a special warden will be detailed, as the result of Mr. Dutcher's kindly interest, and probably for the first time in their known history these breeding grounds will have the care and protection which all fair-minded people should extend toward our friends, the birds.

A Hermit Thrush Song

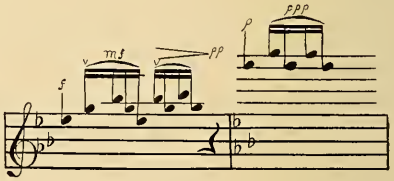
BY THEODORE CLARKE SMITH

(Reprinted, by permission, from The Ohio Naturalist for February, 1903.)

DURING the summer of 1902 I stayed from June 24 to July 30 at a camp on the shore of Lake Memphremagog. My tent was placed at the edge of a cedar and hemlock grove, mixed with occasional maples and birches which furnished nesting places for a great variety of birds. The most conspicuous singer was a Hermit Thrush whose nest was not far from the tent, and whose song was heard every morning and evening, and frequently during the day, for over a month. Others of his kind were also audible, sometimes close at hand, but none became so thoroughly familiar as this "Camp Thrush." I have heard him at extremely close range,—on one occasion from less than ten feet,—and have also been able to distinguish his song, over the lake, from a distance of fully three-quarters of a mile. From an abundance of material the following notes are contributed in the effort to analyze his vocal performance.

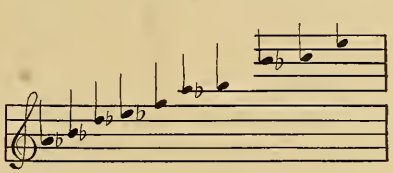


In form the song of this Thrush was very distinct, clear-cut and regular. His typical phrase was as here shown. This same form was repeated by the bird in higher keys, usually somewhat simplified by the omission of one or more of the latter notes until, at the top of the bird's register, it became reduced to little more than the following. The closer one approached the Thrush the greater appeared the regularity, as long, that is, as the bird was in full song; for when beginning or when singing softly he departed noticeably from his ordinary practice.



On several occasions the bird sang near the camp cabin, in which there was a piano, and it was a simple matter, owing to the regularity of the song, to determine the pitch with considerable accuracy. With regard to

the long opening notes I speak with great confidence, for I took down a long series on two occasions and found the pitch unchanged. From these observations I determined that the Thrush used phrases in the following keys. I heard no others and never detected any flatting or sharping. It will be noticed that these keys form part of the scale of A flat major. In this, and in fact in the whole song, the approximation to the human scale was striking.



The Hermit's song consisted, nine times out of ten, in a regular alternation of low with high phrases. Two in succession on or near the same level he never in my hearing gave, but he would sometimes ascend or descend through a series of three different keys. There was no fixed order nor any necessary key relation between successive phrases. I have long lists of such and am certain that the bird uttered his theme in whatever key suited his fancy, so long as it was not a repetition of the theme just uttered. For example, one series began with a low B flat followed by a high A flat, then a middle F, then an upper B flat, then dropped to low A flat, soared up two octaves to high A flat, dropped to middle B flat, then down to low E flat. This continual alternation of key was the most striking thing about the Hermit's song, apart from its regularity and accuracy of pitch. It suggested, somehow, the orchestral handling of a theme by a musical composer, and made it beyond comparison more interesting as a performance than the simple repetitions of the Olive-backed Thrush, or the endless variety of the Thrasher.

The utterance of the theme was for all the lower forms distinct and without *portamento*. Now and then, although rarely, the bird gave his triplet or quadruplet notes a vibratory "trill," and in the very highest phrases the distinctness of vocalization was much diminished. The bird's voice never broke on its highest notes, but his enunciation became somewhat indistinct, although never to such an extent as to disguise the form of his theme.

The voice of the Hermit Thrush was made individual by overtones, giving it a considerable richness and penetration and even a metallic burr or buzz. It suggested somewhat the reed-quality of the oboe superadded to a flute's open tone. Direct comparison was possible only with the piano, a bugle and a flute, and, needless to say, it was far closer to the last named, but very much more vibrant, less hollow. The "burr" was audible at short ranges only. At a hundred yards or less it blended to give the voice a singularly ringing metallic quality which gave it a carrying power unapproached by any other bird of that region. It should be said that in proportion as the bird seemed to be exerting himself, as, for example,

on one occasion when suddenly joined by his mate, the metallic overtones were less prominent, and in certain of the key varieties they were nearly absent. The long opening notes were the freest, the high, rapid ones the most burdened with overtones. At their worst the highest figures were occasionally almost squeaky, but in the full song they were by no means lacking in sweetness, and they were always clear and sharp.

Heard from a very close range the long, full notes were fairly piercing, so sweet, full and vibrant were they. They were too loud for comfort, and when the bird suddenly began to sing while perched on a fence about ten feet from my tent it fairly made my ears ring.

The most characteristic feature of the song in the line of vocal modulation was as simple as the phrase itself, but equally effective. The opening long note was struck firmly and held sometimes with a slight crescendo, but the succeeding rapid figures were progressively diminished in loudness, until the last clearly uttered notes faded away in a silvery tinkle. This *smorzando* or *diminuendo* utterance was almost habitual with the "Camp Thrush," and was indescribably effective. It suggested the modulation of the piano player, since it surpassed in extent of diminution and in delicacy of utterance at the end anything within the compass of a wind instrument. But the piano *smorzando* would lack the crescendo on the opening note.

The whole song was vigorous and sure in delivery, slow—since the phrases, taking at the most two and a half seconds in delivery, were separated by four to six seconds of silence—but perfectly steady in tempo, and certain in execution. The unusual richness and vibrant power of the tone, enhanced by the effective *smorzando* utterances of successive phrases, with the never-failing alternation of key and pitch, marked the song off from any other sound of the Canadian woods.

This bird was by no means unusual, nor, on the contrary, identical with others of his species. His nearest neighbor differed from him in several marked ways, being less regular in song-form, having much more variety in his phrases, using minor as well as major keys, being less distinct and finished in utterance although rather sweeter in voice, singing a little more slowly and a little less loudly, being rather inferior in penetration, and not using the *smorzanda* delivery so much. But both were master-singers.

Nesting of the Indigo Bunting

BY LILIAN CLEVELAND, West Medford, Mass.

ON the morning of May 26, 1900, while working in my garden, a sharp *chip!* attracted my attention, and, glancing up, I saw a small brown bird perched on the piazza rail, with some plant-down in its bill. After nervously bobbing its head up and down, and twitching the tail from side to side several times, it darted into the deutzia bush, and in a moment appeared from the other side and flew away.

Upon examination, I found the upright stalks drawn together and fastened with rootlets twined around them. Dried leaves and shreds from the grape-vines also were included in the foundation. Some of the previous year's clematis fluff was next in order. Thinking to help my little visitor, I hung some hairs from a horse's tail about on the bushes. She readily accepted them, and lined the nest beautifully. My desire to identify this plainly dressed bird was great. It looked like a Sparrow, but unlike any of those I knew well. Great was my surprise and delight when, on a birch close by, I next day discovered the pair in consultation. Now identification was easy, for the brilliant iridescent greenish blue of the male was unmistakable. After that he came with his mate often and went into the bush, but I am quite sure he did not bring any material for the nest. They talked together while there in little chirps and coos.

After the nest was finished, which was on the 30th, they left it, and, I feared, would not return; but, on June 3, one little white egg was in the nest, the next morning another, and the next still another. Then followed two weeks of incubation, during which time I never saw the male near the nest. I heard him singing from the tree-tops in a neighboring field; but, early or late, so far as I know, he did not come to the bush. The little mother, though at first very much frightened when we watched her, soon became accustomed to our presence, and would not fly off when we leaned over the railing and talked to her in the most flattering language.

On June 17 these patriotic birds hatched, one in the morning, the other two before night. Then came the question of food for them, and at this time I watched for the father, thinking he would surely come to do his part; but either he was uncommonly lazy, or it was part of the plan to keep his brilliant color away from the vicinity of the nest, as I caught not even a glimpse of him. Owing to the thickness of foliage and blossoms on the bush, it was quite difficult to tell whether the exclusive diet of the nestlings was soft, green worms and three-quarter-inch grasshoppers or not, but those two were all that we saw them have. Their mother had a busy time hunting grasshoppers by hovering over the uncut grass in an adjoining field. On June 26 the little ones began leaving

the nest, hopping from twig to twig among the shrubs, and I spent several anxious days and nights, fearing they would be appropriated by the neighbor's cat. They grew very fast, and by the next day they could hop along the ground in a lively manner. That evening, while we were sitting on the piazza just at dusk, a small gray thing apparently rolled down the walk; upon investigation it proved to be one of those refractory children starting out to explore the world. I picked it up and put it to bed in a strawberry basket on some soft grass-clippings. It was very wide awake, and I had to keep my hand over it until darkness and warmth quieted it, and its head went behind its wing. I then tied the basket carefully to the railing near the nest, and at four the next morning the little thing was sitting on the edge of the basket calling for breakfast.

On June 28, the father reappeared. I came upon him suddenly when they were consulting in the bushes. Apparently he had shirked all the hardest work and had come around for the fun. However that may be, the next morning he and Mrs. Indigo coaxed the little ones safely off into the higher trees, and that was the last we saw of them; but a friend living an eighth of a mile away said she had apparently the same family in her trees the next week.

NEST AND EGGS OF CATBIRD
(Englewood, N. J., June 15, 1898)

For Teachers and Students

How to Study Birds

THE NESTING SEASON

BY FRANK M. CHAPMAN

FOURTH PAPER

THE NEST

Nesting Material

The material of which a bird's nest is constructed depends primarily upon the nature of the bird's haunts. The nests of marsh-haunting birds are usually made of reeds or woven of wet marsh grasses; woodland birds generally employ twigs, rootlets, bark, leaves, mosses, etc., while field-inhabiting species, as a rule, use chiefly dried grasses.

Variations

It follows, therefore, that a change in the nature of a bird's haunts is apt to be attended by some variation in the character of its nest. At the northern part of its range the Green-crested or Acadian Flycatcher builds its nest of plant-stems, grasses and dried blossoms, but in Florida its nest is composed wholly of the Spanish or Tillandsia 'moss.' In the east, Night Herons build in trees, when the nest is made of twigs and sticks; but in the west the nests of Night Herons may be constructed of the reeds among which they are placed. Orioles nesting near a house often gather the strings, worsteds, etc., to be found there; while individuals of the same species, for which these objects are not available, still select plant fibers for their nests.

Under the same conditions of environment a change in the nature of the nesting site does not, as a rule, appear to affect the character of the nest. Robins' nests are much the same, whether the bird builds in a tree or on a window-sill. The Ospreys of Gardiner's Island which nest on the ground, with one or two exceptions, gather as much nesting material as do the birds that nest in trees, though their nesting site calls for little or none.

The nests of the Pelicans of Pelican Island, Florida, however, vary, as a rule, in relation to their situation, those that are placed in trees being necessarily composed of sticks; while, in my experience, it is exceptional to find, among the hundreds of ground nests, one in which sticks are employed.

In some instances the necessity for concealment apparently exerts an influence on the nesting material. What is generally spoken of as "nest

decoration," if it have any significance, is assuredly not designed to make the nest conspicuous through display, but inconspicuous by bringing it into harmony with its surroundings. Nests of the Wood Pewee, Blue-gray Gnatcatcher and Hummingbirds are examples of this class. The Verdin makes its soft, upholstered nests impenetrable by so thickly covering it with spines and thorns that it can be handled with difficulty.

A too liberal interpretation of habit, in the case of the Crested Flycatcher, credits this bird with intentionally introducing a cast snakeskin into its nest, to serve as a scarecrow, frightening would-be intruders. The explanation is important, if true, but there is no evidence to support it. A cast, bleached, everted snakeskin is soft and pliable, and makes good nesting material. As a matter of fact, it bears small resemblance to a snake, and there is no reason to believe it protects a nest a bit more effectively than fragments of wasps' nests or a lining of hairs. It is the habit of the members of the genus *Myiarchus*, so far as they are known, to use snakeskins in nest-building, just as it is the habit of certain Vireos to employ wasps' nests, but how the habit originated will, doubtless, never be known. So far, however, as the Flycatchers and Vireos of to-day are concerned, the fact that snakes' skins and wasps' nests can be used to advantage in nest-building is, doubtless, sufficient cause for the selection of these objects.

Building of the Nest

The nest may be built by both sexes; by the female alone, or by the female with a limited amount of assistance from her mate, who may be permitted to bring material but not to place it in position. A nest may be completed within a few days and occupied at once, or even before it is finished. Again, weeks and in some few cases, for example, the Oven-birds (*Furnarius*) of South America, the nest is begun two or three months before it is to be occupied.

Even when finished a nest may not please its maker, who will then demolish it and use the material in the construction of another home. In other species, a nest may be completed and abandoned; while some species, Long-billed Marsh Wrens, for instance, build a number of nests and use but one.

The care required to observe closely nest-building birds without causing them to abandon operations, as well as the locality, doubtless accounts for the comparatively limited amount of correct information on this subject, and creates a correspondingly wide field for investigation.

Character of the Nests

The character of birds' nests, from the architectural point of view, may differ greatly even when the material of which they are composed is the same. The structure of the bird, or in other words, the tools with which it is provided, does not often govern the type of home which it will build. A Swallow, it is true,

could not fashion a Woodpecker's dwelling; but a momentary comparison of the widely different kinds of nests built by Swallows and Swifts (which, so far as nesting tools are concerned, may be classed with Swallows) readily shows how little the structure of the bird has to do with nest architecture.

By far the most important factor governing the character of a bird's nest is the condition of its young at birth. Indeed, in considering this

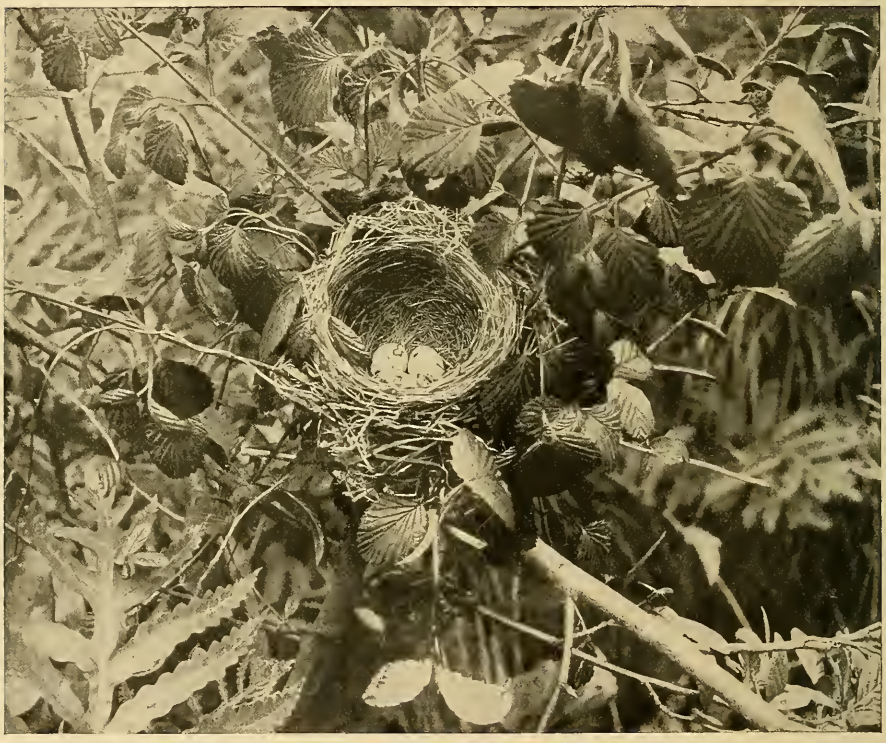
SIMPLE NEST OF KILLDEER, A PRÆCOCIAL BIRD
(Meridian, N. Y., June 7, 1898)

question we are brought very near to an attempt to determine the origin of birds' nests.

In a rough classification we may place birds in two groups: first, those whose young leave the nest the day they are hatched; second, those whose young are reared in the nest. Birds of the first class are termed præcocial; those of the second, altricial. Compare the newly hatched young of a Grouse with those of a Robin, and we have two admirable examples of præcocialism and altricialism.

Condition of Young at Birth

All præcocial birds are hatched with a growth of downy feathers which, when they are dry, practically cover their body. Most altricial birds are born essentially naked and do not leave the nest until they have acquired the nestling or juvenal plumage. There are, however, numerous exceptions to this statement. For example, many species of the family Alcidæ (Puffins, Murrelets, etc.), the Petrels, Herons, Hawks and Owls are



WELL-FORMED NEST OF RED-WINGED BLACKBIRD, AN ALTRICIAL BIRD
(Englewood, N. J., May 30, 1898)

more or less well covered with feathers at birth, but are then nevertheless comparatively helpless and spend some weeks in the nest.

The significance of the condition of the young at birth is far-reaching, but, unfortunately, it is not as yet understood. It happens that most of the older or lower forms of birds,—that is, those birds nearest the reptilian type, whence, it is believed, all birds descended,—are præcocial. On the other hand, all the higher birds, that is, those farthest from reptilian ancestors, are altricial. For example, among North American birds the Grebes, Loons, Gulls, Terns, Ducks, Rails, Coots, Snipe, Plover and gallinaceous birds are præcocial, that is, their young run or swim shortly

after birth; while all the great group of perching birds (Passeres) are altricial, that is, their young are reared in the nest.

It is possible, therefore, that the condition of the bird at birth may be connected with its evolutionary development; and, if this be true, birds' nests have been evolved with the birds themselves, as, in passing from præcocialism to altricialism, a nest has become a necessity.

It happens, however, that some birds admittedly low in the evolutionary scale are altricial and build a well-formed, substantial nest. The young of the Steganopodes, for example, are born naked; and the Water Turkey (*Anhinga*), Brown Pelican and often the Cormorants build large, strong nests. The Noddy, as Dr. Thompson shows in this number of BIRD-LORE, builds a nest which its single young may occupy for two months. The Herring Gull also builds a tree nest in some localities, which its young occupies for some period. In the latter case the Gull is said to have taken to the trees for protection from nest robbers. But it is difficult to believe that the Noddy, tame, unsophisticated breeder on keys far from the haunt of man and uninhabited by predaceous mammals, can have become a nest-builder from a similiar cause; though possibly crabs may have forced it to adopt the nest-building habit. Herons and Ibises are also considered old types of birds, but they also build nests, even if rude ones, and in or on them their young exist for a time in a helpless condition.

Evidently, then, a nest may be built, whether the builder be high or low in the scale of life, when the condition of its young at birth demands a cradle in which they may live. In a number of cases, however, shelter is provided for the young without actually building a nest, but by using a natural cavity in a tree or cliff, by making a burrow in a bank, as do Kingfishers, or a hole in a tree, as do Woodpeckers, in each case without adding a lining or actual nest material.

We are still, it is true, far from learning the origin of the nest-building habit, nor can we do more than speculate upon it until we know whether primitive birds were præcocial or altricial. What were the young of the Archæopteryx like? Were they active, or were they born in a helpless condition? Archæopteryx itself was assuredly arboreal, and hence its young must sooner or later have been fitted for a life in the branches. Possibly they may have clambered about shortly after birth, as do the young of the Hoatzin of South America; when the nest may have been simply a rude platform, as is the nest of the Hoatzin. It seems natural, also, to believe that many early birds deposited their eggs in holes or hollows of various kinds. It is worthy of note that, with the exception of the Hoatzin, most, if not all, truly præcocial birds nest on the ground. The Ducks that build in trees, and the Gull and Noddy before mentioned, are exceptions which in no way affect the general rule.

Pycraft's Theory

Nevertheless, Pycraft, in a recent article (Pop. Sci. Monthly, December, 1902), advances the theory that *all* birds were originally arboreal and præcocial, and that, because of the danger of falling, etc., to which præcocial young, born in trees, would be exposed, the parents of those that remained præcocial descended to the ground to lay their eggs ; while the young of those birds which did not make this change either perished or gradually became altricial. Under the latter supposition there would evidently be a need for a corresponding change in the character of the nest, which would then become designed to hold not only eggs but young birds.

Mr. Pycraft finds support for his theory in the development of the wing of chickens and some other gallinaceous birds, which frequently have a claw on the thumb and, in the embryo, one on the index finger; and in the absence of the outer flight feathers from the first plumage, leaving a free finger-tip ; all characters which suggest a former arboreal mode of life.

The theory may be accepted for certain species, but the discovery of Archæopteryx would not seem to warrant us in assuming that all the ancestors of birds were arboreal. We cannot assert that no birds have been derived from either terrestrial or aquatic ancestors, a line of descent which would have a most important bearing on the condition of the young at birth of existing species, and, consequently, upon the character of their nests.

HINTS FOR THE STUDY OF THE LIFE OF THE NEST

With a hope that they may be of assistance to students during the nesting season, we append here, in advance of the publication of the succeeding papers of this series, some suggestions for a study of birds during the period of incubation and care of the young.

Need of a Blind

Some form of blind, in which one may conceal oneself near the nest, is essential if one would study the home-life of birds at close range. After struggling with a clumsy affair of sticks, wires and canvas, I finally hit upon a very simple and effective structure, easy to make, to carry, and to erect. It consists of a good-sized umbrella, a sharp stick about three feet long, and some light green material. Cut the material into six- or seven-foot lengths and run them together until their united breadth equals the circumference of the open umbrella. Run a strong tape around what will then become the top of the cloth ; draw the ends until the remaining opening is about five inches in diameter, and then tie them. Stick the end of the closed umbrella into this five-inch hole and open it, when, as the folds of the cloth are adjusted, they will fall evenly from all sides of the umbrella and make a circular tent. Drive the three-foot stick a few inches into the ground, and fasten the umbrella handle to it with two

hook-and-eye, rubber bicycle bands. From the point of the umbrella outside run guys of strong string to pegs in the ground, or any convenient object, and the blind is in position.

Prof. F. H. Herrick employs a small tent in his bird studies. It is described in his excellent 'Home-Life of Wild Birds' (G. P. Putnam's Sons), and possibly may be better than the structure just mentioned. I have found the latter, however, a most satisfactory affair and quite large enough for an observer with his camera.

What we Want to Know— The Eggs

How long after the completion of the nest is the first egg laid? If a migratory species, how long is this after the bird was first observed? Will stormy or cold weather lengthen the period of laying? When is the set completed? How many eggs does it contain? If the egg should chance to be destroyed will the bird lay again? If a Cowbird's egg is laid in the nest is any attempt made to eject it, or to avoid hatching it by building a second nest on the first? What are the enemies of birds' eggs? Note the color of the eggs in relation to the character of the nest? When does incubation begin? How long does it continue? Is it performed by one or both species? Is there any regularity in the daily periods of sitting and of feeding? Does one sex ever feed the other while on the nest? Will the sitting bird bird permit a near approach? When returning to the nest, does it come directly or with much caution? What is the condition of the young at birth (naked? feathered? blind? etc.)? Do all the eggs of a set hatch at about the same time? How soon after hatching is the young bird fed? What is the nature of its food? Does the food change as the young bird grows older? Is it like that of the parent? Is it prepared in any way? How often are the young fed? How are they fed? How is the nest kept in a sanitary condition? How long after hatching do the young remain in the nest? If born blind, when do the eyes open? When do they first recognize the calls of the parent? Do they instinctively obey them? or in any way respond to them? When does the young bird first exhibit fear by attempting to escape or to defend itself? What are the calls of the young? How long after it leaves the nest is it dependent on its parents? Are its first attempts at flight successful, or does it learn to fly? How is the young defended by the parents?

Incubation

The Young

In a subsequent paper we may study the life of the young bird systematically. The preceding questions are designed to suggest lines of research to the student, who is advised to consult Lloyd Morgan's 'Habit and Instinct' for information on the general subject, and F. H. Herrick's 'Home Life of Wild Birds' for definite observations of this nature.

(TO BE CONTINUED)

JOHN H. SAGE, *Connecticut*

EDGAR A. MEARNS,
Northern Arizona, Western Texas

B. T. GAULT, *Northern Illinois*

C. M. WEED, *New Hampshire*

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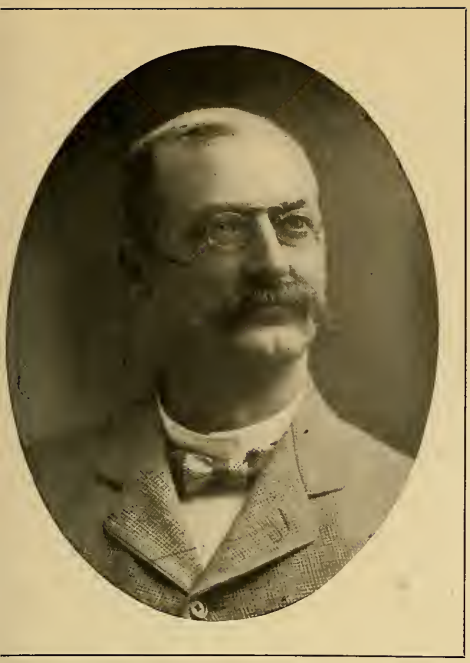
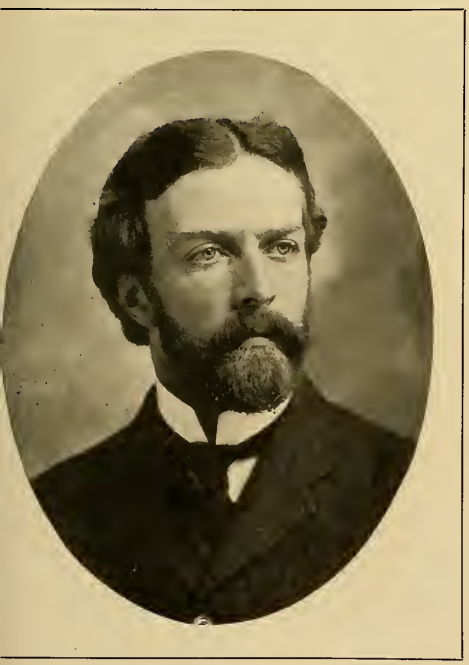


HERBERT BROWN, *Southern Arizona*

A. W. BUTLER, *Indiana*



EUGENE MURPHY, *Georgia, South Carolina*

ELON H. EATON, *Western New York*

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What Bird is This?

Field Description.— Length, 5.30. Above mixed black, reddish brown, ashy and buff; crown blackish, with a buff line through its center; nape reddish brown, with small black spots; an orange mark before the eye; breast buffy; belly whitish; no conspicuous streaks below; tail-feathers narrow and pointed.

NOTE.— Each number of BIRD-LORE will contain a photograph, from specimens in the American Museum of Natural History, of some comparatively little-known bird, or bird in obscure plumage, the name of which will be withheld until the succeeding number of the magazine; it being believed that this method of arousing the student's curiosity will result in impressing the bird's characters upon his mind. The species figured in April is a young female Blackburnian Warbler.

Questions for Bird Students

IV

17. At about what age do Marsh Hawks begin to fly?

18. What three reasons have been advanced to account for the belief that singing birds are more abundant in England than in America?

19. How many species of birds has an observer in eastern North America recorded as being heard to sing simultaneously one day in June?

20. At about what age do young Kingfishers leave the nest?

21. How many times has the Horned Lark been known to feed its young in an hour?

Notes from Field and Study

The A. O. U. Trip to California

Members of the American Ornithologists' Union and their friends, numbering forty odd in all, left Chicago in two special Pullman cars on the evening of May 3, and reached San Francisco on the afternoon of May 14.

Thanks to the experience of those in charge of the arrangements, the journey was so admirably planned that the time en route was used to the best possible advantage; while the presence of authorities on the physiography, fauna, and flora of the region traversed added immeasurably to the interest as well as to the educational value of the excursion.

Doubtless no party of excursionists ever crossed the continent who gained so much knowledge of its geography and natural history in an eleven days' outing; and it is perfectly safe to add that no car-windows were ever looked from so continuously and so eagerly as were those of the 'Fama' and 'Debrosa,' on this memorable transcontinental journey.

The rallying point of the tour may be said to have been the residence of Ruthven Deane in Chicago, where, on the evening of May 3, Mr. and Mrs. Deane received the members of the Union, who were about to leave for the west, as well as those less fortunate ones residing in and about Chicago who were unable to leave home.

Among the members of the Union who formed the party were C. Hart Merriam, J. A. Allen, B. Bishop, H. C. Bumpus, F. M. Chapman, Mrs. E. B. Davenport, J. Dwight, Jr., J. H. Fleming, L. A. Fuertes, T. S. Palmer and Otto Widmann.

Traveling over the Santa Fé line, we passed through the fertile bottom-lands of the Missouri and Kansas rivers on Monday, May 5, to emerge, later in the day, on the rolling prairies.

The next morning we awoke on the Arid Plains to hear the song of the Western Meadowlark. Prairie dogs, an occasional coyote, and, shortly before reaching Trinidad, a Magpie afforded convincing evidence that we were indeed in the west.

Late in the evening our cars were detached from the train at Lamy, N. M., and run up over the short branch road to the old city of Santa Fé, where we remained until the afternoon of the following day.

This, our first opportunity to take to the field, was improved to the utmost, the members of the party radiating in every direction, to return later and compare observations—by no means the least pleasurable part of the day's experience.

At Santa Fé twenty-nine species of birds were recorded, among them being the Mountain Bluebird, House Finch, Say's Flycatcher, Violet-green Swallow, Lewis's Woodpecker, Lozuli Bunting, Audubon's Warbler, and other western birds equally attractive to eastern eyes.

May 7 our cars were side-tracked at Adamana, and the petrified forest, distant six miles, was visited. We were here in the heart of the desert and our start was made too late in the day to see or hear many birds, but a short visit to the cottonwoods bordering the Puerco, in the evening, showed an unexpected number of birds, — Mocking-birds, Bullock's Orioles, Arkansas Flycatchers, Black-throated Sparrows and other species, being common and in song.

We reached the Grand Cañon on the evening of May 8, early enough to have a glimpse of its marvels before the failing light shrouded its vastnesses in gloom; and to see the white-throated Swifts dart twittering to and fro over apparently bottomless gorges.

We remained at the Cañon until the morning of May 11, and consequently had two full days in which to learn something of the bird-life of the region. Some of the party entered the cañon and descended to the Colorado river, nearly five thousand feet below, while others explored the pine, piñon and juniper forests of the surrounding country, where some thirty-eight species of birds were identified. This number in-

cluded the Red-shafted Flicker, Violet-green Swallow, Audubon's Warbler, Red-backed Junco, which was found nesting, Mountain Chickadee, Pygmy Nuthatch, Grace's Warbler, Black-throated Gray Warbler, Cassin's Vireo, Poor-Will, Long-crested Jay, Woodhouse's Jay and Spurred Towhee.

In the Cañon the Rock Wren, Cañon Wren, Lozuli Bunting and Ash-throated Flycatcher were characteristic species.

At sunrise, on the 12th, we stopped at Hesperia, among the tree yuccas of the Mojave Desert, and in many respects the two hours passed here were among the most enjoyable of our journey. Birds and flowers were both surprisingly abundant; the yuccas and the Cactus Wrens which were nesting in them being objects of special interest.

Toiling through the winding cuts of the Cajon Pass, we emerged upon the Pacific Slope and shortly were at San Bernardino, in a region where irrigation and cultivation have created a truly wonderful transformation. For miles our track was almost continuously bordered by orange groves, while Riverside, where an all too short stop was made, seemed, in truth, a paradise of birds and flowers.

On the evening of this remarkable day Los Angeles was reached, and here a reception was tendered the members of the Union by the southern division of the Cooper Club. The following day was devoted to an ascent of Mount Low, where, at an altitude of 5,000 feet, many birds previously seen about the rim of the Grand Cañon were again encountered.

At half-past seven o'clock, the evening of the same day, the final stage of the journey was begun, and after a most interesting ride on the Southern Pacific railroad through the Salinas Valley, the first, we trust, of many transcontinental tours of the American Ornithologists' Union was concluded at five o'clock, Thursday afternoon, May 14.

Members of the Cooper Club and of the Academy of Sciences were on hand to pilot us to our various lodging places, and, indeed, throughout our stay the kindly and invaluable attentions of the resident ornithologists never failed us; to them is due not only the success of the meeting but the many delightful experiences which befell us individually after its adjournment.

The first session of the joint meeting of the Cooper Club and the A. O. U. was held in the Lecture Hall of the California Academy of Sciences May 15, at 11 A. M., and subsequent sessions were held on the afternoon and evening of the same day and on the morning of the following day. On both days those in attendance were elaborately entertained at luncheon by the members of the California Academy of Sciences.

On the afternoon of the 16th, in response to an invitation from President Jordan, a visit was paid to Stanford University.

Several of the papers presented at the meeting were of more than usual value, particularly Mr. Joseph Grinnell's communication on the 'Origin and Distribution of the Chestnut-backed Chickadees,' and Mr. Walter K. Fisher's account of the bird-life of Laysan; while the lantern slides exhibited by Mr. Fisher and Mr. W. L. Finley have never been exceeded in interest and scientific value by any shown at our A. O. U. meeting.

A program of the several sessions is appended: 'Origin and Distribution of the Chestnut-backed Chickadees,' Joseph Grinnel; 'The Cassin Auklet,' Howard Robertson; 'Recognition of Geographic Variation in Nomenclature,' Leverett Mills Loomis; 'Notes on the Fresno District,' J. M. Miller; 'Do Valley Quail use Sentinels?' John J. Williams; 'An Island Community, or Bird-Life on Laysan,' illustrated with lantern slides, Walter K. Fisher; 'Notes on the Birds of Chili,' Joseph Mailliard; 'Call Notes of the Bush-tit,' Joseph Grinnell; 'General Habits of the Prairie Falcon,' Donald A. Cohen; 'Oregon Birds Caught with a Camera,' illustrated with lantern slides, Wm. L. Finley; 'The Bird Islands of Our Atlantic Coast,' illustrated with lantern slides, Frank M. Chapman; 'Remarks on the A. O. U. Journey across the Continent,' Louis A. Fuertes; 'The Farallon Islands,' illustrated with lantern slides, M. Otto Emerson.

Book News and Reviews

THE STORY OF A BIRD LOVER. By WILLIAM EARL DODGE SCOTT. New York: The Outlook Company. 1903. xi + 372 pages; 1 plate. Price, $1.50.

This is an exceedingly interesting book. From a wide and varied experience as a field ornithologist whose labors extend over a period of some thirty years, Mr. Scott has here presented what appears to have been best worth preserving. In the main the book is a personal history of the author's life, with a recountal of the more important events in his career, and a description of the localities he has visited, with an outline of what was accomplished in them. For details the reader is referred to the author's scientific papers, a bibliography of which is given as an appendix.

Mr. Scott has worked chiefly in Florida, New Jersey, Missouri, West Virginia, Colorado, Arizona and Jamaica. He first visited Florida in 1876 and returned to the state at intervals until 1892. It was in the early part of this period that Florida birds were first systematically attacked by plume hunters, and Mr. Scott's 'Story' contains some graphic descriptions of Florida bird-life both before and after the feather dealers devastated its teeming rookeries.

In his concluding chapter Mr. Scott refers to his observations on birds in confinement, and presents in a suggestive manner the possibilities for research in this direction. For reference purposes the book's value is decidedly impaired by the absence of the index which it deserves.—F. M. C.

A POPULAR HANDBOOK OF THE BIRDS OF THE UNITED STATES AND CANADA. By THOMAS NUTTALL. NEW REVISED AND ANNOTATED EDITION. By MONTAGUE CHAMBERLAIN. With additions and one hundred and ten illustrations in color. Boston: Little, Brown & Co. 1903. 12mo. Pages xliv + 473 + ix + 431 Col. pll. 20; numerous text-cuts. Price, $3.

The publication of an edition of Nuttall at a price which places the admirable bird biographies of this writer within the reach of every one should be a cause for rejoicing among all bird lovers. This is a reprint of the second edition of the two-volume edition annotated by Montague Chamberlain and published in 1896. The few western species included in the original (1832) edition have been excluded, but the title has not been amended accordingly, and one might suppose that the book dealt with all the birds of the United States rather than those east of the Mississippi. The illustrations include reproductions of drawings by Audubon, Wilson, Ridgway, Seton and others. The wood-cuts are still good, but the process plates show the results of wear. The color-work evidently does justice to the originals and is good when they are. The chestnut-breasted Tufted Puffin could well have been spared; but one can afford to pardon all shortcomings in the illustrations for the pleasure of having the text.—F.M.C.

MY WOODLAND INTIMATES. By EFFIE BIGNELL. New York: The Baker and Taylor Company. 16mo. xi + 241 pages.

Mrs. Bignell's text, given in the 'Foreward,' reads: "In writing the following sketches, I have had in mind all to whom such simple thoughts and quiet experiences might appeal," and she has assuredly been more than usually successful in imbuing the written page with the spirit of out-of-doors. Her birds are alive and in their haunts as a part of the nature with which she evidently has such keen and tender sympathy. Not only should this book fulfil its author's dearest hope of carrying "restful little messages" to "some one in sick-room or city pent," but it should also bear a message to those whose eyes are closed to the beauty and interest in the common every-day things about us.—F. M. C.

The Ornithological Magazines

THE AUK.—The April 'Auk' contains a number of readable articles both popular

and scientific. One of the most noteworthy is by W. H. Fisher, on 'Preserving Equilibrium by the Use of One Wing.' An accompanying half-tone shows a House Finch balancing on a window-sill, and, although independent action of each wing in flight has long been more than suspected, it has remained for the camera, quicker far than the human eye, to record the actual use of one wing. Among the longer articles are two annotated lists, one by M. L. Ray, on the land birds of Lake Valley, California, the other by R. E. Snodgrass, on those of Central Washington; while J. L. Bonhote writes on 'Bird Migration at some of the Bahama Light-houses.' It may be said, in passing, that such photographs of scenery as accompany Mr. Ray's list are much to be commended. They are, in a way, far more instructive than merely views of nests or eggs taken at such short range that no idea of the surrounding country can be gained.

John N. Clark, recently deceased, takes up 'The Domestic Affairs of Bob-white,' and in his pleasant style tells us of a male bird that assumed all the responsibilities of incubation and subsequent 'nursery duties,' whilst his mate, apparently, was leading about an earlier brood. The food, rather than the 'Food Habits of some West Indian Birds,' is discussed by B. T. Bowdish; H. W. Henshaw writes on the 'Occurrence of the Emperor Goose in Hawaii,' and the systematist may feast upon 'A Review of the Genus Catherpes,' by H. C. Oberholser. In the department of General Notes we are glad to learn that the supposed bill of a Tern found in an ancient shell-heap proved to be a spine of the dogfish, and commend Dr. Townsend for his conservatism. Prospective contributors to the pages of the 'Auk' will do well to read on p. 234 'Some Suggestions,' lest they feel aggrieved if their MSS. are returned to them.—J. D., Jr.

Wilson Bulletin.—No. 42 of 'Wilson Bulletin' is the initial number of Volume X, and contains much of interest. The progressive advancement of the Bulletin shows that the management is wide awake and ready to make any change in detail that may improve its appearance or add to the value of the contents. The editor states that the chapter, by unanimous consent, will be reorganized under the name of the Wilson Ornithological Club. As heretofore, it will remain a corresponding organization, but may at any time hold annual meetings when such a course seems feasible. The principal function of the Club will continue to be the study of the life-histories of birds, but members have very wisely decided to use specimens whenever such a course would add to the value of their investigations. They expect to exert all their influence toward a sane policy of protection everywhere and at all times. This expression of policy is commendable, as it tends to show that the Club is composed of material that will not tolerate the prostitution of ornithological science by maudlin sentimentality.

The following are the titles of the leading papers: 'Notes on the Leucostictes,' P. M. Silloway; 'The Best Place of All,' Rebecca M. Leete (this article describes a favorite resort for bird observations near her home); 'The Motacillidæ of Germany,' W. F. Henninger; 'The Yellow-throated Vireo,' J. Warren Jacobs; 'Notes on the Winter Birds of Wayne county, Mich.,' B. H. Swales; 'A Few Additional Notes on the Flicker,' F. L. Burns; 'The New Year's Day Bird Census,' Lynds Jones. Alex. W. Blain, Jr., desires information of any sort concerning the Great Blue Heron, and Lynds Jones wants the same character of material on the Mourning Dove. This data is to be used in the preparation of bulletins.—A. K. F.

Book News

The Superintendent of Public Education of the State of Wisconsin issues, as usual, an elaborate Arbor and Bird Day Annual.

Leaflet No. 30 of the Home Nature-Study Course, of the College of Agriculture, of Cornell University, is in part devoted to the Woodpeckers. It is edited by Mrs. Anna Botsford Comstock, and illustrated by figures of the Downy Woodpecker and the Yellow-bellied Sapsucker by Fuertes.

Bird-Lore

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Devoted to the Study and Protection of Birds
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES
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Bird-Lore's Motto:
A Bird in the Bush is Worth Two in the Hand

DURING May, June and July the editor expects to be a-field. At times he hopes to be beyond the reach of mails, and correspondents will therefore kindly pardon delayed answers to their communications.

DR. THOMPSON'S study of the Terns of the Tortugas, with Dr. Mayer's admirable photographs, is not only a valuable addition to the life-history of the species treated, but it is an important contribution to the data of bird migration.

Continued residence as naval surgeon in the Tortugas gave Dr. Thompson an exceptional opportunity to learn the times of arrival and departure of these summer resident Terns, and to observe certain significant events evidently related to the times of their coming and going.

He confirms the statement that the birds return to their breeding grounds each year at about the same time, and that all those of the same species arrive within a few days after the vanguard ; but adds, as new information, the fact that the day after the arrival of the earliest birds, nest-building is begun, and within a week eggs are laid.

Here, then, with no climatic complications, is an instance of migration to a regularly frequented breeding range, with the impelling cause so obviously a desire to reach a place in which the young may be reared, that the nest-building is begun almost as soon as the birds reach the breeding ground. The phenomena in the bird's cycle of development, of which we have spoken in the papers on the nesting season, here succeed one another with such rapidity that the relation becomes more than usually apparent ; migration, mating, nest-building and egg-laying all occurring within a period of little more than a week.

No less interesting are Dr. Thompson's records for the end of the nesting season. When the object for which the birds came is accomplished, and the young are able to fly, there is no lingering. The departure is as sudden as the arrival, and within a day or two the birds have gone ; scattering, doubtless, over the Caribbean and adjoining waters wherever they find good fishing ; but in due time to receive an inward, physiological prompting, which will, at the proper season, carry them back to the nesting ground.

ON ANOTHER page we print an agreement which has already been entered into by the American Ornithologists' Union and a number of Audubon Societies, while other Audubon Societies have it under consideration.

From the practical point of view the terms of this agreement appear to be exceptionally favorable to the cause of bird protection. For the first time in the history of the millinery trade an opportunity is afforded to extend the protection now given American birds to many species of foreign birds, including Gulls, Terns, Grebes, Herons, Hummingbirds and song-birds; while the traffic in aigrettes, which sentiment has thus far not perceptibly affected, will cease.

There is, it is true, a moral aspect to this question, and it is possible that some members of the Audubon Societies will refuse to endorse an agreement in which they are called upon to sanction, even passively, the trade in feathers. But they should also consider the moral responsibility of denying to foreign birds the protection, so far as their use in this country is concerned, which this agreement offers them. It seems to us that this proposition is deserving of a three years' trial.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

The Milliners Again

There has always been a perfectly natural antagonism between the millinery trade and the State Audubon Societies. At the present time, however, it seems probable that a better understanding will be brought about by the broader-minded and more conservative element in both bodies.

The general feather trade, legally, if not ethically, was for so long a time legitimate that, like the slave trade, it could not be abolished without friction. There are those in the trade who would not hesitate to violate the law if possible, but there are others who honestly desire the protection of information, that they may continue their business in accordance with the new laws, and it is these that bird protectors should be willing to meet in a spirit of fairness.

The agreement between the members of the Millinery Merchants' Protective Association of New York and the Audubon Society of the State of New York, printed below, is the initial step in this effort for mutual understanding, and we urge all the state societies to give this agreement their serious consideration; the societies having concurred in it at the date of writing being New York, Pennsylvania and Wisconsin.

It is, of course, conceded that the most satisfactory way to kill the traffic in plumage would be to stop the demand; but next to this in importance comes the regulating of the supply in accordance with the well-digested laws now prevalent in many states; and we should not imperil our influence as logical bird protectors, or boycott legitimate industry, by raising a hue and cry at the use of the feathers of food birds for millinery purposes. Our business is to make sure that only such feathers are marketed as the law allows, therefore sincere coöperation on the part of the best class of feather traders can but be mutually advantageous, for they already recognize that any false step on the part of their less scrupulous associates will simply serve to their own disadvantage, by fanning the flame of the torch of public opinion, which, backed by legislative authority, is now well ablaze; thus, by working for themselves they coöperate with us.—M. O. W.

Agreement Between the Members of the Millinery Merchants' Protective Association of New York and the Audubon Society of the State of New York.

The members of the Millinery Merchants' Protective Association hereby pledge themselves as follows:

To abstain from the importation, manufacture, purchase or sale of Gulls, Terns, Grebes, Humming-birds and song birds.

To publish monthly in the Millinery Trade Review, a notice informing the millinery trade in general that it is illegal to buy, sell or deal in Gulls, Terns, Grebes, Humming-birds or song birds, and that no means will be spared to convict and punish all persons who continue to deal in the said prohibited birds.

To notify the millinery trade by printed notices, as to what plumage can be legally used.

To mail printed notices to all dealers in raw materials, importers and manufacturers of fancy feathers, and the millinery trade in general, that all violations of the law will be reported to the proper authorities.

IT IS FURTHER AGREED on the part of the Millinery Merchants' Protective Association, that on and after January 1, 1904, the importation, manufacture, purchase or sale of the plumage of Egrets or Herons, and of American Pelicans of any species, shall cease, and the said birds shall be added to the list of prohibited species mentioned above.

IT IS UNDERSTOOD AND AGREED, that the restrictions referred to in this agreement as to Gulls, Terns, Grebes, Herons and Humming-birds, shall apply to the said birds irrespective of the country in which they may have been killed or captured.

The Audubon Society of New York State, on its part, hereby agrees as follows:

To endeavor to prevent all illegal interference on the part of game wardens with the millinery trade; to refrain from aiding the passage of any legislation that has for its object restrictions against the importation, manufacture or sale of fancy feathers obtained from domesticated fowls or of the plumage of foreign birds, other than those specifically mentioned above.

It is AGREED by each of the parties that this contract shall remain in force for a period of three years from the date of its execution.

To show how far-reaching the agreement between the members of the Millinery Merchants' Protective Association of New York and the Audubon Society of the State of New York really is, it is only necessary to call attention to the following:

While it was not made a part of the formal agreement, yet the members of the committee representing the Audubon Society promised to identify any birds or plumage submitted by the milliners.

The first specimen submitted proved to be an adult Cattle Heron (*Bubulcus lucidus*) in full breeding plumage; it will be one of the prohibited birds after January 1, 1904.

In this connection it is interesting to quote the following from 'Bird Notes and News,' the organ of the British Society for the Protection of Birds, the first number of which appeared April, 1903.

"Killing Down the Buff-Backed Heron. In the last issue of the journal of the Khedivial Agricultural Society, attention is called, apparently none too soon, to the great diminution in the number of useful birds in the neighborhood of Cairo. The writer (Dr. Innes) tells of the 'almost total extermination' of the Buff-backed Heron (*Ardea bubulcus*), which he calls the Cattle-egret, from its habit of attending cattle and relieving them of insect pests. Birds of this species follow the plow and pick up mole-crickets and larvæ. Captain Shelley says that they cause 'great havoc among the locusts and other insects'. They were so common in the past, and did so much good that many travelers confounded them with the Sacred Ibis. Dr. Innes attributes the reduction in the numbers of this useful species to 'so-called sportsmen, who kill for the sake of killing'."
—Hy. S.—*From the Field*, Feb. 14, 1903.

Bird-Protection Abroad — II. South Australia

No better evidence of the world-wide interest in bird-protection can be found than in the laws of the various British colonies. Even in far-distant Australia so much progress has been made in legislation of this kind that the 'Bird Protection Acts' of some of the states compare favorably with those of any country in the world. In South Australia, the second in size of the Australian states, game-protection has received attention for thirty years or more, and at least four statutes relating to birds have been enacted; viz., the Game Act of 1874, Act No. 337 of 1885, the Game Act of 1886, and the Birds' Protection Act of 1900. The last two will suffice for comparison with the laws of our own country.

Under the game act of 1886 all birds were divided into two categories: 'Special game,' including Pheasants, Partridges, Grouse, California Quail and White Swans; and 'game,' including other indigenous or imported birds. Special game was protected from September 1 to April 1, and game, during close seasons, beginning on the first of June, July or August and extending, in each case, to December 15, thus covering only the breeding season. Nine groups of birds were excepted from protection. These groups were Crows, Black Magpies, Wattle Birds, Silver Eyes, Yellow-crested Cockatoos, Rosella Paroquets, Sparrows, Snipe and Cormorants. It is interesting to note that neither Hawks nor Owls, which are so frequently excepted in our laws and which at this time (1886) were being exterminated in some parts of the United States through bounty laws, were given the same protection as other birds in South Australia. The game act of 1886 prohibited purchase, sale and possession, as well as killing, and, like the law of New York, provided a double system of penalties for violations of its provisions. The fines, not exceeding £5 for each piece of special game, and £2 for each piece of game, were supplemented by fixed amounts representing the value of the birds—£2 in the case of special game and 5 shillings in the case of ordinary game; so that the maximum penalties for a single bird might range from $11 to $35.

The Birds' Protection Act of 1900 was a marked advance over the act of 1886, and in several respects bears a close resemblance to our A. O. U. model law, especially in grouping the birds under three 'schedules.' Birds mentioned in the first schedule were protected throughout the year; those in the second schedule (corresponding to our game birds) were protected during certain close seasons, while those in the third schedule were excepted from protection.* In order to mention by name the various birds which were protected throughout the year and still avoid an unduly long list, Gould's 'Handbook to the Birds of Australia' was adopted as the official guide, and the common name, accompanied by the family designation and the inclusive species numbers used by Gould, were given in each case. It is interesting to notice that this list contains, among others, Owls, Ibises, Herons, Egrets, Sea Gulls and Terns of all species. Birds, native or imported, which were not mentioned in the first or third schedules were included with game birds, and accorded a special close season extending from July 1 to December 21. The excepted list in the act of 1886 was modified by omitting Black Magpies and Sparrows and adding Hawks, English House-Sparrows, English Starlings and English Chaffinches. Why the Snipe was excluded from protection is not evident, but the fact that three of the other ten groups were introduced birds (two of which are now excluded by law from the United States) is a significant commentary on ill-advised efforts at acclimatization of foreign birds. Not only the English Sparrow and the Starling, but even the Chaffinch has increased so rapidly in South Australia as to become injurious and is regarded as unworthy of protection.

Like the A. O. U. law, the Birds' Protection Act prohibits possession, sale and export of birds or eggs, provides for keeping birds in captivity and for collecting for scientific purposes under permits issued by the Commissioner of Crown Lands on the recommendation of the Director of the South Australian Museum. In some respects it goes even farther than our laws, for it prohibits sale or offering for sale "any skin or feather of any protected bird, or *any article made therefrom*, or in which the same shall be used," and makes refusal, on the part of any person violating the law, to disclose his true name and address, punishable like other offences against the act. It also contains an interesting provision, to the effect that the governor may, by proclamation published in the 'Government Gazette,' "make an order declaring that any portion of the Crown lands, or any public reserve, or the seashore or any part thereof, shall be a bird-protection district."

It is evident that laws like these could not have been passed unless there was a strong local sentiment in favor of bird-protection, and this is also shown by the fact that, upon the passage of the act of 1900, large hand-bills, containing a list of the protected birds, were distributed, through the Minister of Education, to all the public schools, and, through the Commissioner of Crown Lands, to all the post offices, police stations, institutes and district councils. This favorable public sentiment has been largely created through the efforts of the Society for the Protection of Birds and the South Australian Ornithological Association. The former, a branch of the English Society for the Protection of Birds, was founded in 1894, and in 1901 had a membership of 1,033. Its headquarters are at Adelaide, and its secretary is Mrs. John Playford, 'The Willows,' Mitchan, Adelaide, South Australia. It has issued seven annual reports showing the progress of its work. The South Australian Ornithological Association, while primarily devoted to advancing the interests of ornithology in general, also devotes attention to bird-protection, and at the second annual meeting of the Australian Ornithologists' Union, in November, 1902, took an active part in the effort to secure the enactment of more uniform bird laws throughout southern Australia. Nowhere in the southern hemisphere has more active interest been displayed, and nowhere have more practical results in bird-protection been accomplished, than in South Australia.—T. S. Palmer.

* Upon proclamation of the governor, any birds could be transferred from one schedule to another.

CENTRAL PORTION OF THE GROUP OF BEACH-BREEDING BIRDS OF COBB'S ISLAND IN THE AMERICAN MUSEUM OF NATURAL HISTORY

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. V JULY — AUGUST, 1903 No. 4

The Bird-Life of Cobb's Island

BY FRANK M. CHAPMAN

With photographs from nature by the author

THE Atlantic coast, from New Jersey to North Carolina, is bordered by an outlying chain of islets. Many of them are mere sand bars, more or less grown with coarse grasses, and, on their western sides, fringed by marshes which reach out into the bays separating them from the mainland.

Useless for agricultural purposes, these islands have a high commercial value only when they have become the sites of summer resorts; but when they have not suffered from an irruption of hotels and cottages they are, as a rule, tenanted only by an occasional fisherman or the crews of life-saving stations, whose presence does not materially alter their primeval conditions.

Lacking the natural foes of birds which exist on the mainland, these barren islets make ideal breeding-grounds for birds, who find on them the isolation their peculiar nesting habits require, while the surrounding waters furnish them an abundant supply of food.

In all this chain of bird homes probably none has been better known to ornithologists than Cobb's Island, on the Virginia coast, north of Cape Charles. Seven miles long, it has been occupied by man only at the extreme southern end; a small sportsman's club-house and a life-saving station being now its only dwellings.

Twenty years ago Willet and Least Terns, in large numbers, and Royal Terns bred on Cobb's Island, but to-day the former is rare while the two latter are unknown, and there are left as breeding birds Common, Forster's, and Gull-billed Terns, Laughing Gulls, Skimmers, Oyster-catchers, Wilson's Plovers, Clapper Rails and Seaside Finches. Willet have disappeared before spring shooting in what was actually their nesting season. The Least Terns fell victims to the milliners, who greatly decreased the other species of Terns nesting on the island. The former

captain of the life-saving station told me of 1,400 Least Terns being killed in one day; while the present captain of the station and Mr. E. B. Cobb, owner of the island, informed me that when Terns were first killed for millinery purposes they, with another man, killed 2,800 birds in three days on and near Cobb's Island. The birds were packed in cracked ice and shipped to New York for skinning; ten cents being paid for each one.

BEACH AT COBB'S ISLAND, SHOWING SKIMMERS ON NEST IN THE DISTANCE

July, 1902, I visited Cobb's Island to secure data, photographs and material to represent its bird-life in a group at the American Museum of Natural History. A photograph of a portion of this group is shown herewith. Least Terns have been included in it, although the species is now extinct on the island, with the double object of showing the island-life as it was and of emphasizing the cause of this bird's annihilation.

Several hundred common Terns were observed and the species was said to be increasing. None of the few young seen had passed out of the downy plumage. Of Gull-billed Terns not more than eight pairs were noted. Several nests were found containing eggs, but no young were seen. Forster's Terns were present in small numbers nesting out on the marsh. A pair of Oyster-catchers, one pair of Willet, and a pair of Wilson's Plover had nested successfully earlier in the season.

Laughing Gulls were breeding in the marsh in large numbers, making their nests on piles of grass and weeds. The nests, as a rule, contained eggs, but in some cases young were found, and two birds a week or more old were found running about on the beach.

Black Skimmers proved to be the most abundant, as they are the most interesting birds on Cobb's Island, several thousand pair doubtless nesting there. Fortunately their plumage has never been fashionable and to this fact may be attributed their happy escape from the fate of the more daintily colored Terns. The Skimmers alone make Cobb's Island a worthy Mecca for bird students. Singular alike in structure and in habit, remarkably

graceful in flight, feeding most actively after dark when the influences of the night lend a weirdness to their calls, these birds are unusually interesting and attractive.

They breed on the beach in almost continuous colonies from a point about a mile and a half north of the life-saving station nearly to the north end of the island. Four eggs are laid in a depression in the sand made by the bird by squatting close and turning around, boring, as it were, a nest cavity. Like most conspicuous ground-nesting birds the Skimmers leave their nest at the first indication of danger and one's first knowledge of their presence is gained from a flock which, rising far ahead of one, comes charging down the beach with more or less regularity of formation, trumpeting loudly. Doubtless this habit accounts for the belief of various ornithologists, as well as of the baymen, that the Skimmer never visits its nest during the day.

It was not long after I had converted my umbrella blind (see June BIRD-LORE) into a grass-covered sand dune that the birds began to return and, alighting with waddling steps, walk toward their nests and settle themselves on their eggs with a chuckling note apparently indicative of satisfaction. At times the much larger male bird would stand beside his mate while she attended to the duties of incubation.

When a young bird was hatched the parent at once took the egg-shell whence it had emerged and carried it far up the beach; an interesting habit evidently of more importance to a tree-nesting bird which would avoid advertising the young bird above by the egg-shell below, than to a ground-nesting species. Possibly it may indicate a former arboreal habit on the part of the Skimmer (see June BIRD-LORE).

SKIMMER ON NEST

The young are born covered with a sandy-colored down which is dry at the end of two hours, when they are sufficiently strong to crawl from the nest to the shelter of a neighboring weed, which, in the absence of the parent, they seem to seek instinctively. At this time if the sun be shining the prolonged absence of the parent will

GULL-BILLED TERN ON NEST

mean death to the young through exposure to the sun's rays, showing how baseless is the theory that the parent comes to the nest only at night. Even during incubation it is probable that the parent's presence is necessary to protect the egg from excessive heat.

Young Skimmers, like many young birds, squat and remain motionless in the presence of danger, but the manner in which the Skimmer renders

MARSH AT COBB'S ISLAND, SHOWING LAUGHING GULLS ON THEIR NESTS IN THE DISTANCE

itself nearly invisible on a bit of sand, where there is no object with which it might be confused, is especially striking. In the newly hatched young the mandibles are of equal length and the characteristic prolonged lower mandible does not appear to be fully grown until after the bird takes wing. This may be considered as evidence that this specialized character has been developed late in the history of the species, or it may be a correlation in growth which defers the perfection of an organ until it can be successfully employed. Certainly without ability to fly a Skimmer could not 'skim,' as with the longer lower bill cutting the water it takes food from the surface.

LAUGHING GULL ON NEST

Until, therefore, the bird can fly its bill enables it to pick up such objects along the shore as might be desirable for food.

From my blind among the Skimmers I could look out over the marsh where the Laughing Gulls nested. In the morning light the breasts of these birds turned toward the east looked like great white flowers with which the marsh was dotted. They were photographed without difficulty by erecting bundles of grass on tripods near their nests one evening and replacing them with grass-covered cameras the following morning. Exposures were made with a thread run to the blind (which now was made to do duty as a musk-rat's nest) a hundred and fifty feet away. The first Gull returned to its nest within five minutes after the photographic apparatus was arranged.

An A. O. U. warden on Cobb's Island protects the birds from man,

but is powerless to preserve them from what, in the end, may prove a far more disastrous enemy. To kill the meadow mice which destroy the rigging and sails of his boats, Mr. Cobb has brought cats to the island. As usually happens when these creatures find they can fare better by relying on their own efforts than on their supposed owner's care, they have become self-supporting and live largely on the birds of the beach. Whether in the winter the food supply is so diminished that their numbers become correspondingly decreased remains to be seen; but, at the best, the existence of this predaceous animal among birds whose young are be at its mercy must be viewed with the utmost concern by every one interested in the preservation of the bird-life of Cobb's Island.

In the Haunts of New Zealand Birds

BY CHARLES KEELER

THE good Bishop of Dunedin takes a just pride in his extensive gardens. They are located well out of the city confines, occupying a charming natural gully which has been preserved with all its wealth of native verdure. A stream winds through it; a waterfall splashes down upon strange and beautiful ferns; pittosporum trees reach their tall, slender branches into the light, and in the damp solitude grow lofty tree-ferns, giving the place the aspect of a forest of the Carboniferous period. The Bishop escorted me over his domains, and in his excellent company I first made the acquaintance of a number of the New Zealand birds.

As we strolled through the wealth of tropical-looking foliage, a sprinkling of sunlight illumined the shadowy glen where a whisper of wind was audible amid the plumed tree-ferns and the scraggly boughs of the fuchsia trees. The voices of many birds rang in the solitude,—the liquid gurgle of the Bell-bird, the call of the Fan-tail, the plaintive ditty of the Gray Warbler, sweetly mingling with the silver cry of the cascade leaping over the mossy rocks, and the purling of the streamlet between its ferny banks.

The Bell-bird is an unassuming vocalist, about the size and build of an Oriole and colored in general an olive-green, brightening to a yellowish on the sides. A dark purple hue suffuses the head of the male, while the under parts are plumbeous in tone. The female lacks the purple and has a fine line of white on each side of the neck, reaching from the corner of the mouth. The male bird would pause now and again in its active, restless search for insects in the fuchsia bark, to utter its rich, melodious warble which reminded me somewhat of the strain of our western Meadowlark. I also heard a single, bell-like note which, when uttered by a number of singers in concert, had something of the

effect of a chime of tiny silver bells. This favorite of New Zealand's songsters is a member of a family well represented in Australasia and Polynesia, the Melaphagidæ, or Honey-eaters, a group characterized by the sharp, slender, moderately curved bill and grooved tongue.

Of other native birds, none interested me more than the Fantails. New Zealand claims two of these bird mites, members of the Old World Fly-catcher family,— the Pied and the Black Fantail. It was the latter bird which I encountered in the Bishop's grove—a tiny puff-ball with expanded wings and tail, slaty black in color, with a dark brown tinge on the wings and back and a touch of white on the ear coverts. A squeaky, rickety call served in lieu of song, but the little creature was vain as a Peacock, and strutted about with its conspicuous tail expanded to the fullest extent. If anything could make me believe in disembodied spirits entering birds and seeking to converse with men as they do in the myths of eld, it would be the actions of the Black Fantail. Flitting through the air with short, jerky motions, hovering about and following as if determined to alight on my shoulder, calling in its friendly, though unmusical tones, one of these little creatures seemed so determined to communicate with me that it became positively uncanny. Although, on many future occasions, I had opportunity of observing the extreme tameness of the Fantails, I never saw another one so persistent in its efforts to establish friendly relations.

The little Gray Warbler, which also attracted my attention amid the Bishop's tree-ferns and pittosporums, is one of the most fascinating creatures in the New Zealand groves. I had not been in the colony a day when, in an Auckland garden, a note reached my ears, so plaintive and tender, so varied and sustained, that I was incredulous about its being the voice of a bird. It seemed almost weirdly human, yet so fine and dainty, so slight and timid, as to resemble the piping of a woodland elf rather than the whistle of a bird. I was unable to detect the minstrel at the time, but in the Bishop's grove I traced it up and found a diminutive little creature most unostentatiously dressed in grayish brown above and paler gray below, with a trace of yellow on the abdomen. It was an alert, restless bird, flitting amid the foliage and uttering a fine, high twitter. Every now and then it would sing that wonderful song like some timid creature experimenting with a quavering, high-pitched pipe on various notes of the scale.

The Gray Warbler belongs in the same family with the Nightingale and other European songsters—the Old World warblers—a group which is not represented in America. It builds a wonderful pensile nest not unlike that marvel of bird-architecture, the home of the California Bush-tit, but with a larger entrance. The Maoris are fond of this little creature and have many songs and traditions in which it figures.

The South Island Tomtit was another haunter of the Bishop's fuchsia trees and veronica bushes. It, too, is a member of the Old World Warbler family—the Sylviidæ—so its name of Tomtit is misleading. Although not brilliantly colored, the male is more showy than many of its compeers in the New Zealand bush. Its head, throat and back are deep black, and its breast pale yellow. A fine white dot marks the base of the upper mandible, while conspicuous spots of the same vary the black of the wings and tail. The female is modestly clad in plain olive-gray, with white wing-bars and grayish breast. As one of these little fellows flitted about, briskly gleaning the leaves for insects, I heard its high, nervous call frequently uttered.

In company with the native birds in the Bishop's grove, I noticed several European species which have been introduced by the colonists. The European Goldfinch twittered from tree to tree, the Thrush of England called from its shady retreat, and a European Blackbird whistled as cheerily as if home were not way off in the antipodes.

After this peep at the sylvan-life of New Zealand, I felt that I had made a number of new friends, and, on exploring the rugged mountains which hem in that austere lake of the far south, Wakatipu, a wild retreat in the heart of the island, I rejoiced to find them there to greet me. Even in this mountainous wilderness many introduced birds had made themselves at home. The European Goldfinch, Starling and Blackbird were abundant about the sparsely settled country back of the village of Queenstown, and California Valley Quails called blithely in the scrub manuka thickets, reminding me of home.

The South Island Tomtit, of which I caught but fleeting glimpses in the Bishop's grove, was abundant here, and so tame that I had many opportunities of observing its ways. It is a jaunty little fellow with a big head and perky manners. Now, for an instant it sits in an attitude of repose, with wings a-droop; the next minute it is all animation, the wings flirt coquettishly and the tail is held erect, wren-fashion. A fine, squeaky call-note is frequently uttered from the fence-rail by the roadside or from a dead weed-stalk in the adjacent field. Now and then it darts into the air after an insect, snapping its bill after the manner of a Fly-catcher.

Another common bird in the Lake Wakatipu region, and, as I discovered later, in many other parts of New Zealand, is the little Silver-eye. It is a member of the same family as the Bell-bird—the Honey-eaters, although in superficial appearance it looks like one of our olive-green Vireos, or Warblers. The breast is gray and a white ring encircles the eye. These little birds emigrated to New Zealand from Australia within historic times, a great bush-fire apparently having driven them out to sea. They frequent the manuka and thorn scrub, uttering an emphatic high *cheriee* of a call-note.

Amid the forests of beech or fagus which clothe the mountains about the head of Lake Wakatipu, I found an entertaining bird company assembled. In walking up a gorge to a charming mountain lakelet, known as Rere Lake, which nestles amid the beech-clothed mountains, I heard the liquid tones of the Bell-bird, the timorous fluting of the Gray Warbler, and the lisping call of the South Island Titmouse. Dodging about in the clean foliage of the young beech trees on the margin of the lakelet, was a chunky little bird with a big head, a fine bill, stout legs and a stub tail. It was not over four inches long, and was colored an olive-green on the back and gray on the under parts. The sides and upper tail-coverts were yellowish green, the top of the head was dark brown and the sides of the head were black, with a conspicuous line of white above the eye. I soon recognized this odd little wood-elf as the so-called Bush-wren, although, as a matter of fact, it is not a Wren but an Ant-thrush, which, again, is not a Thrush but a Pitta,—one of a family of birds quite characteristic of the Australasian region. So much for popular names! When colonists settle in remote parts of the earth, they carry with them the familiar names of places, of birds and of flowers, applying them indiscriminately to the first objects that offer the slightest pretext. Thus it happens that the Robins of New Zealand are really Old World Warblers, the Tomtit belongs in the same family, while the Bush-wren is a Pitta.

Another interesting bird of the beech forests is the Pied Fantail. A diminutive creature, about the size and build of the Black Fantail, whose acquaintance we made in the Bishop's grove. The Pied Fantail is so lively and tame that the traveler in the most remote wilderness cannot feel lonely in its company. Listen to its high, sqeaky *queep! queep! queep!*—varied now and again by a still higher creaky squeak of a song. It is so whole-souled, so frankly unmelodious, so full of vain enthusiasm for unattainable song, that the listener is quite carried away by it. Then, see the little thing flitting about in the beech foliage, with quick jerks to emphasize its call, the showy tail expanded and erect, and the wings coyly drooping. It is an energetic, bustling, snappy creature, nervous and bristling. A grayish brown-black and pale buffy breast are scarce the colors for so vain and ambitious a mite, but the black and white of the head are as showy as a harlequin's mask, while the long tail is similarly varied. The Fantails, like other members of the Fly-catcher family, live chiefly on such insect prey as they can capture on the wing.

Native birds are by no means abundant in New Zealand, and the traveler must journey far from civilization to discover many species. While riding horseback over a wild mountain trail in the Routeburn Valley, some miles inland from the head of Lake Wakatipu, I saw, for the first and only time, the Yellow-head, popularly known to the colonists as the Wild

Canary. It is one of the Grass Warblers, a very loosely defined family of Old World birds. As its name implies, the bright yellow head is a distinctive mark of recognition. The yellow extends over the throat and under parts, while the back, wings and tail are olive-brown in tone. I had no opportunity of observing a near relative of this species, the Whitehead, which, though nearly extinct, may still be occasionally encountered in the North Island.

On this same ride into the heart of the Routeburn Valley, through forests of wind-swept beeches, with lofty peaks rising on either hand, in whose drear hollows glaciers crawled from summits of perennial snow, I saw the famous Kaka Parrot and heard its wild, shrill call. It is a large bird, a foot and a half long, of an olive-brown color, suffused with dark red and varied here and there with a tinge of yellow. This bird, which, before the advent of the white man was a vegetarian, has changed its habits with the introduction of sheep, having discovered that kidneys are excellent eating and may be secured with the aid of its sharp curved beak. In consequence of this Epicurean taste for sheep's kidneys, the colonists are waging incessant warfare on the Kaka, and the bird has become very rare except in remote solitudes.

Another member of the Parrot tribe, the Orange-fronted Parrakeet, crossed my path and gave me a glimpse of his showy plumage. He was dressed in a regulation parrot-green, with an orange band on the forehead and a stripe of crimson across the head. The bright blue of the flight-feathers completed his coat of many colors, making him altogether one of the most gaudy birds of all New Zealand. The Kakapo, or Ow Parrot, occurs also in this region, but is so rare that extinction threatens it in the near future. Although provided with wings, the flight muscles are so inadequately developed that the Kakapo is unable to lift itself from the ground. It is about the size of one of the larger Owls, and of a dull mottled-green color. Like the Owls, it is nocturnal in habit, and in structure differs so considerably from all other Parrots that systematists have placed it in a separate family.

Even in such mountain fastnesses as the country about the head of Lake Wakatipu, some of the most interesting birds of New Zealand can seldom be seen. The Kiwis, or Apteryxes, several species of which were once abundant in the ferny-jungles, are becoming very scarce despite their shyness and nocturnal habits. They are quaint creatures without wings, with long, delicate snipe-like bills, and feet that might belong to a fowl. They are allies of the Ostrich family and in some respects are the lowest of living birds. Four species of Kiwis still exist, but they are daily getting nearer to extinction. Such is also the case with the interesting flightless Wood-hen, or Weka, a curious member of the Rail family, once abundant in the wooded parts of New Zealand. The great family of Wingless

Moas, including such immense creatures as the Elephant Moa, with its enormously heavy legs and its little head reaching to a height of some thirteen feet, has become extinct in comparatively recent times, as the discovery of feathers, skin and eggs attests. An interesting chapter in the history of living forms is furnished by the numerous flightless birds of New Zealand. Isolated upon these islands, without enemies save a few Hawks and Owls, with little to stimulate them to put forth their best efforts, they gradually lost the power of flight through disuse of their wings and became an easy prey to the rude implements of savage men.

Let us now leave these mountain wildernesses of the far south where the wild Black Swans of Australia utter their hoarse, high trumpeting, as they fly over the lake, and the showy Paradise Ducks call in tones of exultant freedom, wandering amid the grassy mountain meadows,—let us desert these splendid solitudes for a glimpse of the haunts of birds in the North Island. I have in mind a charming retreat on the shore of Port Nicholson, just opposite the city of Wellington, where the native bush has happily been preserved, and where birds still gladden the woodland with their calls. Near the bay shore I caught the liquid roll of the Bell-bird from the hillside; the Pied Fantail fluttered merrily about me, and the tremulous pipe of the Gray Warbler came plaintively from the scrub manuka and bunches of toi-toi grass. Here also the Tui, or Parson-bird, sang its loud and varied strains. I could never be sure of the song of this species, for it mimics all the birds of the grove. The Tui, which belongs in the same group of Honey-eaters in which we found the Bell-bird and Silver-eye, is about the size of a Blackbird. The male is of a burnished greenish black color, with white wing-patches and white tufts on the throat like a parson's collar, whence its English name. The female, which is olive-brown in color, lacks the white plumes. Turning into the thickets where the Tuis and Bell-birds were singing, I found myself in a tangle of verdure; tree-ferns with quivering fronds of green were lifted on high and drooping gracefully above the shrubbery; great beech stumps were festooned with clinging rata vines; cordylines or cabbage-trees, with pointed, ribbon-like leaves clustered in bunches on their bare trunks, combined with the other foliage to make a scene of tropic splendor.

In the bush near Masterton, situated in one of the interior valleys north of Wellington across the Rimutaka Gorge, I found some new birds, in company with many heretofore observed. The Tuis called from the totara trees, their voices mingling with the whisper of the wind in the branches; the dainty strain of the Grey Warbler enlivened the thickets, and the thick-billed North Island Thrush uttered his call note in the shrubbery. I listened here for the first time to the song of the European Skylark, and saw the ecstatic minstrel soaring and climbing until it was a mere point in the

blue, singing, the while, a clear gurgling medley of continued song, as though nothing could exhaust its vitality. The Skylark has been introduced into many parts of New Zealand and seems to prosper in the new land.

The little New Zealand Kingfisher was a common bird in the Masterton district. It is much smaller than the Belted Kingfisher of North America, and is dressed in a blue-green coat, a buffy brown vest and a white collar. Although fond of the vicinity of streams, it frequently strays to a considerable distance from any water, where it no doubt finds enough insect food to take the place of a fish diet.

Many New Zealand birds of which the traveler reads and which he fondly expects to encounter during his wanderings, are so rare or locally distributed that it is well nigh impossible to have a glimpse of them alive. For example, there is the Blue-wattled Crow of North Island, and its near relation, the Orange-wattled Crow of South Island, which must be sought in certain restricted districts. So also with the Huia, a bird even more limited in range, being found chiefly in the mountains north of Wellington. It is one of the peculiarly interesting birds of the region, and is highly prized by the Maoris, who wear its tail feathers as emblems of chieftainship. The most extraordinary thing about the Huia is the great difference between the bill of the male and the female. The former has a comparatively short, stout beak, while that of the latter is abnormally elongated, slender and sickle-shaped. It is said that the male pecks the bark, into which his inseparable companion then thrusts her beak to extract the grub. It is with pain one learns that she does not, like a good and dutiful wife, divide the morsel thus jointly secured, but swallows it entire and leaves her lord and master to forage further. The Huia is a Starling, about a foot and a half long, glossy black in color, with a broad band of white on the tip of the tail. The face is ornamented with large rounded wattles of a brilliant orange color, and the bill is light ivory in tone.

Two other members of the Starling family which still occur in restricted areas of New Zealand, are the Saddle-back, so named from the rusty patch on the back of its black body, and the Jack Bird, which is colored a dark brown, edged in places with rufous. The former is found on the Barrier Islands off the Auckland coast, in the mountains back of Wellington, and in a few districts of South Island; the latter is confined to the lonely forests of the West Coast Sounds district of South Island. They are described as noisy, eccentric birds.

Two species of Cuckoos nest in New Zealand and migrate in opposite directions for the winter. The Long-tailed Cuckoo, which is colored strikingly like the Cooper's hawk of America, spends its leisure months of travel in the South Sea Islands, while the gaudy little shining Cuckoo, with its golden-green, iridescent back and its white, green-barred breast, journeys over the waste of sea to Australia. Both species seem to have

pitched upon the tiniest and most inoffensive of birds, the Gray Warbler, to rear their unwelcome broods.

It would be quite impossible, in the limits of the present paper, to describe the great number of sea and shore birds which frequent New Zealand. There are three or four of such peculiar interest, however, that I cannot refrain from alluding to them in passing. Of these, none is more singular than the Wry-billed Plover, with its bill turned sharply to the right, as if deformed. This peculiar structure is said to be of use in getting food out from around the corners of stones on the sea-shore. The Notornis, a flightless Gallinule of giant size, is interesting on account of its great rarity, only two or three specimens having been secured. In contrast to this showy purple monster, which has become extinct through its loss of the power of flight, may be mentioned two of the most extraordinary bird travelers in the world. The Eastern Golden Plover, which occasionally visits New Zealand, nests in Siberia and Kamtchatka, while the Bar-tailed Godwit journeys northward every autumn to its summer home in the same region. New Zealand is the very center of distribution for birds of the Albatross and Petrel family, which nest upon its southern rock-bound islets and wander hence over the cold and stormy seas of those high latitudes. The group includes birds which range in size from the largest and most daring creature of flight to frail wind-wanderers scarcely larger than the swallow.

In this brief résumé of New Zealand birds, I have merely undertaken to give a few glimpses into the life of that strange and beautiful wonderland, to peer amid the tree-ferns and the beech boughs for gentle songsters, to wander in the primeval bush for an introduction to the shy creatures which haunt its shadows. If these birds are to be known, it must be done at once, for a host of relentless enemies are sweeping them from the face of the earth.

The Loggerhead Shrike in Massachusetts

BY JANE ATHERTON WRIGHT, Greenfield, Mass.

With photographs from nature by Mrs. A. T. Beals

WHILE driving through Greenfield Meadows with a friend, on July 6, 1901, our attention was attracted by a bird that flew from a growth of underbrush close beside the road to an old apple-tree about ten rods away. As it alighted on an exposed branch, we saw that it was an unfamiliar bird whose bluish gray and black markings were plainly visible.

I had so long been watching for the Great Northern Shrike, in winter, that, as a nearer view was obtained, I felt reasonably sure the stranger must be a Shrike; but a Shrike in that locality at that season of the year was a thing unknown, and creeping cautiously nearer the tree I looked more closely at the bird, which sat calmly eyeing me, apparently free from all concern. Yes, the black lores, wings barred with white, and black tail with the outer feathers white! It could be no other than a Shrike, and the Loggerhead, too, for close scrutiny showed the narrow black line at the base of the bill connecting the lores. And the flight! "A piece of black and white patchwork fluttering in the air," Olive Thorne Miller has described it. Her words returned to me, and more than ever I felt assured that by some strange chance the Loggerhead Shrike was, in truth, before me. Then from the other side of the tree appeared another of the rare beauties and without alarm scanned us curiously.

The drive home was accomplished in a marvelously short time, and, after a hurried reference to a text-book, by means of which I verified my hopes, I hastened back, fearing lest the bird should be gone; but, as we neared the tree, there, in the road beside it was a dainty little fellow clad in black and gray, who, on our approach, fluttered, hopped and tumbled toward the shelter of the apple-tree, until, when directly beneath it, a short and uncertain flight concealed him among the friendly branches.

Our caution in approaching the tree was unnecessary, for, when we were beneath it, movements here and there betokened that the tree was the hiding place of more than one fledgling; and, one by one, four young Shrike were discovered. They were, indeed, hardly distinguishable from the adult Shrikes save by their shorter wings and their inability to move about in the tree with ease.

And now for the nest, which we felt sure must be located in the tree. Carefully and slowly we looked it all over, especially that part about seven feet from the ground,—the distance my books mentioned as the usual height at which the Shrikes built,—but our efforts were in vain and the darkness put a stop to all further search.

In the next few days (during which Mr. Torrey had kindly given me the information that he knew of but one other Massachusetts record of the Loggerhead Shrike) I made diligent search for the nest, which I was positive, from the feeble efforts of the young at flying, could not be far away. It was, however, only after a week's careful and systematic search in all the trees of the neighborhood, that I discovered it in a lowly brush-heap, within ten inches of the ground. This heap of brush had served them

LOGGERHEAD SHRIKE AND ITS NESTING-SITE

as a vantage-ground, together with the neighboring fence-rails, from which they pounced on the grasshoppers and crickets which constituted their sole diet, so far as I could judge.

The nest was a bulky structure, and was composed largely of chestnut catkins, with a mingling of pieces of string, rootlets, twigs and dried grasses; while the interior was deftly lined with fern-down and other soft substances.

A curious thing about the young Shrikes was their lack of confidence in their powers of flight; for, on two occasions, by stepping boldly toward one which was feeding on the ground, I was able, literally, to run it down.

It made no attempt at flight, but hurried over the ground in a series of fluttering runs and leaps, dodging and turning with great skill whenever necessary to escape capture. On the first occasion, July 11, I was not astonished that the young Shrike in its fright forgot its newly acquired habit of locomotion; but on August 4, by pursuing the same tactics, I was able to hold one of them in my hand again, though at that time the young could not be distinguished from the adult birds when in flight.

During the month in which the family were under observation they remained within half a mile of the nesting place; finally, however, almost forsaking it, save at night, in favor of another brush-heap about a fourth

YOUNG LOGGERHEAD SHRIKE

of a mile to the south. Over the intervening fields of waving corn and grassy meadow they reigned supreme; and the grasshopper families within those limits must have been woefully decimated, for such rapacious birds were never before under my observation.

Their usual cry was harsh and unmusical; but the song, though short and broken, was soft and sweet and well worth hearing. One of the call-notes was a short whistle, very human in its tone, and really musical. When in play with each other among the branches, I often heard them give utterance to a mewing note, remarkably like that of the Catbird.

My last visit to these most interesting birds was on August 8, and on August 10 they were gone. All search for them this summer has been unavailing, and I have reluctantly come to the conclusion that their appearance in this neighborhood was an accident, and not to be repeated.

For Teachers and Students

System in Field Records

BY EUGENE MURRAY—AARON

THE plea for the ever-ready note-book and praise of the diary-keeper, so excellently set forth by Mr. Ernest Thompson Seton in BIRD-LORE for December, 1902, deserves careful reading and more—following the advice—on the part of many who to-day are letting the hints and whispers of Dame Nature pass by unnoted and, in many cases, not to be repeated.

But, few of us are so endowed that we can make the immediate and charming use of such notes as can Thompson Seton. Or, being entomologists or botanists, we may yet observe many a fact worthy of recording outside our fields, among the mammals, birds, or reptiles. It is the recording and keeping of such notes as these that is most likely to be overlooked by the field student; for he does not feel competent to weigh and use them himself, nor does he think it at all likely that they will be dug out of his journals by students in other branches. Therefore, he early forms the habit of forgetting those observations not of special bearing on his own chosen department. It must be that in this way many unique happenings are lost to science; or, at least, their recording is postponed to the time of some later observer.

The solution of this problem of the permanency and useability of such records is a most obvious one; yet, I find few who seem to have arrived at it. It is to be found in that greatest literary invention of the last century—the card catalogue.

Let the field worker see to it that he never goes afield without an ample supply of cards. Let these be the standard (3 x 5 inch) size, so that they will fit into any public or private card catalogue; for, if they are smaller than the cards with which they are to be incorporated they can be pasted on the larger cards, while, if larger and filled with notes to their margins their incorporation is impossible. The writer finds it convenient to have these cards mounted in tablets of 100 each, gummed at the lower edges so that the particles of adherent gum on a removed card will not be on the top or sides to interfere with the ease of handling them in the catalogue drawer.

Two dissimilar or unrelated observations should never be put on one card. Let each card be the bearer of its own story and no more; the wisdom thereof will be amply apparent to the student when their classification and filing time arrives.

All cards should be dated; the ordinary rotary rubber-dating stamp is

an excellent article for that purpose. While the impression is fresh in the mind the card headings should be written, if they record facts bearing upon the recorder's hobby. If, however, the records are of observations not likely to be of use to the recorder, but which he designs to hand over to some student who may make use of them, the head spaces of the cards should be left blank for that student's use, to be filled in as he thinks best suited to the classification of his catalogue.

To illustrate this, let me here reproduce a card of my own recording:

DR. EUGENE MURRAY-AARON
LANIER HEIGHTS, WASHINGTON, D. C.

December 3, 1902

The male Carolina Wren, who with his mate has taken up his winter quarters in my west library-window awning, thereby making it impossible to take the awning down this year, to its ruin no doubt, invariably sets up a great scolding whenever the lions, panthers and wolves in the National Zoo start up their sunset concert in the valley below my home. If they are quiet, so is he. It sounds much like swearing.

Now this card may interest an ornithologist; but, if so, I am not competent to judge whether he will classify it under "Wren," "Carolina Wren," "Nesting Habits," or how. And should some student of the cat tribe take a fancy to the card he certainly would not thank me for filling up that head line with the words "Wren, Carolina," as I would for my own catalogue.

The libraries of our scientific societies are all more or less cumbered with manuscript note-books—note-books containing perhaps ninety-five per cent of chaff. Some years ago, in the archives of a society that shall remain nameless, I discovered note-books regarding his field observations in America kept by that pioneer student of the diptera, Baron Osten-Sacken. These, at least some of them, had been used as scrap-books to hold clippings from daily papers regarding injurious insects, the source of the clippings amply attesting the utter worthlessness of the material that had obliterated Osten-Sacken's notes. There is nothing more unhandy to deal with, to keep conveniently on library shelves, and to properly classify, than the ordinary collection of note-books or diaries. Who ever saw two of them of the same shape and size? They are seldom thick enough to label on their backs and, after a season in the field, are usually about ready to fall apart, any how. And, as a rule, the useless material in them far outweighs the useful.

Some Notes on the Psychology of Birds

By C. WILLIAM BEEBE
Curator of Birds, New York Zoölogical Society

(Reprinted by permission from the Seventh Annual Report of the New York Zoölogical Society)

EVEN a superficial study of the psychology of birds compels us to attribute to them a highly developed intellectual and emotional life. A few examples may make this more patent, and I will mention only those which entail rather complex psychic processes. Birds have remarkable memories. It is said a Pigeon will remember a person after many months, and a Bullfinch has been known to recognize a voice after a year's time. Birds often dream, and frequently sing or chatter in their sleep. There are few species of birds which do not show the emotions of love and sympathy, and, what is a very rare trait among animals, that sincerity of affection which causes many birds to mate for life. Even in those species which pair for only a year, one of the two will sometimes pine and die with grief at the loss of its mate.

Indeed, sympathy is the key-note in the growth of the higher intellectual and social qualities which find their culmination in man, and Professor Shaler is right when he attributes to birds a higher development of this emotion than to any other creatures below man. Reptiles can be trained to know their keeper, and an alligator will defend her buried eggs; dogs are unusually affectionate animals, and the higher monkeys have many sympathetic habits and emotions, but birds lead them all. This is not remarkable when we consider the wonderfully important place which the *family* holds in this class of vertebrates. The building of the nest, the comparatively long incubation of the eggs, and the patient feeding and complex education of the young birds all are duties in which both parents often share. It is this continued association, this "bridging over of generations," which has made sympathy so prominent a factor in the minds of birds. In what other class of animals are vocal signals of fear, distress, or terror so widely understood, or so willingly met with efforts of assistance ?

To me it seems puerile to try to believe that a bird's affection for her young, so great that she will often give her life in their defense, can be correlated with an *instinct*, using that word in the common acceptance of the term. It is no more an instinct in the sense of an uncontrollable emotion, than is the analogous action of an heroic human being. Altruism, pure and simple, has governed the action of more than one bird under my observation during the past year, and that, too, in some instances, between birds of different species. Three instances come to mind: a female Red-winged Blackbird which carried a mouthful of worms to a nestful of young Red-wings near by, before passing on to brood her

own eggs, as yet unhatched; a Loon which voluntarily risked his life to free a Pied-billed Grebe from a nearly fatal ice-trap; and a Great Crowned Pigeon which assumed the care of and sheltered a nestling Ring Dove deserted by its parents.

Another aspect of the mental processes of birds shows us examples of revenge being taken after long and patient waiting for a favorable opportunity, while, on the other hand, Crows have been known again and again to sit in judgment upon one of their number, and to sentence and punish it with death.

The language of birds is most complex, and all, from the marvelous song of the Nightingale and the imitative powers of the Mocking-bird, to the many moods and feelings reflected in the apparently meaningless chirps of our city Sparrows, tell of mental powers striving for expression.

In man, the various emotions depend upon language and the range of expression of the face for their outward demonstration, and it is interesting to compare with this the state of affairs among birds. These creatures, handicapped by a vocal language very inferior to our own, and faces, for the most part sheathed, like those of insects, in expressionless masks of horn, yet are able by movements of their feathers, limbs, and other portions of the body, to express a wide range of emotions, and to clearly communicate even delicate shades of meaning.

Interrupting, for a moment, the mention of these finer qualities which show the high mental position of birds, it is desirable to emphasize a factor common to all animals, but which in birds is very important, and developed to a remarkable degree — that of extreme *individuality*. It is to this plasticity or wide variation on the already high level of knowledge, or "platform of determination," as Baldwin happily terms it, that gives to birds the numerous chances for new *accidental opportunities*, as we may call them — stepping-stones on the road of deduction, to some new and higher expression of psychic power. Every-day accidents in the search for food may be instantly seized upon by the quick perception of birds and turned to good account.

Birds had early learned to take clams or muscles in their beaks or claws at low tide, and carry them out of the reach of the water, so that at the death of the mollusk the relaxation of the adductor muscle would permit the shell to spring open and afford easy access to the inmate. Probably it needed only the accidental dropping of a few shells on the hard rocks, and a taste of the appetizing morsels within, to fix the habit which, by imitation, has spread so widely among birds at the present day. To how trivial an accident might the beginnings, the psychic *anlaga*, of many modern cosmopolitan traits of birds be traced if we could but read the past clearly!

Play and courtship — while they go hand-in-hand, so to speak — afford

opportunity for the vast resources of variation to be abundantly expressed. Groos, in his admirable "*Spiele der Thiere*," has given five separate classes under the head of courtship:

1. Love plays among young animals.
2. Courtship by arts of movement.
3. Courtship by display of unusual or beautiful colors and forms.
4. Courtship by means of noises and tones.
5. Coquetry in the female.

In the Zoölogical Park each spring, and indeed during almost every month of the year, many examples of these courtships and plays can be observed. The dances of Cranes and Eagles, the magnificent showing off of Pheasants and Ducks, the screams of Parrots and all the songs vibrant with sentiment, in which birds strive to outdo each other in the eyes of the female, show how greatly the spirit of emulation and recognition of their respective accomplishments inspire the suitors. We should also realize how pronounced must be the discriminative power and æsthetic appreciation of the females. The display of the Peacock combines the classes of movement, color, and noise; for the beauty of its argus-eyed feathers is made more effective by their being raised in a halo above the bird, the shivering of its wing-quills forming a castanet accompaniment.

A genuine delight is taken in these various displays. So far from being intuitive or mechanical exercises, they are conscientiously practiced for weeks beforehand, and are kept up long after the period of courtship and nesting is over. For instance, in the Zoölogical Park, when a Peacock in early spring timidly erects his plumes before an unappreciative Crow, it is for practice in anticipation of its later use in competition with his rivals. After the period of courtship, when he struts back and forth before a line of admiring people, the exercise is from pure delight and appreciation of his own beauties. The Germans, in their finely discriminating language, express the delicate shade of meaning in these acts by *vorübung* and *ausübung*. Even in birds which pair for life, I have noticed a coquetry and pretended courtship, spring after spring.

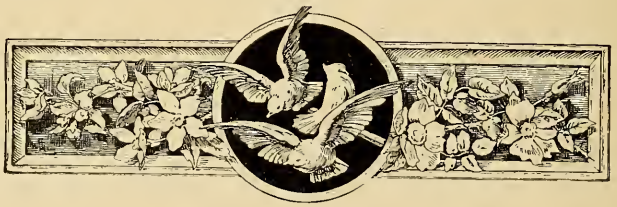
One more interesting fact about courtship among birds—another indication, perhaps, of their individuality—is that it is not always the most highly decorated suitor, nor the one victorious in combat, who wins the female for whom he is putting forth his utmost efforts. I have seen a Peahen show a very decided preference for, and ultimately pair off with, a young bird who had but small display, and was almost spurless. An amusing instance also noticed in the park was that of some Mallard Ducks. Three drakes vied with each other for the favor of a little brown duck. One of the drakes seemed to put but faint hope in his splutterings and bowings, and little wonder, for his tail feathers and the snowy curl, one

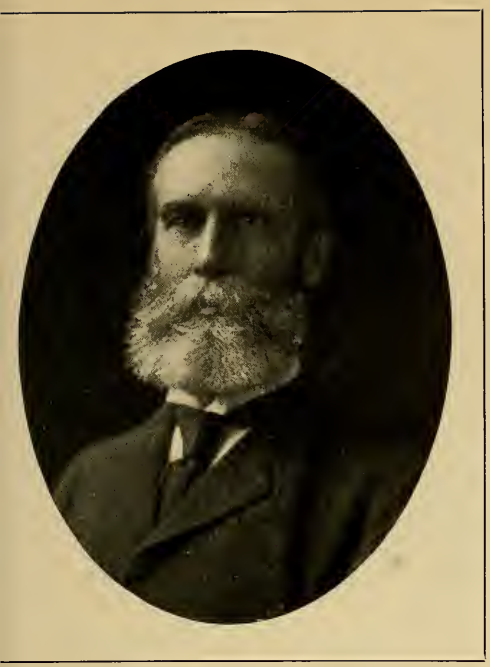
of the decorations of his sex, had been shot away, and shot-scars had spoiled the symmetry of other parts of his plumage. The other two were large and beautiful birds, bred in the park. The iridescent emerald of their heads and necks and their immaculate shining collars made them incomparably more conspicuous than the smaller wild bird. Nevertheless, all their efforts were in vain, while the occasional pitiful attempts of the handicapped suitor to spread an imaginary tail and declare his everlasting devotion prevailed. He was accepted, and the pair were inseparable until the nest was finished and the duck began sitting on her eleven eggs.

Turning from the birds in the collection to our wild native birds which make the park their home, or pay it frequent visits, we find much of interest in their changed habits and dispositions. The sight of so many birds flying unharmed in the flying cages or walking about their ranges or swimming on the various ponds undisturbed, although in close proximity to man, is fraught with significance to the quick perceptions of wild birds, large and small. Their keen perceptions and superior powers of intelligence tell them that such unwonted altruisic conditions must offer advantages.

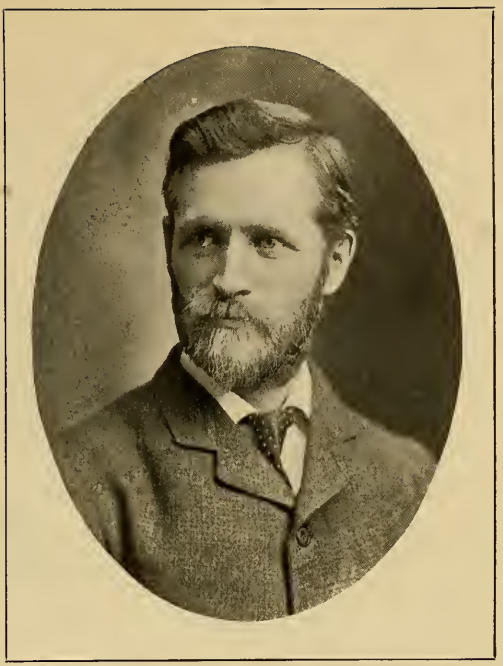
The almost immediate recognition of their security in the park is remarkable, and birds which seldom show themselves within sight of civilization have come again and again, and exhibited a tameness which deceives many people into thinking they must be escaped birds. The honored visitation of Canada Geese will long testify to the truth of this. Wild sea Gulls quite often drop from their loose flocks passing overhead, and consort for a few days with their wing-clipped kindred. When they leave, the young Gulls which have been hatched in the park usually accompany them, but return in a few hours to their home and flock. Ducks, Herons and Hawks show as quick a realization of their immunity from danger in the park.

Green Herons creep like feathered phantoms among the branches of the trees overhanging the water, while Great Blue, and Black-crowned Night Herons, forgetting all shyness, clamber over the arches of the big flying cage in broad daylight, and in sight of hundreds of people, peering down at their brethren inside and uttering envious quawks as they see the bountiful repast of fish and shrimps prepared for those fortunate ones.





WM. C. RIVES,
Virginia, West Virginia



W. E. SAUNDERS, *Western Ontario*

WITMER STONE,
Eastern Pennsylvania, Southern New Jersey

O. W. KNIGHT, *Maine*

BIRD-LORE'S ADVISORY COUNCILORS

FIFTH SERIES

What Bird is This?

Field Description.— Length, 5.70. A yellow line before eye and on bend of wing; above, streaked brown, black and bluff: below, white streaked with black.

NOTE.— Each number of BIRD-LORE will contain a photograph, from specimens in the American Museum of Natural History, of some comparatively little-known bird, or bird in obscure plumage, the name of which will be withheld until the succeeding number of the magazine; it being believed that this method of arousing the student's curiosity will result in impressing the bird's characters upon his mind. The species figured in June is a Grasshopper Sparrow.

Questions for Bird Students

V

22. How many common or vernacular names have been applied to the Flicker?

23. How many birds are recorded as having struck the City Hall tower in Philadelphia between August 27 and October 31?

24. How many plumages are worn by Ptarmigan annually?

25. What reason has been advanced to account for the Shrike's habit of impaling its prey?

26. How many Ptarmigan wings are known to have been included in one shipment from Archangel, Russia?

Notes from Field and Study

A Robin's Defense of Its Nest

In the latter part of July, 1902, I was visiting at a farm in East Douglass, Mass. A few rods from the farmhouse was an apple orchard, through which extended a long trellis covered in most parts with a luxuriant grape-vine. This trellis was about six feet high, and several young fowls were in the habit of using the top rail, where it was comparatively free from leaves, as a roosting place during the night. For two evenings, just before dark, the sharp cries of a Robin and the squawking and fluttering of half-grown chickens were heard coming from this place in the orchard, but no particular notice was taken of it. I decided to find out what happened, and, on the next evening, took a place on the piazza from which a good view of the place could be had. First appeared the chickens, three of them, and finally they got settled on the top rail of the trellis. Then, uttering sharp cries, a Robin swept downward from an apple tree, and, flying violently against one of the chickens, knocked it fluttering and squawking to the ground. After a short interval the Robin made another descent, and, hovering over the backs of the remaining chickens, administered several sharp pecks which brought forth cries of pain. A third downward sweep sent another chicken to the earth. The last chicken was not to be moved, however, for after several more attacks, the Robin gave up, probably frightened by the great commotion he was creating. The two fallen chickens contented themselves with a lower perch and the Robin disappeared. Curious to know the cause of all this, we went to the trellis and found on the top rail, about twenty feet from where the chickens roosted, a nest containing several young Robins. Very likely, the parent Robin thought the chickens were too near for safety, and sought thus to defend his home.

The next day a cat found the nest and destroyed the young. — CLARENCE M. ARNOLD, *Woonsocket, R. I.*

Dove's Nest on the Ground

I do not know how common it is to find Mourning Doves' nests on the ground, but I observed one for two weeks this summer while the young birds were in it, late in July and early in August, which lay out in the open in an apple orchard, at a distance from the nearest tree and quite unprotected. We have found two other Mourning Doves' nests in trees in the same orchard, in one of which the young birds are still remaining, and to judge from the number of these birds I have seen this summer, there were probably several other nests in the neighborhood.— E. H. CROSBY, *Rhinebeck, N. Y.*

An Odd Nest-site of the Chimney Swift

I have been interested by the article relating to the nesting habits of the Chimney Swift, published in the last number of BIRD-LORE. In Mr. Embody's "Birds of Madison County, New York," issued last year, I noticed similar mention of a pair, which, for a number of years, built their nests in a barn at Lake Earlville. These were of the usual type, and always "fastened to the side boards very near the peak of the roof."

Another record of an unusual site is also furnished by Madison County: In 1895, Judge A. D. Kennedy, since deceased, wrote me of the breeding of a pair in an old well on a farm near Brookfield, the nest being placed some four feet from the surface. —WILLIAM R. MAXON, *Washington, D. C.*

Starling in Massachusetts

In your notice of Mr. R. O. Morris' "Birds of Springfield" mention is made of the disappearence of the European Starlings after their release in this vicinity. On October 1, 1899, I saw a male of this species feeding with a flock of House Sparrows on the Catholic church lawn on North street, Pittsfield, Mass. It was in beautiful plumage and looked vigorous.— JOHN DENWOOD, *Fall River, Mass.*

Book News and Reviews

BIRDS IN THEIR RELATIONS TO MAN. A Manual of Economic Ornithology for the United States and Canada. By CLARENCE M. WEED and NED DEARBORN. Philadelphia and London. J. B. Lippincott Company. 1903. 12mo. viii + 380 pages, numerous illustrations.

The authors state that the need of this book "was first shown when the senior author undertook to teach a college class the subject of economic ornithology, and its first draft consisted of the lectures prepared for that class. When, later, the junior author — a life-long student of birds — became associated with him, a joint study of the whole subject was undertaken, the results of which are here presented."

This work has evidently, therefore, been prepared from a practical, teachers' point of view, a fact which should add greatly to its value. In treating a subject into which statistics enter so largely and which, in its details, is lacking in popular interest, there was an excellent opportunity to produce a book which would be far from attractive.

The authors, however, appear to have avoided this difficulty, and to have made a readable volume, containing, at the same time, a vast amount of information, as is indicated by the following table of contents: Introduction, 'The Relations of Birds to Man'; Chapter I, 'The Methods of Studying the Food of Birds'; Chapter II, 'The Development of Economic Ornithology'; Chapter III, 'The Vegetable Food of Birds'; Chapter IV, 'The Animal Food of Birds'; Chapter V, 'The Amount of Food Consumed by Birds'; Chapter VI, 'Birds as Regulators of Outbreaks of Injurious Animals'; Chapter VII, 'The Relations of Birds to Predaceous and Parasitic Insects'; Chapters VIII to XX, Systematic Treatment of the Food of North American Birds by Families and Species; Chapters XXI and XXII, 'The Conservation of Birds'; Chapter XXIII, 'Preventing the Depredations of Birds'; Chapter XXIV, 'Encouraging the Presence of Birds'; Appendix I, 'The Bird Law of the American Ornithologists' Union'; Appendix II, 'The Lacey Bird Law'; Appendix III, 'Some Fundamental Principles of Bird Laws'; Appendix IV, 'A Partial Bibliography of the Economic Relations of North American Birds.'

It is evident from this citation of chapter-headings that this book contains more information in regard to the general subject of economic ornithology than has before been brought into one volume, a fact which should, and we trust will, commend it to every one interested in the more practical side of the birds' relations to man.— F. M. C.

PROCEEDINGS OF THE NEBRASKA ORNITHOLOGISTS' UNION AT ITS THIRD ANNUAL MEETING. Edited by ROBERT H. WOLCOTT. Lincoln, Neb. 8vo. 108 pages, xvi plates, numerous text-cuts.

The third volume of these 'Proceedings' contains a report of the meeting of this active organization held at Lincoln, February 1, 1902, and the papers which were there presented. The officers elected for the ensuing year were: President, J. M. Bates; vice-president, Mrs. George H. Payne; corresponding secretary, J. C. Crawford, Jr.; recording secretary, R. H. Wolcott; treasurer, Augest Eiche.

The papers here published include an admirable address by the retiring president, Professor E. H. Barbour, on 'The Progenitors of Birds,' with numerous illustrations; 'A Story that Ends Rightly,' by Frank H. Shoemaker (illustrated); 'Water for Birds,' by Elsie Pepoon; 'From a Woman's Standpoint,' by Nell Harrison; 'Ten Years Without a Gun,' by Wilson Tout; 'A Pair of Young Barred Owls,' by Elizabeth Van Sant (illustrated); 'Notes on the Distribution and Habits of the Blue Grosbeak in Nebraska,' by Myron H. Swenk; 'Some Birds Found Around Dunbar During Winter Months,' by E. H. Jones; 'Our Winter Birds,' by Myron H.

Swenk; 'A Comparison of the Bird-life Found in the Sand-Hill Region of Holt County in 1883–84 and in 1901,' by Lawrence Bruner; 'Some General Remarks upon the Distribution of Life in Northwest Nebraska,' by Merritt Cary (illustrated; 'Notes on the Nesting of Some Sioux County Birds,' by M. A. Carriker, Jr. (illustrated); 'Bird and Nest Photography,' by I. S. Trostler; 'Record of Nebraska Ornithology,' by R. H. Wolcott; Obituary Notices and Miscellaneous Notes.—F. M. C.

The Ornithological Magazines

Bulletin of the Michigan Ornithological Club.—"After a few years of apparent sleep, the Michigan Ornithological Club has again become active, and likewise its Bulletin, which discontinued publication (with Volume III, No. 2) in April, 1899, leaving Nos. 3 and 4 unpublished, has taken on a new lease of life, and again appears as the regular record of the club."—[Editorial.]

The present number of the 'Bulletin' contains 'In Memoriam—Thomas McIlwraith,' by William E. Saunders, with a full-page portrait of Mr. McIlwraith; 'Some Work for Michigan Ornithologists to Do,' by William Dutcher, urging the club to take an active part in bird-protection measures; 'Some Hints for Bird Study,' by Walter B. Barrows, containing some sound advice; 'A List of the Land Birds of Southeastern Michigan,' by Bradshaw H. Swales; 'Suggestions for a Method of Studying the Migration of Birds,' by Leon J. Cole, which the club would do well to act upon; 'Personals,' 'Editorials,' 'Book News and Reviews,' 'Notes from Field and Museum,' and a 'Membership Roll' in which all ornithologists of the Great Lake Region should have their names included.

The 'Bulletin' is edited by Alexander W. Blair, Jr., 131 Elmwood Avenue, Detroit, Michigan, to whom communications may be addressed.—F. M. C.

The Condor.—In the May number of 'The Condor' students of bird migration will find an interesting account, by W. Otto Emerson, of 'A Remarkable Flight of Louisiana Tanagers' at Haywards, California. Although seldom seen during the spring migration in this locality, the birds were very abundant from May 12 to 28, 1896. They were also unusually abundant about eight days earlier at Pasadena, in the southern part of the state. At both places they did much damage to cherries, and consequently were shot in large numbers, the number killed at Haywards being estimated at 600 to 1,000.

Under the caption 'Nesting Dates for Birds in the Denver District, Colorado,' Fred M. Dille has summarized the results of many seasons' collecting in the Rocky Mountain region for the use of those who desire to obtain specimens or photographs of nests, eggs or young birds. From the data here presented it appears that complete sets of eggs of most of the Colorado birds may be found between May 15 and June 15. Nesting habits are also treated in three other papers (all illustrated). These are 'Two Vireos [Cassin's and the Western Warbling] caught with a Camera,' by William L. Finley; 'The Harris Hawk on His Nesting Ground,' near Corpus Christi, Texas, by Mrs. F. M. Bailey; and 'A Strange Nesting Site of *Calypto anna*,' on a telegraph pole in the main street of Santo Monica, California, by W. Lee Chambers.

The status of 'The California Yellow Warbler' is discussed by Joseph Grinnell, who reviews the history of the western bird and names it *Dendroica æstiva brewsteri*, basing his description on a specimen collected at Palo Alto, California. *Dendroica a. morcomi*, described from a bird taken at Fort Bridger, Wyoming, is treated as a synonym of *D. æstiva*. Two faunal papers 'Stray Notes from Southern Arizona,' by F. H. Fowler; 'Bird Notes from Eastern California and Western Arizona,' by Frank Stephens; and two short notes on Hawaiian birds by William Alanson Bryan also deserve mention. Stephens' paper contains the first instalment of notes on the species observed in the summer of 1902 in a little known region of the Colorado desert and will be concluded in the next number.—T. S. P.

Bird-Lore

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Devoted to the Study and Protection of Birds
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Bird-Lore's Motto:
A Bird in the Bush is Worth Two in the Hand

We figure in this issue of BIRD-LORE a portion of a group of birds lately placed on exhibition in the American Museum of Natural History. This group is intended to be a companion piece to the Bird Rock group completed some years ago. The latter represents the sea-bird life of a rocky, precipitous shore, while the more recent group reproduces the sea-bird life of a sandy beach.

The first group has been pronounced both a faithful and attractive representation of the conditions it is designed to depict, but in the newer group a further attempt at realism has been made through the introduction of a painted background.

The observer is supposed to be standing on the inner, westward side of the broad beach of Cobb's Island, Virginia, and to be looking eastward across the beach out over the sea. The foreground, with its birds, grasses and shells, is real, the more distant beach and the sea are painted, but so cleverly are the two joined that, as our illustration shows, it is difficult to tell where one leaves off and the other begins.

We mention this exhibit not as a bit of museum news, but to compare it with the rows of birds mounted stiffly on T perches which constitute the usual museum display in ornithology. On the one hand is monotony of pose without suggestion of haunt or habit; on the other, the bird is a part of the scene in which, in life, it belongs.

There is obviously small need for this comparison so far as the merits of these two types of museum exhibits are concerned, and it is made solely to emphasize the difference between effective and ineffective methods of presenting facts in natural history.

The public file past the endless rows of stuffed specimens, pausing only here and there for a second look at some bright color or, perhaps, at the owner of a familiar name, but in the end are brought no nearer the bird in nature. And it should never for a moment be forgotten that it is the bird in nature to which the museum exhibits ought to lead us.

The stereotyped stuffed bird or bird's skin will do for the student who refers to it as one would to a dictionary, but it is emphatically not an object to appeal to one whose interest in the language of ornithology remains to be awakened. We may then compel the attention of the unobservant by appealing primarily to the universal love of the beautiful. This Cobb's Island group is a picture in color which few can pass with only a casual glance. Once really seen it arouses the curiosity. This may lead to the reading of a label, and thus the way is opened for the entrance not only of the general facts which the group is designed to illustrate but of those relating to the birds of which it is composed.

Nor is this lesson to be read by the museum curator alone. It belongs equally to every teacher of natural history. It may not always be possible for him to present facts through the medium of a such group as the one in question, but at least the fact should have its proper setting, which should not only be accurate but attractive.

It is only failure to grasp a fact in its proper relations, to appreciate its real meaning, that leads some teachers away from the truth in an attempt to secure their pupil's attention. Thus we have natural history fiction. But he has indeed a vivid imagination who can create fiction which shall be more interesting than facts in nature.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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Florida ..... MRS. I. VANDERPOOL, Maitland.
Illinois ..... MISS MARY DRUMMOND, 208 West street, Wheaton.
Indiana ..... W. W. WOOLEN, Indianapolis.
Iowa ..... MRS. L. E. FELT, Keokuk.
Kentucky ..... ——— ——— ———.
Louisiana ..... MISS ANITA PRING, 1449 Arabella St. New Orleans.
Maine ..... MRS. C. B. TUTTLE, Fairfield.
Maryland ..... MISS ANNE WESTON WHITNEY, 715 St. Paul street, Baltimore.
Massachusetts ..... MISS HARRIET E. RICHARDS, care Boston Society of Natural History, Boston.
Minnesota ..... MISS SARAH L. PUTNAM, 125 Inglehart street, St. Paul.
Missouri ..... AUGUST REESE, 2516 North Fourteenth street, St. Louis.
Nebraska ..... MISS JOY HIGGINS, 544 South 30th street, Omaha.
New Hampshire ..... MRS. F. W. BATCHELDER, Manchester.
New Jersey ..... MISS JULIA SCRIBNER, 510 E. Front street, Plainfield, N. J.
New York ..... MISS EMMA H. LOCKWOOD, 243 West Seventy-fifth street, New York City.
North Carolina ..... T. GILBERT PEARSON, Greensboro.
Ohio ..... MRS. D. Z. MCCLELLAND, 820 West Ninth street, Cincinnati.
Oklahoma ..... MRS. ADELIA HOLCOMB, Enid.
Oregon ..... MISS GERTRUDE METCALFE, 634 Williams ave., Portland.
Pennsylvania ..... MRS. EDWARD ROBINS, 114 South Twenty-first street, Philadelphia.
Rhode Island ..... MARTHA R. CLARKE, 89 Brown street, Providence.
South Carolina ..... MISS S. A. SMYTH, Legare street, Charleston.
Tennessee ..... MRS. C. C. CONNER, Ripley.
Vermont ..... MRS. FLETCHER K. BARROWS, Brattleboro.
Virginia ..... MRS. J. C. PLANT, Glencarlyn.
Wisconsin ..... MRS. REUBEN G. THWAITES, 260 Langdon street, Madison.
Wyoming ..... MRS. N. R. DAVIS, Cheyenne.

The Literature of Bird Protection

Within the decade it has been difficult for the amateur bird student to obtain suitable guide-books for his use. Then came the great revival of 1895; enthusiasm started and waxed intense; the Audubon movement, that had beforetime merely flickered, swept into flame, and a crusade was formed, too strong with a righteous indignation to be at first discriminating in what it attacked. The fact of wholesale bird destruction was its battle-cry, a cry which has been heard at least around the civilized world even if all have not yet given practical heed.

Next came the demand, from the conservative, for definite and detailed information, that remedies might be adopted suitable for local needs,— not emotional, figurative writing, but accurate, scientific statement, such as the general medical practitioner —if he is an able man — seeks from the specialist in troublous cases.

In answer to this demand has sprung a new form of expression, the Literature of Bird Protection,— literature, because it goes far beyond the mere tabulation of facts, and thus wins for itself a permanent place that its statistics alone could not obtain for it.

While the majority of more or less elaborate manuals of ornithology and nature-books of the past eight years dwell upon the economic value of birds, it has been

left to the last two or three years to see the exact status of law and conditions so collected that any one interested in such matters may keep them at his elbow.

Audubon workers should realize their responsibility, the importance of accuracy and keep themselves well informed,—as there is nothing so disastrous as the effect of loose statements and overdrawn claims upon the skeptical,—and both welcome and circulate this literature.

Without excluding much else that is valuable, I wish to call attention to three recent publications, viz., 'The Educational Leaflet Series' of the National Committee of Audubon Societies; 'Audubon Societies in Relation to the Farmer,' by Henry Oldys (reprint from the Year-Book of the Department of Agriculture, 1902), and 'Birds in their Relations to Man,' the manual of economic ornithology prepared by Messrs. Clarence M. Weed and Ned Dearborn, D. Sc. and issued in an illustrated volume of some 375 pages by the J. B. Lippincott Company, of Philadelphia. The educational leaflets treat each of one bird, the four already issued being on the much misunderstood Nighthawk, the Mourning Dove, the Meadow-lark and the Robin. These give, in addition to accurate descriptions and many interesting facts also, a table of the food or yearly menu of the bird. These may be purchased from the chairman of the National Committee in bulk, and used in answer to the cry of 'more literature,' that continually comes to Audubon workers.

Mr. Oldys' pamphlet is a valuable presentation of the Audubon work that the societies should procure and strive to circulate at grange meetings and at the autumnal county fairs, while 'Birds in their Relations to Man' is a book not so much of new material but of assimilated facts, of equal value to the economic ornithologist, the general reader and the nature-lover who is learning to discriminate between values.

This August season is the ebb-tide of the bird protection year, as far as the meetings and active Audubon work is concerned. The schools are deserted and the impudent English Sparrow raises his last brood, behind the blinds, undisturbed; people are away from home, and, therefore, less keenly alive to their responsibilities. Now is the time to "read, mark and inwardly digest" and plan the work for the coming year; therefore, let all who can buy, borrow or—yes, even steal—'Birds in their Relations to Man,' and not only read the book but endeavor to realize it. M. O. W.

That the Omaha Society is coming to the front, both in interesting school children and prosecuting lawbreakers, is proven by the following cuttings from a local paper:

PUPILS LEARN TO LOVE BIRDS

The pupils of the Omaha public schools are being enrolled as members of the Omaha Audubon society. Fifteen thousand children will have signed a pledge not to harm birds and will wear a badge of the society by the 1st of May. Dr. S. R. Towne and Arthur S. Pearse are visiting the schools at the request of the princpials, making short talks on the mission of the society. Miss Joy Higgins, 544 South Thirtieth street, will send membership cards to any one wishing to assist the organization. The distribution of literature and assistance the society can give to the schools —the significance and importance of which will be appreciated by all bird-protectionists—depend upon the voluntary contributions from persons interested.

Special Dispatch to the World-Herald.

THEDFORD, NEB., April 23.—For a few minutes today constructively the city jail was the home of Rev. Robert E. Lee Craig, rector of the Trinity Cathedral of Omaha. The rector had been in the place but a few minutes, however, before he was released on bonds, after having been bound over to the district court on the charge of shooting Meadow-larks.

The beginning of the rector's tribulations commenced several days ago, when he was seen here, armed with a shotgun and a plenitude of ammunition. The neighborhood had been praised to him as the Eden of sportsmen. He readily found a guide for the hunting fields and started out with his game-bag yawning for the fruits of the

meadows and fields. But shooting was poor. The ducks had all flown northward and the other winged beings he had expected to find in great numbers were missing from their customary haunts, perhaps apprised of the coming of the gentleman of the cloth.

Although he made no statement before the court, it appears that Rev. Craig found nothing that would satisfy his sportsman's lust for a killing. This afternoon the sheriff of Thomas county happened to be driving in the neighborhood on his work of serving subpœnas. He had, incidentally, heard that some unlawful shooting was being done in the neighborhood. At the sound of a gun he decided to make an investigation. This investigation resulted in the arrest of the Omaha minister. In the game-bag attached to his person were found twenty-two Meadow-larks, on whose slaughter the state of Nebraska has set the seal of its disapproval.

The minister consented without hesitation, although with some misgivings, to accompany the sheriff to this city, where he was soon brought before a justice and bound over without a hitch to the district court for further trial.

This arrest seems all the more pointed and consistent from the fact that the Meadow-lark is the emblem on the button of the Omaha Society.

Much interest in Bird Day as celebrated in one of the schools is reported from San Antonia, Texas, by Miss Florence T. Wasson. It must be remembered that the state society came to an untimely end owing to the death of the secretary, Miss Seixas, at the time of the inundation, and it seems unfortunate that there should be now no organization in so important a state.

Who will take the initiative?

Report of Societies

Extracts from Annual Report of the Audubon Society of R. I.

The work of the Audubon Society of Rhode Island has been carried on since the last annual meeting through the regular meetings of the Board of Directors and the duties of the various committees. We have at present seven local secretaries in as many towns and members in various other places in the state. It is hoped in the coming year to found a number of new branches.

The traveling lecture has been doing active service. In November it had already been heard in twenty-four different places. It is at present in constant demand by schools, churches and societies.

The traveling library also has been useful during the year. At present it is at the East Greenwich Academy and goes from there to the local secretary in Woonsocket.

Two lectures have been given in Providence this year under the auspices of this society, — one on February 28, by Mr. Frank M. Chapman on "The Bird Life of Islands," and one on April 20, by Mr. F. Schuyler Mathews.

Last spring the society helped financially to place bird charts, purchased from the Massachusetts society, in the country schools of the state, Mr. Stockwell, the commissioner of public schools, deciding where they would do the best service. This year we shall assist in buying a second set of charts for the schools. Throughout the year there has been a constant distribution of Audubon literature.

The most important advance step taken by the Board of Directors during the year has been the appointment of a millinery committee, consisting of Mrs. Henry T. Grant, Rev. A. M. Lord and Mr. Preston Gardner, to carry on work among the local milliners.

Attention should be called to the work of the Bird Commissioners of the state and their efforts to pass laws to protect shore-birds, to prevent the shooting of water-fowl from electric and steam launches and to stop for three years the sale of Ruffed Grouse and Woodcock.

If the changes recommended by this commission come before the legislature, we earnestly bespeak for them the support and influence of every member of the Audubon Society.

MARTHA R. CLARKE, *Secretary*.

BIRD DAY

The approaching anniversary of John James Audubon's birthday has brought this letter to this office :

NEW ORLEANS, May 1, 1903.

To the Editor of The Times-Democrat.

"On May 4, 1780, there was born at Mandeville, one of Louisiana's most famous sons, John James Audubon. In after life he became an ornithologist, celebrated for his wonderful abilities not only in this country, but in many foreign countries. The lover of birds and their quiet haunts, he became the associate of the great ones of this world; kings, rulers, statesmen, scientists, found in this humble and brilliant man a worthy associate, and they delighted to honor him.

"To faithfully depict bird life with brush and pen became the ruling passion of his life; for that purpose he at times gave up home, family and friends to wander through the pathless forest. The result of his labors in the massive volumes of the 'Birds of North America,' remains today a monumental testimony to his industry, persistency, accuracy and great attainments.

"This man loved birds for what they were,—things of life and beauty. Latter-day science has shown that birds are ordained by the Creator to be a wonderfully effective agency to keep in check the hordes of insect pests, and one would suppose that in this state, so largely dependent upon its agricultural resources, the birds would have the legal protection they so richly deserve; but, on the contrary, the spirit of lawlessness and greed has become so bold and defiant that, if such protection is asked for, one must face the insults of those whose business is the destruction of our birds and the open indifference and antagonism of some of our law-makers. In many of the states, Audubon and his work are highly appreciated; but in this, his home state, we have taken the time to name one of our parks after him and a theater, and that is all.

"To offset this neglect, I suggest that next Monday the newspapers print articles in commemoration of this remarkable man, and that in every school short addresses be made to the children regarding the value of bird-life and the great importance of birds to the welfare of man. In other words, let us have a 'Bird Day,' such as many of the States have adopted.

"I suppose it is too much to expect to see upon each recurring anniversary of Audubon's birthday all the school children gathered together in Audubon Park to worthily celebrate the man and what his work stands for."

FRANK M. MILLER,
Vice-President Audubon Society of Louisiana.

"The criticism contained in this letter is merited; the suggestion made by Mr. Miller is admirable. It is quite true that the just fame of John James Audubon has been somewhat neglected by citizens of the state in which he was born. The anniversary of his birthday should, as Mr. Miller says, be properly celebrated." . . . —*The Times-Democrat.*

The Fall Fashions

"A study of the styles in women's headwear now prevailing in Europe for summer wear, and after an inspection of the first models prepared by the Parisian modistes for the coming fall and winter season, we are deepy impressed by the fact that there will be more than an ordinary demand for birds and bird plumage of a variety of styles. Under these conditions, some dealers may be tempted to turn an honest (?) penny by investing in goods that are, to use an old army phrase, 'contraband of war'—in other words, in violation of various state game laws. Dealers are warned against indulging in any method of buying or selling such merchandise that is in violation of the agreement of the Millinery Merchants' Protective Association and the Audubon Societies, as all violations of law coming to the knowledge of the members of the association will be reported to the proper authorities, and punishment meted out to those who knowingly transgress the law. There is an abundance of birds and plumage in the market that can be sold safely and at a fair profit without having recourse to law-breaking."—*Millinery Trade Review* for July.

SECTION OF TELEGRAPH POLE FROM ARIZONA, SHOWING ACORNS STORED BY CALIFORNIA WOODPECKER

(Photographed from the specimen in the American Museum of Natural History. For exhibition purposes a mounted California Woodpecker has been placed on the pole)

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. V SEPTEMBER — OCTOBER, 1903 No. 5

The Mystery of the Black-billed Cuckoo

BY GERALD H. THAYER

INCREDULITY will doubtless be the predominant note in the reception of the strange tale which I am about to unfold, yet living evidence of its truth is yearly accessible to any one who has leisure and inclination to seek it. I refer to the mid-summer, mid-night, mid-sky gyrations of the Black-billed Cuckoo, as noted by my father and me for three consecutive seasons in the southwestern corner of New Hampshire. Here, in the country immediately surrounding Mt. Monadnock, the Black-billed Cuckoo is a fairly common summer resident, while the Yellow-billed occurs only as a rare autumn migrant.

Several years before we discovered the nocturnal-flight phenomenon, we began to be puzzled by the extreme frequency of Cuckoo calls on summer nights. These calls were far commoner than the same bird's daytime noises; in fact, a week might pass without our seeing or hearing any Cuckoos during the daylight hours, while they were nightly vociferous around the house. They uttered both the *cow-cow* notes and the rolling guttural call; but the guttural was much the commoner of the two, except on dark, foggy nights, when the case was usually reversed. The explanation of this difference was not immediately forthcoming, but was suggested a summer or two later by our discovery that the birds were almost invariably seated when they made the *cow-cow* note, and always in flight when they made the rolling guttural.

From this time onward I spent many evenings out-of-doors, on the roads and in the woods and fields. I also slept out, on uncovered piazzas, in an open tent, and occasionally on mother-earth on a high peak of Mt. Monadnock. These evenings and wakeful minutes of the nights gave me unique opportunities to study nocturnal bird-notes, and I had many interesting experiences. Chief among these was the discovery, incredible at first, but gradually forced upon my belief by steady accretion of the

evidence, that the Cuckoos not only often called and flew about at night, but habitually journeyed through the air at a great height, apparently going far. Walking in the fields, or lying under the stars, on pleasant nights, I rarely failed to hear several utterances of the gurgling Cuckoo note very high overhead. Sometimes one of the birds would call frequently enough so that its general course could be distinctly traced; but more often a single gurgle, sounding from somewhere in the starry heavens, was the only intimation of the transit of another Cuckoo.

"High overhead" is an ambiguous expression, which needs qualifying; but unfortunately it is impossible safely to estimate the height in such a case. The birds were often so far up as to be only faintly audible when directly overhead, with no obstructions interposed; and this on a still night would seem to mean an elevation of at least a hundred and fifty yards. They sometimes flew lower, however, and on cloudy nights often moved about barely above the tree-tops. On foggy nights they were apt to be vociferous, but chiefly with the *cow-cow* notes, and flew little. I have heard them at all hours of the night, but mainly between eight and twelve. In my last summer's journal I have thus recorded an extraordinary 'irruption' of nocturnal Cuckoos: "July 14: Every night the Cuckoos call overhead. On the evening of July 11,—a pitch-dark evening with a thunder-shower lowering,—they were remarkably noisy, both sitting in trees and flying high in air. The seated ones, of which I heard only two, made the *cow-cow* notes, while all the flying ones made the liquid gurgle. I heard this note overhead between thirty and forty times in the course of about three hours, during half of which time I was afoot on the road. The birds were almost all flying high, and all but one of the five or six whose course could be traced seemed to be going northward." This was the climax of my last year's experience with these queer birds.

The present summer of 1903 has been a repetition of the two previous ones as far as Cuckoo antics and my observations of them are concerned. From May to September the high-sky Cuckoo gurgle has been one of the regulation night-sounds,—so very familiar as quite to lose its poignancy of interest. One new item has been added to the chronicle, however; I have heard the note at the usual height overhead from an elevation of nearly 3,000 feet on the narrow rocky ridge of Mt. Monadnock! Now, though this bird may possibly have been wandering about the mountain, there was every indication that he was merely passing over it, in the course of a long journey. It is precisely as if the birds were migrating; which is impossible during the three months of summer, when the performance is at its height. Moreover, in view of the fact that I have seen a Cuckoo's nest containing an unfledged young one on September 14, at the northern base of Monadnock, not even the September night-flyers can be considered migrants.

What, then, is the meaning of this weirdly incongruous performance,—

this midnight gamboling of short-winged, diurnal (?) brush-birds in the open heavens? He who can answer this question will have solved one of the strangest ornithological problems that has come up in recent years. Burroughs, as Mr. Ralph Hoffmann has lately pointed out to me, writes of experiences with Cuckoos very much like mine, and says he believes the birds are quiet largely nocturnal ("Pepacton," pp. 15, 16). He also says that the nocturnal flight-notes may be heard in any part of the [Cuckoo] country, which is what I have suspected, but never had opportunities of proving. In fact, my task would be merely to corroborate and call attention to this seemingly neglected statement of Burroughs's, were it not for the fact that my own experience brings a strong additional element of mystery to the case; namely, the great height and evident protractedness of the flights. For, granted that the Cuckoo actually is a nocturnal bird, which moves about freely from one feeding-place to another in the night-time (and this would mean that its life-history is still all to learn), how are we to account for the height and length and regularity of the flights? Flights from tree to tree, or from copse to copse, would be legitimate enough; but these long, celestial (!) journeys are quite incomprehensible.

Nocturnal the birds certainly must be, at the least of it. Aside from the evidence already adduced, their large, dark eyes and peculiarly quiet and elusive day-time habits favor this hypothesis. So at least it seems to me:—perhaps I am going too fast. But whatever the final verdict on this point may be, it is certain that our New Hampshire Cuckoos (or their departed spirits!) are given to traveling about through the still air of night, high over woods and lakes and mountains. To the uninitiated this will sound like nonsense; but let any ornithologist who is in the least danger of ever spending summer nights afield in southern New Hampshire beware of committing himself to skepticism on the subject.

The field of ornithology, even here in thrice-thrashed-out New England, is still full of untarnished wonders and surprises.

A North Dakota Slough

BY A. C. BENT

With Photographs from Nature by the Author

SEATED in a comfortable buckboard, with two congenial companions, and drawn by a lively pair of unshod bronchos, we had driven for many a mile across the wild, rolling wastes of the boundless prairies, with not even a tree or a rock in sight, unconfined by fences or roads, and with nothing to guide us but the narrow wagon ruts which marked the section lines and served as the only highways. It was a bright, warm day in June, and way off on the horizon we could see spread out before us what appeared to be a great, marshy lake; but it seemed to fade still farther away as we drove on, and our guide explained to us that it was only a mirage, which is of common occurrence there, and that we should not see the slough we were heading for until we were right upon it.

We came at last to a depression in the prairie, marked by a steep embankment, and there, ten feet below the level of the prairie, lay the great slough spread out before us. Flocks of Ducks, Mallards, Pintails, and Shovellers, rose from its surface when we appeared, and in the open water in the center of the slough, we could, with the aid of a glass, identify Redheads, Canvasbacks and Ruddy Ducks, swimming about in scattered flocks, the white backs of the Canvasbacks glistening in the sunlight, and the sprightly upturned tails of the Ruddies serving to mark them well. A cloud of Blackbirds, Yellowheads and Redwings, arose from the reedy edges of the slough, hundreds of Coots were scurrying in and out among the reeds, a few Ring-billed Gulls, and a lot of Black Terns were hovering overhead, and around the shores were numerous Killdeers, Wilson's Phalaropes and other shore birds. The scene was full of life and animation, stirring the enthusiasm of the ornithologist to the highest pitch, and we lost no time in picketing our horses and preparing for a closer acquaintance with the inhabitants of such a bird paradise.

Numerous great Marbled Godwits and Western Willets were flying about the marshy outskirts of the slough, acting as if they had nests in the vicinity, which, however, we were unable to locate.

The beautiful and graceful little Wilson's Phalaropes were very tame, flitting about daintily among the grassy tussocks, where their nests were well concealed in the thick grass. Killdeers were flying about us, bold and vociferous, protesting at our intrusion with their plaintive cries. "Look here, look here!" they would seem to say, but their spotted eggs were hard to find, even on the bare, open shores where they nested.

Soras and Virginia Rails were nesting in the shallow water among the short grass on the edge of the slough. The Virginias' nests were very

scanty affairs, merely a few straws on little grassy tussocks, often arched over above, but barely concealing the eggs from view. The Soras' nests were more substantially made of dead reeds, but were generally plainly visible. A little farther out, where the grass was a little taller and the water deeper, we began to find the nests of the Red-winged Blackbirds,—characteristic nests of the species, but often containing eggs of the Cowbird, and, in one case, two eggs of this prolific parasite.

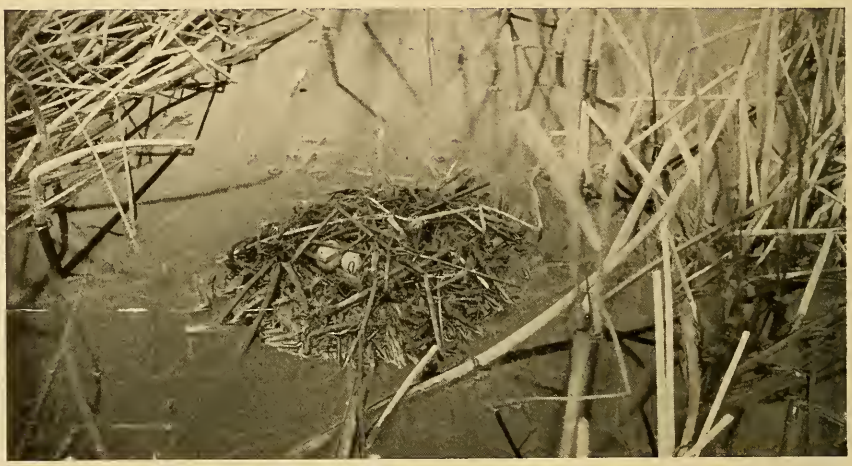
But by far the most abundant birds in the slough were the Yellow-headed Blackbirds, the characteristic bird of every North Dakota slough;

COOT'S NEST

they fairly swarmed everywhere, and the constant din of their voices became almost tiresome. The old male birds are strikingly handsome with their bright yellow heads and jet black plumage, offset by the pure white patches in their wings, the duller colors of the females and young males making a pleasing variety. The commonest notes, the song most constantly heard, suggests the syllables "Oka wée wee," the first a guttural croak, and the last two notes loud, clear whistles, falling off in tone and pitch, the whole song being given with a decided emphasis and swing. They also have a low guttural "Kruk," and sometimes give the last two notes only of the first song.

They seem to feel most at home in the tall, thick reeds, clinging readily to the smooth, upright stems, mounting to the slender, swaying tops to

pour out their unmusical notes, or skulking out of sight below on the approach of danger; but frequently we saw them in small scattered flocks, following along the furrows made by the ranchman's plow in the neighboring wheat fields. Two or three pairs of Marsh Hawks frequented the



PIED-BILLED GREBE'S NEST WITH NINE EGGS COVERED

slough, but the Blackbirds never learned to trust them, harmless as they were, for whenever one of the Hawks flew out over the slough the Blackbirds would rise in a great cloud, cackling loudly, fly about in great confusion for a few minutes, and then settle down into the reeds again.

Their nests were securely fastened to the tall reeds two or three feet above the water, with but little attempt at concealment; they were rather bulky, deeply hollowed and well made of coarse, dry reeds firmly woven together, and neatly lined with coarse grass of a peculiar buffy color. Three or four finely spotted eggs made up the usual set.

Next to the Blackbirds in importance came the American Coots, which were always much in evidence, noisy, lively, and interesting. We were constantly starting them from their nests and sending them spattering off through the reeds to the open water, where they would swim about and watch us from a safe distance. Occasionally, if we kept quiet, one would swim back to play about in the water near us, with the head lowered until the bill almost touched the water and with the wings elevated behind like a swan's, often backing water with both feet, and thus raising the body backwards out of the water, splashing noisily all the time and grunting a loud gutteral "Kruk, kruk."

Their favorite nesting haunts were among the more open, scattered reeds and rushes, where they built their bulky piles of dead flags and rubbish in the shallow water, forming a rather neat, shallow nest two or

three inches above the water, laying from eight to fifteen eggs. Sometimes the nests were well concealed in thick patches of reeds, but more often they were easily found.

At the time of our visit, June 10, many of the eggs were hatching, and the feeble little chicks were scrambling out into the water. They were scantily covered with reddish yellow down, more reddish anteriorly and more blackish posteriorly, with bright red bills.

In this same section of the slough were numerous nests of the Pied-billed Grebe, wet, soggy masses of rotten reeds and rubbish, plastered together with a dark green vegetable scum, containing from five to nine dull, nest-stained eggs. Sometimes the eggs were completely covered with rubbish, but more often not. In one nest the young were hatched, and scrambled off into the shallow water, diving like experts, but they could not swim far under water and soon came to the surface again. They were very prettily marked with soft black and white down, tinged with rufous on the back of the head. The old birds were very shy, always disappearing

BLACK TERN'S NEST

before we came up, but, if we waited long enough and kept out of sight, their curiosity would prompt them to come to the surface near the nest.

In an open, shallow portion of the slough a small colony of Black Terns were hovering about, protesting vigorously at our intrusion. They were exceedingly bold and courageous, darting down at us, and sometimes even striking us. Their note is a short, sharp "Kek," uttered with great vehemence, and somewhat prolonged into a shrill scream when

very near their nests. The nests, hardly deserving the name, were merely small piles of wet, dead rushes on floating masses of similar rubbish, on which the three dark, spotted eggs were hardly visible.

In the drier portions of the slough, near the edges, we came frequently to open, muddy areas, where the dead reeds had been beaten down flat by the winter's storms, and in one of these we saw the remains of a great nest, a large pile of dead reeds and flags, three feet in diameter, but slightly hollowed in the center, and containing one large, dirty, white egg, the deserted home of the Canada Goose, from which both old and young had long since departed, and were nowhere to be seen.

Not far from here we flushed a large, brownish Duck from a thick, tangled mass of dead flags, where we discovered a nest full of buff-colored eggs, sixteen in number. They were unmistakably Redhead's eggs, and we soon had a good look at the bird as she came back, circling about us, accompanied by her mate.

Several more nests of this species were found in similar locations, generally well built of dry reeds, deeply hollowed and profusely lined with white down. In one case, we found as many as twenty-two eggs in the nest, arranged in two layers, one above the other. The Redheads were the most abundant of the Ducks in the slough, and probably laid their eggs in each others nests, to some extent, as they certainly laid in all the other Ducks' nests.

As we waded along the outer edge of the reeds, exploring the scattered clumps of tall rushes growing in the deep, open water, a great splashing and flapping was heard, and out rushed a large gray Duck, almost in our faces; as she flew past us, we could clearly see the long, slender, pointed bill which marked her as a Canvasback. At last we had found the home of this famous game-bird. The nest was well concealed in the center of the clump, completely invisible from the outside; it was a bulky mass of rushes with only a little grayish down for a lining. There were eleven eggs in the nest,—seven dark olive eggs of the Canvasback, and four lighter, buffy eggs of the Redhead. The Canvasback must be easily imposed upon, for all the nests we found contained from one to four eggs of either the Redhead or the Ruddy Duck. The Canvasbacks are close sitters, as we always flushed them at short distances. At least one brood had hatched out, as we saw the mother bird swimming out into the open water with five little ones close at her heels.

The shyest of all the Ducks were the little Ruddy Ducks; we saw the males swimming about in the open water at a distance, but we never flushed them from, or saw them near, their nests. They retired to the innermost recesses of the tallest and thickest reeds to build their nests, where they were so well hidden that it was difficult for us to find them

again when we wanted to photograph them. Their nests were neatly made of dry and green reeds, closely woven together, often arched over above, and looking very pretty with the large, pure white eggs. Sometimes they, too, were imposed upon by the careless Redheads.

Had time and strength not been exhausted, we might have studied the many other interesting birds we saw,—the Mallards, Pintails, and Blue-wing Teals nesting in the grassy borders of the slough, the Long-billed Marsh Wrens chattering in the flags, and the Short-eared Owls and Marsh Hawks on the surrounding prairies; but even the long North Dakota day was drawing to a close, and we reluctantly turned away from the fascinating and almost bewildering scenes of this wonderful locality.

A Tragedy in Nature

BY WILLIAM BREWSTER

AT Lancaster, Massachusetts, on May 24 last, I noticed a swarm of Bank Swallows flying about over the river near a low bank in which were a great number of their nesting holes. It was a newly-established colony, for no birds had bred on this particular stretch of river in 1901 or 1902. Visiting the place again on the afternoon of June 19, I counted one hundred and eight holes but, greatly to my surprise, there were no birds in sight. At length, however, a single pair appeared and one of them repeatedly entered a hole (always the *same* hole) with food for its young. Feeling sure that something must be wrong I approached the bank and examined it attentively. For a distance of about eight feet back from the water's edge the surface of the ground was sandy or gravelly and sloped only very gently upward. Above this for a distance of perhaps six feet (measured along the surface) the slope was at an average angle of about forty-five degrees and the soil, like that of the vertical bank still higher up, pure, fine, hard-packed sand. The vertical portion averaged about two feet in height and was slightly overhung in places by the loamy turf of the pasture land above. All the Swallows' holes were, of course, in the vertical face of the bank, most of them being nearer the top than the bottom and a good many close under the projecting sod. A glance satisfied me that the village boys had not molested them, for they showed no traces of enlargement. What, then, could have banished the birds from so apparently safe and congenial a nesting place? As I was speculating on this point I noticed some scratches on the face of the bank immediately below one of the holes. On examining the other holes I found that only one (that which I had seen the bird enter) was without these tell-tale marks. They resembled deep pin-scratches and extended from the entrances of the

holes nearly or quite to the foot of the vertical part of the bank, while they were also present on one or both sides of several of the holes. Usually there were five of them, from one-eighth to one-fourth of an inch apart and perfectly parallel even where they followed somewhat wavy courses, but in places only two or three could be distinctly traced. Most of them looked rather fresh but some had become much obscured by the action of the weather. Quite evidently some animal with sharp-pointed claws had made them in climbing to, descending from, or clinging just below, the holes. At first I suspected the creature to have been a cat, for I remembered to have seen, last summer, a large black cat perched on a narrow shelf of a sand-bank at Concord, striking at the anxious and excited Swallows as they darted close about her. A little reflection convinced me, however, that no cat would be likely to break up so large a breeding colony as this. I therefore descended to the river bank, hoping to find the solution of the mystery there. Nor was I disappointed, for the entire expanse of smooth, wet sand along the water's edge was thickly covered with *mink tracks*. They were of various ages, from perfectly fresh-looking imprints that clearly showed the marks of the animal's toe-pads and even claws to dim impressions blurred by wind and rain. As nearly as I could judge all the tracks must have been made by a single mink, or, if by more than one, at least by animals of nearly the same size and age. They extended back from the water as far as the sand was sufficiently loose to enable them to be traced.

I next looked for remains of the birds. Those of at least six Swallows were quickly discovered scattered over the sandy flat near the edge of the water, while further back, in a crevice behind a huge clod of turf which had fallen from the bank above, were those of at least as many more. In most instances they consisted merely of piles of feathers, with perhaps the terminal joint of a wing, but from beneath the clod I took the entire head, wings and feet of one Swallow still joined together by skin and cleanly picked bones (including the sternum) and the wings, bill and one leg of another similarly connected by skin but with all the bones (save those of the wing and leg) missing. The two birds last mentioned were adults, but all the other remains were unmistakably those of young, well-grown and covered with sprouting feathers of the first or natal plumage.

The space beneath the clod, although wide and deep, was nowhere more than four or five inches in height. Hence it could scarce have admitted any animal larger than a mink. That one or more of these bloodthirsty creatures had feasted long and sumptuously on the unfortunate Swallows, no doubt eating on the spot or carrying off to more distant retreats practically all the young as well as at least a few of their parents, seems evident from the circumstantial evidence above recorded. It is, indeed, sad to reflect that such tragedies must be of not infrequent occurrence in nature, and humiliating that we are so nearly powerless to foresee and prevent them.

Nesting Habits of Two Flycatchers at Lake Tahoe

BY ANNA HEAD

TWO species of Flycatchers were very common on the shores of Lake Tahoe, especially during July and the first of August, when the silence of other birds brought into prominence their persistent, unmusical calls. Each species had an area peculiar to itself, and, indeed, each individual pair claimed a limited circle of land, and would allow no trespassing near their nesting-tree.

The larger of the two, the Olive-sided Flycatcher, chose the very shore of the lake, where immense pines and firs grew in open order on the sandy shore. The first pair I noticed had chosen a nearly dead cedar, about one hundred feet high, as a perching-tree, since from the tip of a bare bough a wide and clear outlook was to be had. Here one or the other of them would perch, never silent from dawn until dark, but flirting its tail, turning its head restlessly from side to side, and uttering its dissyllabic cry of "hip-hip" or "quilp-quilp" at intervals between rapid dashes after winged insects. As it whirled and tumbled in the air in frantic pursuit of a moth, it almost seemed to be coming to pieces, so loosely was it jointed, till a loud *click* of the beak announced success, and in an instant it was back on its perch, looking as if it had always sat there. There were two other notes, heard not quite so often. The more musical was, I think, meant for a song, and was heard chiefly in the early morning and dusk of evening. It consisted of three notes, in a sort of whistling tone, with the emphasis on the second. Each syllable was loud, however, and uttered with a separate effort, so that it carried far. This song may be expressed by the following syllables: "whip-péw-hip!" A third note was more like a twitter, and was uttered during excitement, chiefly when the young were learning to fly. It sounded like "why, why, why," repeated very rapidly a number of times. Sometimes this note was given as a prelude to the real song.

On July 22 I found a nest on the tip of a slender fir branch, not more than twenty feet from the ground, and in full sight of the favorite perching-tree of this pair. It contained three fully fledged young. They were a pretty sight as they stretched their little wings, craned their necks, and tip-toed along the fir-twigs. They were rather more brightly colored than their parents, whose plumage was somewhat worn at that season. Their heads were a dark, smoky gray, looking almost black in contrast with a light gray streak which went down from the angles of the beak, and a white streak on the center of the breast. Only the Yellow Gape showed immaturity, and they spent a great deal of time preening their glossy feathers. The parents visited them often, catching insects and delivering them on the wing, with a light, swallow-like action. They never perched far away,

and seemed not at all shy, though keeping a sharp look-out for the welfare of their young.

The next morning the young took their first flight, already seeming quite expert, and choosing bare twigs to perch on, like all their race. They gave the characteristic, three-syllabled call clearly the first day, though more softly than their parents. For more than a week the family kept together near the nest. The last part of the time there seemed to be a good deal of flutter and scolding going on. I think the old ones were trying to induce the young to catch their own game.

The nest was a very frail structure, open and flat, consisting of gray fir-twigs laid rather than woven, and quite without fixing together. The parents must have depended on the thick fir-needles for keeping the eggs and young from falling to the ground. Another nest was placed very near the top of a tall fir-tree, also, near the tip of a small branch. This was nearly two hundred feet from the ground, I should judge. The flight and actions of the old birds as they fed their young were unmistakable. This tree was also situated near a skeleton fir that gave a wide outlook for the parents while hunting, and contained, besides, the nest of a Robin and of a Cassin's Purple Finch.

By August 24, all birds of this kind had disappeared from the neighborhood, where the absence of their loud, incessant calls gave the effect of almost utter silence. They were probably starting slowly with the young birds on their long migration, but there had been no frost, nor was there any perceptible diminution in the number of insects.

If the note of the Olive-sided Flycatcher was the prevailing sound in the evening, the western Wood Pewee, with its monotonous plaint, made up the body of the morning chorus in July and August. This note is not easy to spell in letters. It has been variously given as "peèr," "pée-wee" and "sweer." I think "dré-ear" is better suited to the expression. The most noticeable quality is the despairing emphasis on the first syllable, as if it were forced out with the last gasp of agony. I defy any one to remain cheerful with this sound ringing in his ears at all hours of the day.

At Tahoe these birds were far more common than the larger Olive-sided Flycatcher. They did not come into conflict with them, however, for they chose a slightly different haunt. Instead of the open woods of ancient trees on the shore of the lake, they preferred the annually flooded meadows back from the shore, covered with a growth of young tamarack trees, many of which were dead or dying. These moist, wooded meadows were swarming with mosquitoes and other insects, which attracted many birds.

This Flycatcher would sit very straight and slim on a bare twig, turning his head incessantly and every few seconds uttering his cry.

Their favorite nesting site was a dead tamarack, stripped by the weather of its bark. A very conspicuous object in this situation one would expect

their large, deeply cupped nest to be; but when the parents did not betray its presence by their restless anxiety, it very easily escaped notice, so well was it matched with its surroundings. It was usually placed in a horizontal limb, near the main stem and about twelve or fifteen feet from the ground. As bunches of cones and rolls of bark were often to be seen in the same situation, it was not conspicuous, especially as the color exactly matched that of the dead limb. Those which I took to pieces were woven very firmly of strips of woody fiber and thin gray bark stripped from manzanita and ceanothus bushes after they had been fire-killed and had weathered several winters. This bleached and seasoned material gave a very soft and firm structure, which was softly lined with feathers by the little builders. It was totally unlike in appearance to the green mossy nests built high in oak trees by this bird when it nests among the oak-grown hills of the Coast Range. The only quality they had in common was their beauty of finish and their perfect adaptation to circumstances.

These birds showed great affection and solicitude for their young, returning to the nest immediately after I had left the tree, and flying at my face with snapping beak, even when I was removing an empty nest. A female was still engaged in incubation August 14, but, as this nest was stolen, I do not know if she would have been able to rear the young before migrating.

KINGBIRD AND NEST IN A DEAD BRANCH PROJECTING OVER WATER

(Published by courtesy of the Geological Survey of Canada)

For Teachers and Students

How Birds Molt

BY JONATHAN DWIGHT, JR., M.D.

IN spite of much that has been written in the past about the molting of birds, the subject is by no means threadbare, and I hope that a brief sketch of the complicated process of feather-renewal will stimulate interest in its further study. Periodically, old plumage is cast aside feather by feather as new ones grow, and so gradually does this take place that most birds are able to fly about as if nothing unusual were in progress. Many species (among them the Thrushes, Wrens, Blackbirds, Jays, Woodpeckers, Hawks, Owls, and a few others) wear only one plumage throughout the year, exchanging the more or less ragged remains for a fresh suit at the end of the breeding season; while many Warblers, Sparrows, Waders and others molt part of their body plumage a second time in the winter or spring. These two molts are the postnuptial and the prenuptial, giving distinctive winter and summer plumages.

Two plumages are peculiar to young birds — first, the natal, the stage of soft, downy baby-clothes, and, second, the juvenal or knickerbocker stage. The weak, juvenal feather of a young Purple Finch is shown by the half-tone which is from a photomicrograph. Both plumages of young birds vary greatly in different species. We are familiar with the little tufts of natal down scattered on nestling Sparrows, Thrushes, or Warblers, and the dense covering of Ducklings, Gulls, Game-birds or Hawks and Owls. In Woodpeckers it is aborted.

The juvenal plumage, delicate and transient in most land birds, may be worn wholly or in part for many months in large species, and is often confused with other plumages. If, however, we bear in mind that there is nothing haphazard in the growth of feathers and the sequence of molts and resulting plumages, our ideas upon the subject will become very much clearer. At a definite time and at a definite point of the skin, each and every feather grows, and plumages are only successive generations of feathers.

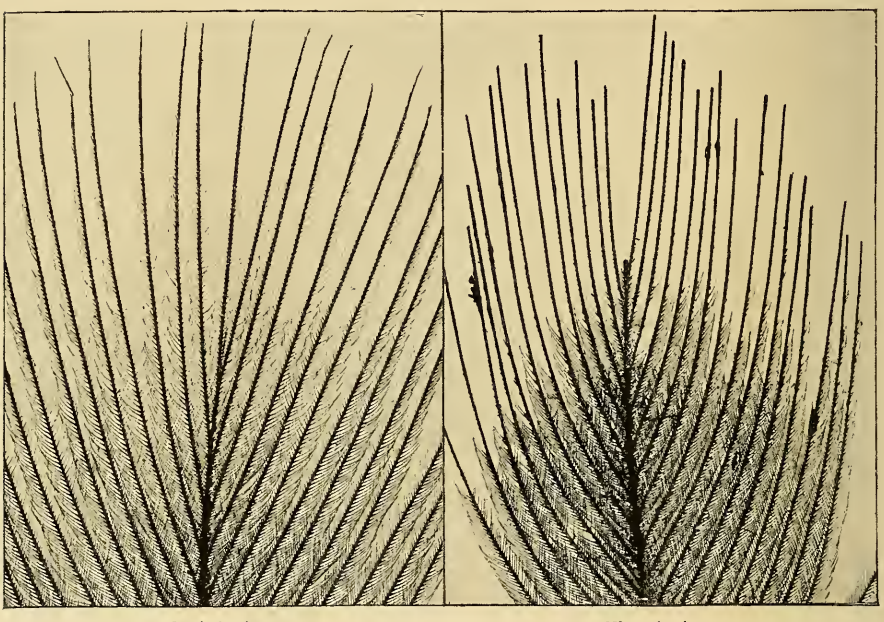
Abrasion, attrition and weathering of feathers go to make up wear which sometimes produces surprising color-changes in plumages. The loss of the brown feather edgings of, for instance, the fall Snowflake or Red-winged Blackbird, displays the black hidden beneath, and the loss of the little barbules of the feathers of Crossbills or of the pink Purple Finch brightens red colors by subtracting the gray tints. The first

Fresh juvenal plumage feather | Fresh first winter plumage feather | Worn first winter plumage feather

PHOTOMICROGRAPHS OF PURPLE FINCH FEATHERS

effect of wear is shown by photomicrographs of *brown* Purple Finch feathers, and the second is shown by the figures of Crossbill feathers. We have illustrated also the effect of wear on a Meadow Lark, showing how the lighter-colored parts of feathers may disintegrate.

The growth of each feather is a chapter by itself. The histologist with microscope and cross-sections tells us how beneath the old feather, resting in a pit or follicle of the skin, certain cells group themselves and multiply until a papilla or feather germ is formed. This pushes out the



Fresh feather Worn feather

PHOTOMICROGRAPHS OF CROSSBILL FEATHERS

old feather and lengthens into a pulpy cylinder from the apex of which the 'pin-feather' expands, being built by the pulp cells from the tip downward and from the edges inward as the papilla elongates. This is but a rude way of expressing the very elaborate process of feather-growth completed when, in the course of a few weeks, the pulp of the calamus, or quill-part of the feather, dries up. Each papilla produces a new feather at the time of a molt (and also whenever one is accidentally pulled out) and enjoys a period of rest between times. The individual feathers of the natal plumage, technically known as *neossoptiles*, are exceptions and are continuous in growth with the tips of the feathers of the juvenal plumage.

A molting bird is as confusing to examine as any prize puzzle, but series

of specimens taken after the breeding season show that molt begins at definite parts of the body and the reclothing extends in definite directions. The wonderfully systematic and gradual renewal of plumage is best seen and measured in the wings, for a gap appears at the middle of the quill-feathers, extending outward until but three or four primaries remain, then extending inward among the secondaries, so that the new innermost of these and the outermost primary reach maturity at about the same time. It should be noted that the tertiaries (three in small birds, more in others) are partly renewed before the secondaries begin to drop out. The wing-coverts are replaced in alternate rows. There is a time relation between all that goes on in the wings and the growth of body-plumage, which begins to be molted at a number of points, so many, in fact, that the renewal is traced with some difficulty. When the wings are grown, at the end of a month or two, depending upon the size of the bird, the body plumage has also completed its growth. As for the tail, usually after the fall of several primaries, the middle pair of feathers drops out, followed rapidly by successive pairs, so that very often a bird will appear 'bob-tailed' if the new middle pair is slow in growth. Woodpeckers lose the middle pair last, and irregularities are found in other species.

WESTERN MEADOWLARK

U. S. N. M., No. 127493, ♀, Aug. 14, 1892, San Bernardino Ranch, Ariz., E. A. Mearns. Showing abrasion and fading of plumage. From the Bull. Amer. Mus. Nat. Hist.

At the end of the breeding season every species of bird undergoes a complete molt. Land birds and the Gulls and Waders molt as just described, but waterfowl, that protect themselves by swimming and diving, as well as by flight, such as the Ducks, Grebes, Loons, Guillemots, and others, molt the quill-feathers of the wings all at once, so that for a time the birds are unable to fly. The males of certain bright-plumaged species of Ducks are protected for a couple of months by a dull body plumage that begins to appear before their young broods are out of

Upper figures, interscapular feathers of Meadowlark, at left, Am. Mus. No. 49229, ♂, Morristown, N. J., Oct. 3, 1886, E. C. Thurber; at right, Am. Mus. No. 69696, ♂, Trenton, N. J., May 29, 1886, M. M. Green. Lower figures, interscapular feathers of Western Meadowlark, at left, Am. Mus. No. 52416, ♂, Ft. Verde, Ariz., Nov. 23, 1884, E. A. Mearns; at right, No. 52413, ♂, Yavapai Co., Arizona, March 18, 1884, E. A. Mearns. To show seasonal abrasion. From Bull. Am. Mus. Nat. Hist.

the nest. The Ptarmigan also have a similar protective plumage, but their wing-quills are molted in regular succession.

Owing to the great variation in the time at which different species molt, there is no time in the year when molting birds may not be found. The postjuvenal molt of some birds will overlap the prenuptial of others, and the prenuptial of others seems to overlap even the postnuptial. Partial molts produce mixed plumages and the feathers that, not so long ago, were supposed to change color without molt. Keeping in mind that each species has a definite sequence of molts and plumages, we shall the more readily understand variations and mixed plumages. In birds like the Purple Finch which molt but once in the year, we find no mixed plumages. Young Purple Finches remain a year in brown, and then molt into the pink plumage. Many other species, however, like the Rose-breasted Grosbeak or the Sanderling, molt twice a year, and the partial prenuptial molt gives the confusing mixture of old and new feathers so often found, especially in young birds and females that vary between wide limits in the extent of the renewal. The adult Baltimore Oriole molts once in the year, while the young bird undergoes a prenuptial molt of all the body-feathers. And so there is a particular sequence of molts and plumages peculiar to each species.

Those who care to turn to the fascinating study of molt will find the following table a simple and useful guide:

1. Natal plumage followed by postnatal molt.
2. Juvenal plumage followed by postjuvenal molt.
3. First winter plumage followed by first prenuptial molt.
4. First nuptial plumage followed by first postnuptial molt.

[First protective plumage followed by first postprotective molt.]

5. Second winter plumage followed by second prenuptial molt, etc.

Not every species may have all of these molts and plumages, but this is the order in which they would naturally follow.

OTTO WIDMANN, *Missouri*

F. H. KNOWLTON, *Vermont*

J. H. FLEMING, *Eastern Ontario*

R. W. WILLIAMS, Jr., *Western Florida*

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SIXTH SERIES

What Bird is This?

Field Description.—Length, 5.50 in. Above, olive-green, head slaty ; throat and breast blackish margined with whitish ; belly yellow ; no white eye-ring ; no white in tail.

NOTE.—Each number of BIRD-LORE will contain a photograph, from specimens in the American Museum of Natural History, of some comparatively little-known bird, or bird in obscure plumage, the name of which will be withheld until the succeeding number of the magazine; it being believed that this method of arousing the student's curiosity will result in impressing the bird's characters upon his mind. The species figured in August is a Savanna Sparrow in fall plumage.

Questions for Bird Students

VI

27. What theory has been advanced to account for the remarkable variation in the colors of Murres' eggs ?

28. What birds drink without removing the bill from the water until the draught is finished ?

29. How many days after hatching do young Hummingbirds leave the nest ?

30. Note an instance of migration among North American birds to a winter home, distant about 3,000 miles by sea.

31. In what species of birds is the male known to sing while on the nest ?

Notes from Field and Study

European Birds in America

When, within twenty minutes, one can observe, as did the writer in Central Park, on May 17, 1903, European Greenfinch, European Chaffinch, European Goldfinch, European Starling, and European House-Sparrow, from an ornithological standpoint we must surely speak of the European invasion of America, instead of vice-versa.

Although successfully introduced into this country only as recently as 1890, the Starling is already a very abundant permanent resident of New York City. During the winter the writer has observed, in the neighborhood of Columbia University, as many as a hundred individuals in one flock. The bird has already extended its range for a radius of some twenty-five miles about New York City, and in some directions probably farther.

The European Goldfinch has not multiplied so rapidly, but careful search in Central Park will seldom fail to locate a few of these cheery little songsters. In the winter flocks are formed and as many as thirty have been seen together — also near Columbia University.

Of both the Chaffinch and the Greenfinch the writer has been able to find but one individual. The Greenfinch was a solitary male observed in the "Ramble," Central Park, on May 17. He was singing contentedly and, from the perfect condition of his plumage, gave no evidence of recent captivity. The Chaffinch was the bird — no doubt familiar to many readers of BIRD-LORE — which for some months has never moved from one spot on the west side of the park, about Eighty-fifth street. He, too, is a bachelor, well meriting his Latin name of *Fringilla coelebs*.

Of the five European birds named, the Goldfinch and the Chaffinch are the most attractive. They are fortunate in possessing beautiful plumage, sweet voices and a pleasant disposition, and they build the neatest little nests; this is more than can be said of the other species. However, even with these attractions, it is a debatable question whether they are desirable additions to our avifauna. The May-June BIRD-LORE informs us that in South Australia the Chaffinch, which was introduced, has already become so injurious as to be regarded unworthy of protection. As for the Starling, its rapid increase offers only too evident proof that it will not be many years before it gains in this country the position which it holds in England, in being second only to its compatriot, the House Sparrow, in dominion over the land. Then ill will fare our Bluebirds and our Martins, our Crested Flycatchers and all others that nest in holes, as do the Woodpeckers of England, by the persecutions of this pugnacious bird. To be sure he possesses a song, but it is third-rate at best, and the beauties of his plumage can be appreciated only at close quarters; let us only hope that he will not, under the new conditions, change his diet, which at present is chiefly insectivorous, or woe betide the farmer beneath the ravages of his vast winter flocks!—C. G. ABBOTT, *New York City*.

The Carolina Wren at South Norwalk, Connecticut

After careful inquiry I feel sure that a pair of Carolina Wrens that I saw April 7, 1900, is the first known appearance of this bird in Norwalk, Connecticut. Two winters of watching other birds of this species makes me certain that the first pair seen did not winter, else they would have been seen or heard, as their range has been restricted and one was more sure of finding them than any other bird.

The spring of 1901 a pair of Carolina wrens took up their abode in an old lane bordered by dilapidated stone fences and bush corners, and though they nested, the site was not discovered. These birds

wintered, and never strayed far from the old lane, or the tangles around a chain of small ponds close by. They were always together and part of the time in company of a male Chewink, and their merry whistle was heard even when the snow was deepest, and one wondered where they procured their food. May 2, 1902, I found their nest, the first one known about Norwalk. It was built on the ground in the old lane, and was composed of moss and leaves, in form being very much like an Oven-bird's nest. May 6, the old birds had torn away the top of the nest, leaving the four young exposed, and the next day the young left the nest.

A number of pairs wintered the past season, but in the same restricted range, and I take them to be the young of the past seasons. This year, 1903, one pair nested near the old site, another pair built early in April, behind a board in the peak of an old barn, which scarce withstood the winter's storms. Unlike the first nest found, this nest was built of hay, ferns, rootlets and feathers and was lined with white horse-hair from the tenant downstairs. The young, four in number, flew May 2.

During nesting time the old birds sang from daylight till dark, attracting the attention of everybody in the neighborhood.

When I told the owner of the barn I wished to find the nest, he said, "All right, and if you do you can have the young, too." When told of the birds' worth on his farm, and asked why he would be rid of them, he answered, "The old bird gets on the barn at break of day and whistles so loud he wakes me up, and I cannot go to sleep again, because of him."

At this time, May 11, the family is still together, and find a welcome home behind the old barn.—WILBUR F. SMITH, *South Norwalk, Connecticut.*

Mortality Among Birds in June

From the reports of a number of correspondents we quote the following observations in regard to the mortality among young birds in June last, incident to the prolonged rains and unseasonable weather:

Mr. William R. Lord writes from Rockland, Massachusetts: "I wonder if any one has reported to you the fact that the extraordinary prolonged cold weather in June resulted in the death of all, so far as we can learn, of the young of the Martins and Barn Swallows in the region of Plymouth county, Massachusetts? and, what is more to be regretted, the death of many of the adult Martins, due to starvation. The latter have been taken from their boxes and picked up in the fields about my own town, Rockland, and about Hanover.

"The cold weather seems not only to have numbed the insects so they could not fly, but, at last, to have killed them outright. Farmers report no grasshoppers or crickets in their mown fields and speak of it as a strange experience. If these insects have been killed, the smaller and more aerial species must have suffered more severely. One man reports twenty-one dead Martins, young and old, and a number report the same facts as of Martins and speak of the dead young of the Barn Swallows, giving definite numbers of the latter.

"In general, it has been a hard year on birds. Dry weather preceded the cold, and later many nests containing young were blown down and some young were chilled, fell and perished. I wonder if this experience is a wide one? If so, it will be felt next year.

"I should say also that the Barn Swallows, Martins and Chimney Swifts disappeared from their haunts about here about the time the dead were found."

Mr. Henry Hales writes from Ridgewood, New Jersey, under date of June 20: "My old barn has been the breeding-place for a lot of Barn Swallows every year since I have lived here and long before. Every summer quite a colony come to it and to another barn across the bay. Seeing this year only a solitary pair, it was supposed the birds' absence was due to Cats, Squirrels or House Sparrows; but, to my astonishment, I find the same conditions all through the country about here. I sometimes travel twenty miles a day and see only two or three birds."

Mrs. William C. Horton, of Brattleboro, Vermont, writes: "The attractive colony of Purple Martins, occupying the bird-house belonging to William C. Horton, of Brattleboro, Vermont, met with fatal disaster during the long rain in June. The colony of about thirty birds came to the house as usual in April. It was known from appearances in June that the birds were incubating and brooding. June 23 Mr. Horton observed that there were no Martins flying about, and climbing to the bird-house to ascertain the cause, found the dead bodies of thirty little birds, twelve unhatched eggs and one pair of adult birds dead on the same nest, covering four decomposing little ones. The nests, usually so warm and dry, were completely water-soaked.

"About ten days after the house had been cleansed one pair of birds returned and flew many times about the house, almost daring to enter, and yet apparently fearful to do so, at the same time uttering cries. Presently one alighted momentarily on one of the spires and said something to his mate, when both flew away. Occasionally, since that time, one or two pairs have returned to fly about, but not to enter the house.

"This bird-house has been the home of the Martins every summer for twenty-five years, and this is the first disaster that has befallen the colony.

"On the same grounds a Black and White Warbler brought her young from the grove where she had nested. When first observed, the little ones could fly quite well, but as the day advanced, and the rain and chill increased, the little ones grew weaker. One curled itself up exhausted and was taken into the house for the night, but in the morning it was dead, and all the voices of the other little ones left outside were silent. The parent Warblers are evidently building another nest, as they are carrying nesting materials among the shrubbery.

"The Song and Chipping Sparrows, Wood Thrush, Robin, Downy Woodpecker, Catbird, Wood Pewee and a family of Tree Swallows in a box under the roof of our house were all successful in bringing their families out safely, and we are visited hourly by many of these friends."

Mr. J. Warren Jacobs, of Waynesburg, Pennsylvania, reports as follows concerning his Martin colonies, in which, through Mr. Jacobs' studies,* so many bird-lovers have become interested:

"Only one brood of Martins in my colonies escaped death as a result of a three-day's cold wet spell ending June 15. Ten broods in house No. 2 and eleven or twelve in house No. 3 succumbed. On this date all nests in house No. 4 contained eggs.

"From house No. 2 I took forty young and one old dead bird. Under this old bird were five young, four of which were still alive, but cold and almost stiff. I put these in a cloth and warmed them and they were soon able to move about and make a noise. We fed them flies, a few butterflies and a small number of angleworms (the latter for convenience, as butterflies were scarce). The first night the weakest one died, one died during the day and on the second night the last two died.

"This made a total of forty-five young and one old bird from box No. 2. In No. 3 I found thirty-nine young and two old birds dead. From a room in this box came the faint squeak of young which survived. This is all that lived over this unfortunate period.

"The number of nests containing eggs on June 15 was close to forty. All of these eggs, except two sets, were hatched, and these two sets were deserted, probably because of death of old birds during the bad weather.

"July 18 to 25 the young were coming out daily. Then there was a lull until after August 10, when the outcoming young were again numerous. I should have previously mentioned that the birds which lost their young rebuilt immediately, and from their nests came the young mentioned here. I think all these unfortunate parents laid eggs and reared broods, as on August 10, there were twelve broods in house No. 3. This is the house which had contained eleven or twelve nests full of dead young.

"In my booklet on the Martin Colony—page 20— you will note a statement that a cold, wet spell beginning on June 27 and

*'The Story of a Martin Colony' by J. Warren Jacobs.

continuing a week was the cause of the death of one hundred and fifty young and several old birds. Did the old birds know that it would be too late to rebuild and rear broods? None of them attempted this. Yet this year's misfortune did not deter them from hatching second broods, although only nineteen days earlier than last year's mishap.

"At the bird-house of John Reese, two miles west of town, forty-five dead young were found, and he told me this morning that he had plenty of birds just coming out. Joseph Patton, who bought a Martin house of me in 1902, took fifteen dead birds out of his box on June 15, and found seven others still living. Amos Allison, three miles east of here, had a colony in an old box near his old residence, which he wished to divide by inducing some of the birds to come to an elegant box of forty rooms he erected near his new residence, some hundreds of yards from the old. None of the birds built in the new box until after the rain, when the whole colony moved to his new box, built nests and raised young.

"All other boxes in use in this town, which I have been able to see lately, still contain young birds all apparently about the same age as those at my own houses. All of which goes to show that where the old birds escaped death, pretty generally, second broods were hatched."

Under date of September 9, Mr. Jacobs adds: "Since sending my observations on the Martins I have taken the final notes for the fall, and present them herewith:

"August 27.—Have watched the birds come in evenings and go out mornings, as usual, until August 24, when I was called away to Pittsburg, returning to-night. The birds came home, but my father did not know in what numbers.

"August 28.—The morning birds were away by daylight, unnoticed. In the evening about fifty birds came, but only a few entered the houses for the night.

"August 29.—In the morning, one old male was noted about 9 o'clock soaring over the town.

"This was the last seen of the birds here this fall."

Economic Value of Game Birds

A despatch from Cheyenne, Wyo., to the New York "Herald" says:

"The devastation of the ranges along the Big Laramie and North Platte rivers by vast swarms of grasshoppers can be traced directly to the killing of the Sage Chickens in those districts.

"The Chickens have been practically exterminated, and their disappearance was followed promptly by the appearance of the grasshoppers.

"The insects have done incalculable damage during the last three years, and the ranchmen, realizing the cause of the invasion, are considering plans for propagating Sage Chickens and reëstablishing them on the range.

"The next Legislature will be asked to pass a law protecting Chickens at all times. Their increase is to be encouraged in every way. Other parts of the state where Chickens are becoming scarce are beginning to learn the same lesson.

"Everywhere Chickens are scarcer this year than ever before, and grasshoppers are more plentiful. Sage Chickens consume enormous quantities of insects, and there is little doubt that within a year they will be protected."

Red Crossbills in New Jersey, in July

In the northern part of Somerset county, N. J., where I was spending my vacation this summer, I had the pleasure of finding a flock of six Crossbills. They were first observed on July 19, around some cedar trees which flanked both sides of a roadway. They were very tame, and I was able to sit down within six feet of them and watch them. Two were males, showing quite a quantity of red in their plumage. When startled they would fly a short distance away, uttering twittering notes as they flew.

About an hour after I first saw them, I went to look for them again and found them in exactly the same trees. Early the next morning they were in the same neighborhood, but during the day they disappeared and were not seen again.—George E. Hix, *New York, N. Y.*

Book News and Reviews

CATALOGUE OF CANADIAN BIRDS, PART II. BIRDS OF PREY, WOODPECKERS, FLY-CATCHERS, CROWS, JAYS AND BLACKBIRDS. By JOHN MACOUN, Naturalist to the Geological Survey of Canada. Ottawa, 1903. 8vo. pages i–iv+219–413.

It is with much pleasure that we receive the second part of this useful catalogue of birds, the first part of which, issued in 1900, was reviewed in BIRD-LORE for August of that year.

The method adopted in the preceding volume is here continued and includes a full treatment, with authorities for every statement, of the distribution of each species, notes on its breeding habits and a list of the specimens representing it in the museum of the Geological Survey of Canada.

The work contains not only reference to previously published material, but much new information obtained by Mr. Macoun and his assistants on the survey, and thus becomes an authoritative as it is an invaluable manual of Canadian ornithology.

We observe with satisfaction a note by Dr. Robert Bell, director of the survey, to the effect that the third and concluding part of this important work will appear this autumn.—F. M. C.

CASSINIA. Proceedings of the Delaware Valley Ornithological Club for 1902.

This, the sixth report of the proceedings of the D. V. O. C., and the second issued under the title 'Cassinia,' contains a biographical sketch of Edward Harris, by George Spencer Morris, with a full-page portrait of this friend of Audubon's; 'Henslow's Bunting in New Jersey,' by Samuel N. Rhoads; 'The Unusual Flight of White Herons in 1902,' by William B. Evans; 'Notes on the Germantown Grackle Roost,' by Arthur Cope Emlen; 'The Heart of the New Jersey Pine Barrens,' by Herbert L. Coggins; 'Report on the Spring Migration of 1902,' by Witmer Stone; 'Birds that Struck the City Hall Tower in 1902'; 'Abstract of the Proceedings of the D. V. O. C. for 1902'; 'Bird Club Notes'; 'List of Officers and Members.'

OUR FEATHERED GAME, A HANDBOOK OF THE NORTH AMERICAN GAME-BIRDS. By DWIGHT W. HUNTINGTON. Charles Scribner's Sons. New York, 1903. 12mo. xii+396 pages, 8 full-page colored plates, 29 full-page half-tones.

This book is written largely from the standpoint of the sportsman who knows his birds chiefly during the shooting season, and as such it appeals most strongly to sportsmen. The author, however, appears to be well versed in the literature of his subject, and numerous references to the works of others add to the value of his book.

With the exception of several species which have been greatly in demand for millinery purposes, game-birds have, for obvious reasons, decreased more than any other American birds. Mr. Huntington pays especial attention to this phase of his subject, and presents many records of 'bags' of game made in the days of the muzzle-load, with illuminating comments on the comparative scarcity of game-birds to-day.

The book is illustrated by eight colored plates from paintings by the author of 'Characteristic Hunting Scenes' and by numerous photographs of mounted birds.—F. M. C.

The Ornithological Magazines

THE AUK.—Among the articles of general interest in the July 'Auk' we find 'Notes on the Ornithological Observations of Peter Kalm,' by Spencer Trotter, who pleasantly summarizes the botanist's brief remarks upon the birds seen during his travels in America, about 1750. A. H. Clark writes on the habits of Venezuelan birds, and Witmer Stone takes up '* * * Winter Crow Life in the Delaware Valley.' The general reader will also find two annotated lists, one on the birds of Madison county, New York, by William R. Maxon, and one on those of interior British Columbia, by Allan Brooks, the latter writer illustrating his paper with a colored plate of young Ducklings. The specialist will en-

joy a couple of technical papers, one by Witmer Stone on 'The Generic Names of the North American Owls' and one by L. M. Loomis on 'Recognition of Geographical Variation in Nomenclature.'

Among notes, we find one by J. H. Clark on 'A Much-Mated House Sparrow,' which deals a sad blow to the general belief in the devotion of mated birds. It is to be hoped it is only another instance of the English Sparrow's general depravity as he becomes more civilized.

A new 'new edition' of 'Nuttall' is reviewed. The collection of annotated excerpts that modern publishers offer would scarcely be recognized by Nuttall as his handiwork, and the modernizing is to be deprecated. A twelfth supplement to the harried Check-List occupies the final pages. In justice to myself as a member of the approving committee, I may be permitted to say that I do not believe in many of the accepted changes, especially the multiplication of genera. Similarities rather than differences should be the basis for genera, otherwise the systematist will soon have each species in a genus by itself.—J. D., Jr.

The Condor.—The July number of 'The Condor' contains a report of the 'Joint Meeting of the American Ornithologists' Union and the Cooper Ornithological Club of California,' with three of the papers which were presented on that occasion, namely: 'Call Notes of the Bush-Tit,' by Grinnell; 'Notes on the Bird Conditions of the Fresno District,' by Miller, and the 'Cassin Auklet (*Ptychoramphus aleuticus*)' on Santa Barbara Island, by Robertson. Readers will find in these articles an epitome of the meeting, but the pleasure of seeing the many beautiful lantern slides, and of personal contact with the forty or fifty members present on that enjoyable occasion, can only be reproduced in the memories of those who were fortunate enough to attend the tenth anniversary meeting of the Cooper Club.

Among the other articles in this number may be mentioned Bailey's notes on 'The White-necked Raven' in western Texas, Cary's 'Morning with the Birds of Juan Vinas, Costa Rica,' and Bohlman's 'Nesting Habits of the Shufeldt Junco,' near Portland, Oregon,—each illustrated with one or two half-tones. Mailliard contributes some 'Notes from Santa Barbara, California,' in which he calls attention to the early molting of birds in that locality; Stephens concludes his 'Bird Notes from Eastern California and Western Arizona,' and Fowler adds some 'Stray Notes from Southern Arizona,' on the Elf Owl, Arizona Woodpecker, Rivoli and White-eared Hummingbirds.

Two of the illustrations deserve special mention: The frontispiece, which is a reproduction of one of Bohlman's superb photographs, showing the nest of the Shufeldt Junco in situ; and the portrait of Dr. Edgar A. Mearns, which forms the third instalment in the series of portraits of eastern ornithologists.—T. S. P.

The Wilson Bulletin.—No. 43 of 'The Wilson Bulletin' contains the following articles: 'All Day with the Birds,' and 'Brewster Warbler in Ohio,' by Lynds Jones; 'Birds of DeKalb County, Georgia,' by R. W. Smith; 'Some Birds of Florida,' by J. M. Keck, and 'The Nest of the Orchard Oriole,' by R. W. Shufeldt. The general notes include observations on 'Unusual Birds at Oberlin, Ohio,' by Lynds Jones; 'Notes from Dutchess County, New York,' by M. S. Crosby, and 'Mountain Bluebirds Increasing in Boulder, Colorado,' by Julius Henderson.

On a certain day in May each year since 1898, Lynds Jones has made an effort to secure the highest daily record of species for the season, and in 'All Day with the Birds' he has given several interesting tables, so arranged as to show on how many occasions the species were observed. Seventy-four species out of a possible one hundred and thirteen were seen on each year. We are always glad to see local lists, as they give an insight into the avifauna of definite regions and assist materially in the work in geographic distribution. In his observations on four male Brewster Warblers, Lynds Jones found that the songs had considerable range and varied from the almost typical notes of the Blue-winged Warbler to those of the Golden-winged Warbler. This

song variation apparently did not bear any relation to the color-phase of the individuals. —A. K. F.

THE OSPREY.—We have been reliably informed that the editor of 'The Osprey' is perfectly willing to furnish financial support for resuming publication, providing he can find some one among the younger ornithologists who has time and ability to take complete charge of the management, and who will attend to the various details, the proper accomplishment of which are most essential to the production of a progressive and up-to-date magazine. We sincerely hope that Dr. Gill will be successful in securing an able assistant, so that 'The Osprey' may become a regular visitor once more.—A. K. F.

Book News

WE HAVE received *no* news concerning the proposed publication this fall of the revised edition of Dr. Coues' 'Key to North American Birds.' It is to be hoped that those in charge of the passage of this work through the press will see that the many changes in the nomenclature of North American birds which have been made since the manuscript was completed, some four years ago, will be incorporated in its pages.

'THE ATLANTIC SLOPE NATURALIST' is a recently-established 16-page bimonthly, edited and published by W. E. Rotzell, M D., at Narbeth, Pa. The third number (July and August, 1903) contains several articles on birds of more than usual interest, including a record by Ernest H. Short of the breeding of the Connecticut Warbler in Monroe county, New York; and another, by Mark L. C. Wilde, of the breeding of the Pileated Woodpecker in Cape May county, New Jersey, in 1893.

IN 'SCIENCE' for August 14, 1903, Mr. Charles C. Adams, Curator of the Museum of the University of Michigan, announces the discovery by N. A. Wood, in Oscoda county, Michigan, of the first known nest of Kirtland's Warbler. Mr. Wood found two nests, and evidently reached the southern limit of this rare Warbler's breeding range. We are promised a full report of this important piece of field-work later.

'OUR ANIMAL FRIENDS' enters its thirty-first volume with the issue of its September number, which appears in a new and greatly improved form.

EDUCATIONAL LEAFLET, No. 5, of the National Committee of Audubon Societies is by William Dutcher, and treats of the economic status of the Flicker. Copies of this leaflet may be obtained at cost from the author, at 525 Manhattan Avenue, New York City.

THE Zoölogical Quarterly Bulletin of the Pennsylvania Department of Agriculture, Vol. I, No. 2, contains 'An Analytic Key for the Determination of the Families of Pennsylvanian Birds' and the first part of a 'General Discussion of Our Native Birds by Orders and Families,' by H. A. Surface. Copies of this Bulletin may be had by applying to the author, at Harrisburg, Pennsylvania.

THE Forest, Fish and Game Commission of the state of New York has issued, in advance of its appearance in the annual report of the commission, a pamphlet of some sixty quarto pages, entitled 'The Economic Value of Birds to the State.' The text was compiled by Frank M. Chapman; the illustrations, twelve in number, are by Louis Agassiz Fuertes, and are doubtless the most beautiful colored plates of birds which have been published in this country.

'THE OTTAWA NATURALIST' for July, 1903, contains the third paper in a valuable series on the 'Nesting of some Canadian Warblers,' by William F. Kells.

'THE EMU,' official organ of the Australasian Ornithologists' Union, continues to grow in size and in excellence; an indication, no doubt, of increasing interest in ornithology in the antipodes. The July, 1903, issue, the first number of the third volume, contains 80 pages of text and several excellent half-tones, one of which, of a colony of Sooty Terns, we believe shows more birds than we have ever seen before in one photograph.

'The Emu' is edited by A. J. Campbell and H. Kendall, of Melbourne, and is published at four shillings per copy.

Bird-Lore

A Bi-monthly Magazine
Devoted to the Study and Protection of Birds
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES
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Bird-Lore's Motto:
A Bird in the Bush is Worth Two in the Hand

FEW families of birds exhibit more widely varying habits than do the Cuckoos. Some species are strictly arboreal, others almost as markedly terrestrial; some are nearly silent, others surprisingly vociferous; some are extremely sedentary, others make prolonged migrations. In their marital relationships and nesting habits equally great diversity is displayed, — Cuckoos being communistic polyandrous, monogamous, and, possibly polygamous. The European Cuckoo builds no nest, but is parasitic, and is evidently wholly lacking in parental instincts. The Anis have a common nest in which half-a-dozen or more females may deposit their eggs and share the duties of incubation and maternity. And now, to add to this list of incongruities, Mr. Gerald H. Thayer tells us, in this issue of BIRD-LORE, that Cuckoos are noctural as well as diurnal, that our supposed recluse, the Black-bill, is, at night, a gay cavorter in the heavens!

Fortunately, Mr. Thayer's observations relate to a common, widely distributed species, and, in due season, bird students in many parts of the country will have an opportunity to confirm them.

'COUNTRY LIFE,' for September, publishes some exceedingly interesting photographs of Baybirds (Knots, Turnstones, etc.), by Mr. A. Radclyffe Dugmore. Using the decoys and methods of the gunner, Mr. Dugmore entered his blind armed with a camera instead of a gun, and as a result secured a series of pictures which thousands may enjoy, instead of a 'bunch' of birds of doubtful use to any one.

The author of the text accompanying Mr. Dugmore's illustrations appears to have had considerable experience in killing birds which he knows very little about. It would be instructive to learn on just what evidence he bases his statement that "migrating snipe" raise "their young in the neighborhood of the antarctic circle" and then "come north to spend the summer"!

THE twenty-first annual Congress of the American Ornithologists' Union will be held at the Academy of Sciences in Philadelphia, November 17–19, 1903. All bird students, whether or not they be members of the Union, are welcomed to these annual meetings; but we may repeat the opinion, expressed here some years ago, that it is the duty of every one interested in the study of birds to identify himself with the American Ornithologists' Union. Directly or indirectly, personally or officially, we are all indebted to the Union or its members for assistance in our studies, and the support incident to membership is the smallest return we can be called upon to make. Any earnest student of birds is eligible for election as an associate member of the Union. The annual dues are three dollars, in return for which one receives 'The Auk,' the official organ of the Union. Write to your member of BIRD-LORE'S Advisory Council and ask him to propose your name, at the November meeting, for associate membership.

THUS far the agreement between the Audubon Societies and the Millinery Merchants' Protective Association appears to be working satisfactorily. The members of the association exhibit a commendable desire to conform strictly to the terms of the agreement, and when the status of certain feathers is in doubt submit them to some one competent to render an opinion as to their eligibility in the trade.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT (President of the Audubon Society of the State of Connecticut), Fairfield, Conn., to whom all communications relating to the work of the Audubon and other Bird Protective Societies should be addressed. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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THE AUTUMN OUTLOOK

With the echoing of guns from moor and marsh the shooting season opens, the autumnal bird migration sets in, and the various bird protective societies shake off the summer lethargy. For in summer, though the birds are with us and we may go freely to their haunts, the separateness of individuals causes almost a total suspension of organized work.

With autumn comes the demand for new clothing, hats in particular, for the way of the world has been to go hatless in summer, with the result that many human beaks are as highly colored as those of Sea Coots, and as we look at the headgear shown in the shops or advertised pictorially we remember that in May last the Milliners' Protective Association of New York and the State Audubon Society entered into a three years' compact for the regulation of the trade in bird plumage.

What is the result, and how many other State Societies have followed suit and shown that they are possessed by a spirit of fairness and the willingness to meet reasonable compromise part way?

As to the direct effect of the agreement upon artistic millinery, it is too early yet to predict. The stiff quill remains upon the outing and rainy-day hat even as the Os-

trich plume rightfully clings to the better-most headgear. The quill is a difficult ornament to replace, and women should be grateful to the Milliners' Association if they can produce it in a legitimate manner from the wings of food birds, and thus keep our consciences and wet-weather appearance in good accord.

On the other hand, the response of the State Audubon Societies has been no uncertain note; and even though the numerical majority has not yet signed, the most important societies that carry the balance of power have at once come to the front and a chain has been formed down the east coast and well across the continent to Colorado; for to the date of writing the list includes Colorado, Connecticut, Delaware, District of Columbia, Illinois, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and Wisconsin.

Another demand of autumn is a renewal of financial interest in the doings of the National Committee of Audubon Societies, not only that the issue of its series of Educational Leaflets may be uninterrupted, but that it may distribute these widely and freely instead of being forced to charge even the cost of production.

Leaflet No. 5, 'The Flicker,' the latest to appear, is an example of the great importance of this work; for this Woodpecker of many names has, together with the Meadow-Lark, so long been considered a game-bird, that this tribute to its economic value should be scattered broadcast at this its flocking season, when its well-fed, pigeon-like frame outlined on a tree trunk or taking ants from a bank offers fatal temptation of an easy mark to the lesser owners of guns who imagine themselves sportsmen.—M. O. W.

Reports of Societies

ILLINOIS AUDUBON SOCIETY

This report, while appearing so late in the year, should be dated March 28, as the facts covered by it embrace only the year previous to that date. Our 'facts' are, as usual, both encouraging and discouraging. The most obvious ones, the statistics, show an increase in membership of 43 adults and 3,462 juniors; a very poor showing for the seniors, but a good one for the children. The total number joining since our organization, April 1, 1897, being about 14,461. There have been two general meetings held, with addresses and stereopticon views, and seven directors' meetings, besides numbers of meetings of a local nature, in which the officers of the society have had more or less of an active interest.

We have distributed 6,843 leaflets during the year, 1,500 of which went to milliners in the state, 2,000 to the state superintendent of schools for distribution, and about 2,500 were purchased for the use of farmers' institutes.

Our traveling libraries, two in number, while reported as 'ready for duty' last year, have practically done no active service until recently. This year they promise to do good work.

One of our plans, an illustrated lecture, has passed from the region of hope to that of reality – fifty-six slides were procured, and a charming lecture to accompany them was written by Mr. Edward B. Clark, author of 'Birds of Lakeside and Prairie.' This lecture has already done yeoman's service, the only drawback to its usefulness being its inability to be in two places at once, and the lack of a lantern to send with it.

Our local branches have done better than ever before, and we hear from a number of points of the excellent work done in the schools, of addresses on bird protection before women's clubs, farmers' institutes, etc. The secretary has received letters from 48 of the 2,700 towns of the state—very few—but, at least, a 'little leaven.'

The sending of 1,000 notices of the state law to milliners in the state, and the faithful work of our president, have brought excellent results, many of the largest wholesale milliners agreeing not to handle the unlawful feathers hereafter.

The society mourns the death of one of its vice-presidents, Prof. S. A. Forbes, who was a true friend of the birds and of the society.

While the foregoing items date back to the end of March, one must be added which, at that date was still in the realm of hope. Since that date it has become a working fact, and we are rejoicing that the observance of Bird Day has at last become a law of Illinois. Our state superintendent of schools, Mr. Alfred Byliss, has been greatly in sympathy with the efforts of the Audubon Society in this direction, and stands ready to aid as far as possible in the work of bird study and protection in the schools. As the work of the National Committee draws the various state societies into closer union, and they know more and more of each other's work, there is little to report that is not already a twice-told tale; and yet, each society has its own special interests, its own special wants. One of our 'special' wants is one each society will also claim as *its* special want—more money! We need it for a lantern; for another lecture; to buy charts and leaflets; to hold meetings; to buy books to help our children and teachers; to educate, educate, educate, until every man, woman and child in our state realizes that while the dead wing may have a certain beauty, it is as nothing compared to the 'joyful wing cleaving the sky,' and that while the bird may be of use as food, that use is as nothing compared to its usefulness when *it* is allowed to do the eating! We hope and believe that the outlook for the birds in Illinois grows brighter every year, and feel that they have the right to chant a brave little 'sursum corda' for their native song.—MARY DRUMMOND, *Secretary*.

CALIFORNIA

Miss Josephine Clifford M'Crackin, president of Women's Forest- and Song-Bird Protective Association, of Santa Cruz county, California, which was organized in December, 1900, writes of a project to organize bird-protective associations in different counties, with one state president to whom all are to report.

This is an excellent arrangement for a state of the area of California, where 'local secretaries' would find themselves far apart, though the underlying idea is the same. It is time that California stirred herself in bird-protective matters, for if the Redlands society has done any active work it has very effectually concealed it, at least from the Audubon Department of BIRD-LORE.

Bird Protection Abroad.—III. New Zealand

By T. S. PALMER

An interesting article on the birds of New Zealand, by Charles A. Keeler, in the August number of BIRD-LORE, naturally suggests an inquiry as to the protection afforded native species in that distant part of the world. A glance at the map will show that New Zealand consists of two main islands, extending approximately from 35° to 47° S. Lat., with an area of 104,471 square miles. Its corresponding position on our Pacific coast would be from Santa Barbara, California, to Gray's Harbor, Washington; its area is a little greater than that of Colorado and about equal to that of the combined areas of New York, New Jersey, Pennsylvania and Delaware. With the lofty mountains on the South Island, its topography and climatic conditions are as varied as those of any of our western states.

Game protection has received considerable attention in the colony for more than thirty years, and has been fostered largely by the acclimatization societies, which were first organized in the sixties. During this time at least nine game-laws have been enacted. These comprise two principal and seven minor acts, as follows: 'The Protection of Animals Act, 1873,' amended in 1875; and 'The Animals' Protection Act, 1880,' amended by the acts of 1881, 1884, 1886, 1889, 1895 and 1900. These laws, like other institutions of New Zealand, differ radically from those of other countries. Thus, under the act of 1880 'game' is defined as imported animals and birds, while the specific term 'native game' is applied to indigenous species; licenses are given more attention than prohibitions against killing; and the property in game 'turned at large' by an acclimatization society may be vested in the chairman of the society for three years, instead of being vested in the state.

The animals and birds accorded protection are mentioned by name in two schedules of 'game' and 'native game.' Game includes Pheasants, Partridges, Grouse, Ptarmigan, Quail, Snipe, Plover, Swans and imported Wild Ducks; native game comprises Quail, Pigeon, 'Tui' or Parson Bird, Curlew, Dotterell, Pied and Black Stilt, Plover, Bittern, Geese and Wild Ducks. These somewhat meager lists can be extended or curtailed by declaration of the Governor, who, under an important amendment made in 1886, is authorized to prohibit the killing of any native bird absolutely or for such time as may be deemed necessary. Under the act of 1880 the open season for game was limited to three months, May, June and July (corresponding to an open season during November, December and January in the United States), while that for native game lasted four months, and was fixed by notification of the Governor. This arrangement was changed in 1900 by making one fixed season for both game and native game in May, June and July, except for the District of Otago, in the southernmost part of the South Island, where the season begins in April and closes on the last day of June. Poisoning, trapping, snaring, hunting at night, or using swivel guns in the capture of game are all prohibited under the original law. The sections relating to birds kept in confinement are explicit but liberal, allowing birds to be domesticated or kept for propagation, and in such cases to be bought or sold at any time. Under permits from the colonial secretary, eggs or birds may be taken for distribution to other parts of the colony. An important provision prohibits absolutely the introduction of certain species which are considered injurious, namely: Foxes, hawks, vultures, or other birds of prey and venomous reptiles. A violation of this section is punishable by the heaviest penalty mentioned in the act, a fine not exceeding £100 ($500) or imprisonment for not more than six months.

The enforcement of the law is provided for by heavy fines, appointment of rangers, and by official recognition of acclimatization societies. Fines range from £5 to £20 ($25 to $100), and are graded according to the offense. Thus, the penalty for destroying eggs or selling game in close season is not more than £5; for using a swivel gun, not more than £10; and for capturing or selling game without a license, not more than £20. The money obtained from fines is paid in part to rangers, in part to persons instrumental in securing convictions, and in part to registered acclimatization societies. One or more rangers (corresponding to our game wardens) may be appointed for each district by the Governor, and any acclimatization society may become a registered society entitled to all the privileges appertaining thereto, by depositing a copy of its rules in the office of the colonial secretary. It may be interesting to note that fish and game associations are rarely given such official recognition in the United States or Canada; the most notable exceptions being the Delaware Game Protective Association, the Audubon Society of North Carolina, and the Nova Scotia Game and Inland Fishery Protective Society. In these three cases these associations are the official representatives of the state in enforcing the game laws.

(*To be concluded.*)

Annual Conference of Audubon Societies

The Annual Conference of Audubon Societies will be held in Philadelphia some time during the week beginning November 16, 1903. Due notice of the place and exact time of the meeting will be sent to the secretaries of all the societies by the chairman of the National Committee.

Protection for the Night-hawk in the South

The Night-hawk, or Bullbat, has been so long considered a legitimate target for shotgun practice, in the south, that a report of prosecution for killing these birds at Greensboro, North Carolina, marks the beginning of a new epoch of bird protection in our southern states. Incidentally, we may add, it is evidence of the effective activity of the North Carolina Audubon Society under Professor Pearson's leadership.

1. American Redstart, Adult Male.
2. American Redstart, Female
3. American Redstart, Young Male.
4. Painted Redstart, Adult.

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS

OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

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An Island Eden

BY FRANK M. CHAPMAN

With photographs from nature by the author

MORTON wrote of New England birds in 1632, of "cranes there are a great store . . . they sometimes eate our corne and doe pay for their presumption well enough . . . a goodly bird in a dishe and no discomodity." Of "swannes," this early natural historian tells us, "there was a great store at the seasons of the year." Other water-fowl there were in countless myriads, and among them were Labrador Ducks, White Pelicans, and, not improbably, Great Auks. Trees fell beneath the weight of roosting Wild Pigeons, which, in flight, darkened the air, and in proper localities Heath Hens, the eastern Prairie Chicken, abounded.

It was not a day when close attention was paid to natural science, and we shall never definitely know the conditions of bird- and mammal-life which existed at the time this country was colonized; but, from records similar to those which Morton and others have left us, we gather that surprising changes have occurred in the character of our bird-life during the past four hundred years. Not only, as we know too well in our own generation, have many species become greatly reduced in numbers, but others have totally disappeared, or are seen only at long intervals as waifs from some region in which they have not as yet become exterminated.

The present-day ornithologist reads the time-discolored pages of these pioneers with the keenest regret that the scenes they describe can never be observed again. Imagine, then, the writer's exultation on discovering that within one hundred miles of our most populous city there is still a considerable area where, if there is not a "greate store of Cranes," * the existing conditions are so unlike those commonly prevailing throughout the surrounding region that the observer may easily fancy himself transported to the early part of the last century. So marked is the change that he

*Morton wrote of a true Crane of the genus *Grus;* not of our great Blue Heron (*Ardea herodias*), to which the name 'Crane' is often applied.

quickly abandons his dream picture of the past for the astonishing realities of the present.

Only an island could so actively play the part of preserver. No fence, no trespass sign, no warden is so effective as several miles of deep water. Of no less importance, in the present instance, is the possession and occupation of this fair land by but one family, its descendents and dependents, since Lion Gardiner purchased it from its red-skinned owners in 1637, for "ten coats of trading cloath." Here, then, is the prime requisite of isolation rendered potent and continuous by sympathetic guardianship.

Seven miles from end to end, and, in the middle, one-third as broad, Gardiner's Island contains a sufficient acreage to supply more than the needs of its occupants, and large areas are still in a primitive condition. We have, then, the advantages resulting from nature primeval as well as those arising from man's cultivation. The first is represented in shell-strewn beaches, grassy marshes mirrored with ponds and seamed with in-flowing arms of the sea, broad, rolling plains, magnificent first-growth woodland now high and dry, now watered by singing brooks, again low and swampy with dense, luxuriant vegetation and green-coated pools. On the other hand, man's presence is made manifest by abundant crops of grains and fruits, of which the birds reap a by no means undeserved share.

With these benefits conferred by man are none of the ills which almost invariably follow him. There are no rats in this island Eden, and, more astounding still, there are no cats,—the ogres of the bird-world. No less remarkable, and, perhaps an accompaniment of insularity, is the absence of foxes, minks, weasels, opossums, red-squirrels and chipmunks, all natural enemies of birds, and when the Fish-hawks come in the spring all other Hawks depart. In short, this island is an ideal resort for the fowl of land and water,—a place of peace and plenty,—and only those factors which impel migration among most of our birds, and consequent exposure to an endless series of dangers, have prevented it from becoming a vast aviary.

Fortunately removed from beaten paths of travel, one cannot buy an 'excursion ticket' to this Island of the Birds, but, journeying part of the way by train, must secure such conveyance as his alighting place affords, to be driven thence over country roads and grassy lanes to a lookout point where one's haven marks the horizon across the waters. Here, at the 'Fire Place,' as it is called locally and on the larger maps of Long Island, one enlists the services of the presiding genius to build for him a fire whose smoke shall give notice of a visitor to the island beyond—an office performed by his great-grandfather before him,—and shortly a dense cloud arises from a smudge of hay and seaweed and is blown landward by the breezes from Montauk. In time comes the answering signal, a flash of light from shining tin gleaming intermittently like the rays of an arc-light, and shortly, through our glasses, we make out a boat crossing the bay.

Without going into detail it is a difficult task to write adequately of the bird-life of Gardiner's Island; but several facts soon impress the student,—first, the abundance of birds; second, the presence of species rare or known only as migrants on contiguous land areas; and, third, the departure of some species from the normal habit of their kind. Robins, for example, build their nests not only in every tree and bush about the place but in exposed positions on the projections of piazza supports, on fence-rails, without attempt at concealment, at the end of corded wood logs, and even on

FISH-HAWK IN TREE NEST
The nest contained two eggs and a newly hatched young. Note the headless fish at the right
Photographed June 2, 1901

stones beneath foot-bridges. How far would they have progressed with housekeeping arrangements if sleek, sometime-purring tabbies were interested spectators of their labors?

Other common dooryard birds are Catbirds, Orioles, Chimney Swifts, Chipping Sparrows and Barn Swallows. Flickers, Quail and English Pheasants all nest within a few yards of the home dwelling, the former finding the box fence-posts admirable substitutes for hollow trees.

Scarce a stone's throw away, colonies of Purple Grackles and Red-winged Blackbirds add their characteristic notes to the chorus of bird voices, the volume of which so impresses the bird student from less favored regions.

In the openings of a near-by tree- and bush-grown pond, if the resident Kingfisher does not give the alarm, a Black Duck with her brood may be seen, and, more rarely, one may catch a glimpse of a radiant Wood Duck floating on the clear brown water. At dusk the whistling of Woodcocks' wings and the momentary sight of the birds rapidly flying to fresh feeding grounds adds another game-bird to the list.

In the grass-grown fields, ready for the mower, and on the rolling plains, where sheep graze, are Meadowlarks, Vesper, Field, Savanna and Grasshopper Sparrows, with Kingbirds and Indigo Buntings in the bordering tree lines.

From every side comes the splendid, vigorous whistle of Bob-white, and often the singer may be seen, perched on the top rail of a fence, replying in kind to a rival occupying a similar position on the other side of the field.

Approaching the borders of the woods, and where thicket growths encroached upon the fields, one was sure to have the always startling experience of flushing an English Pheasant; and in the morning and evening the little, immature, bantam-like crow of cock Pheasants was a distinctly strange and foreign note.

In spite of its abundance, the novelty of this bird's appearance does not wear off. As, with a cackle and a roar of wings, the bird seemed to burst from the earth, I invariably paused to watch the magnificent creature rise, rocket-like, and sail away into cover; nor did one think of moving until it was lost to view. The manner in which a cock Pheasant can conceal himself where there is apparently not sufficient cover for a Sparrow was a never-ending source of wonder. Scarcely less astonishing than the flight of the adult Pheasants is the wing-power of the chicks. When evidently not more than two or three days old, they fly with a speed and certainty of aim which quickly carries them to the near-by shelter. The sitting females were exceedingly wary, leaving the nest with but little cause and returning with much caution. Several hundred Pheasants were released on Gardiner's Island a dozen years ago, where they have so thrived that they are now numbered by thousands.

The woods, in addition to the Vireos, Scarlet Tanagers, Ovenbirds, Wood Thrushes and other common species, held as tenants several Carolina Wrens, a southern species whose loud, ringing, musical whistles added an unexpected bird voice to the chorus of June song. Reaching the regular northern limit of its range in northern New Jersey, this bird is known only as a rare straggler on Long Island; but it appears to have become permanently established on Gardiner's Island, where the conditions have evidently proved favorable to its increase. Its characteristic notes gave form to mental pictures of some southern woods, made still more real by the guttural, lisping gurgle of the Parula Warblers nesting in the long, hanging streamers of usnea moss.

In two localities where tall, slender swamp maples grow from low flooded woodlands, several hundred Night Herons build their rude platform nests of sticks high in the branches. As, with frightened squawks, the old birds leave the home tree one might imagine one had invaded a hen-roost. In early June the streaked young are nearly grown, and sit in rows of three

NO TRESPASSING!
Fish-hawk and ground nest. The nest contained three nearly grown young
Photographed July 7, 1902

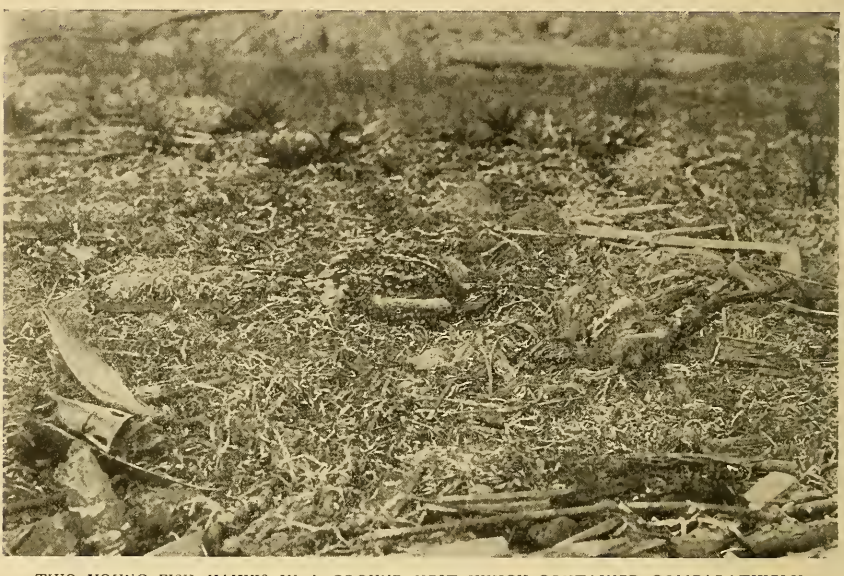
and four on the limbs near the frail structure in which they were reared, waiting for the impulse which will bid them use their newly grown wings.

But the birds for which, among naturalists at least, Gardiner's Island is famous are the Fish-hawks, or Ospreys. The island furnishes them with a safe retreat to which, year after year, they may return and find their bulky nests undisturbed, awaiting them, while the surrounding waters afford an unfailing supply of food. Among the birds they are the lords of this land.

If their title could be searched, even the early red-skinned islanders would doubtless be found to have been trespassers.

But if the Fish-hawks cannot prevent man's presence, they can and do deny to any other member of the Hawk family the right to share their summer home; and while the Fish-hawks are there one may look in vain for Hawks of other species on Gardiner's Island.

At least two hundred pairs of these fine birds nest on the island; and the variation in the character of their nesting sites effectively illustrates how, under certain conditions, a bird may depart from habit of its kind



TWO YOUNG FISH-HAWKS IN A GROUND NEST WHICH CONTAINED COMPARATIVELY LITTLE NESTING MATERIAL

Photographed July 7, 1902

without paying the penalty which so often befalls animals with but partially developed instincts.

It is the normal habit of the Fish-hawk to nest in trees, but on Gardiner's Island one finds these birds building their homes not only in trees but actually on the ground. It was interesting to observe, however, that, with one exception, these ground-nests contained fully as much building material as though a tree site had been selected. I say selected, without implying that the bird actually made a choice of position. Rather, it seems to me, these ground-dwelling birds, while inheriting the nest-building instincts of their species, are not instinctively impelled to adopt a site which has proven to be the most desirable for Fish-hawks. On the mainland such variability from the standard would have placed the bird, its eggs or its young within the reach of predaceous mammals, and it

doubtless would not have succeeded in rearing its family. But in an environment where bird enemies are happily absent, the ground-building birds are as safe as those nesting in the tree-tops. Environment, then, is the mold in which habit is cast. Indeed, the ground-builders are in less danger than those birds which build true to type, since the trees to which, year after year, the birds come may fall, with consequent disaster to the nest. When the nest is placed in a small cedar it eventually becomes larger than its support, which often gives way beneath it. The birds then

PHOTOGRAPHING A FISH-HAWK
June 1, 1901

evince their attachment to a certain spot by constructing a new home in the ruins of the old one.

One pair of Fish-hawks had placed a cart-load of sticks and sea-weed, constituting the greater part of their building material, on the roof of a small 'yoke-house' standing well out in a field, which, when I first saw it, was green with young rye. This house was evidently the only place offering concealment from which the bird might be photographed on its home. A camera was therefore erected some forty feet away, a tube run to the house, and I entered what was, in a sense, the subcellar of the structure above, sending my assistant to a neighboring ridge, whence he was to warn me of the bird's return. Time after time, under these conditions, the bird came back within a minute of my companion's departure; but, when going alone to photograph her, in the same manner, on the following day, she showed the utmost caution in returning to her inter-

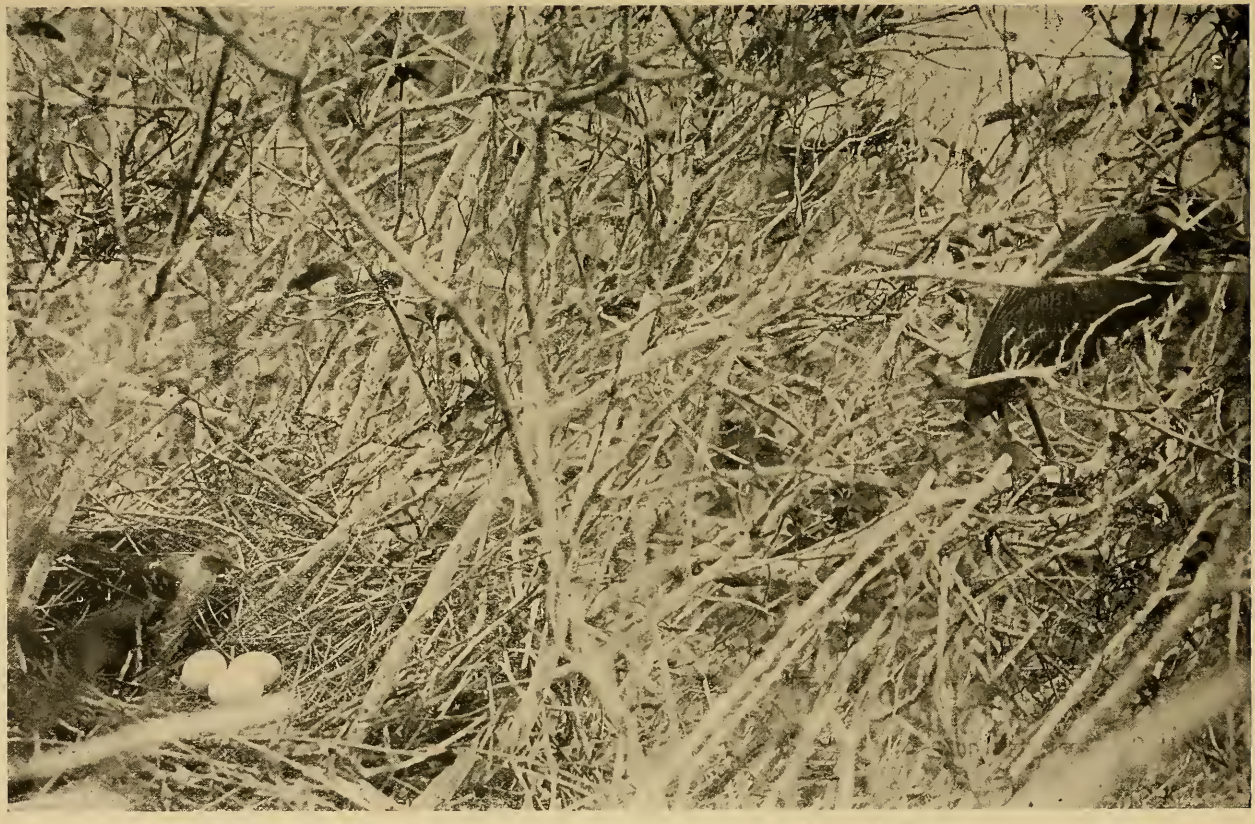
rupted task of incubation, circling about overhead and whistling loudly for fifteen minutes or more before returning to alight on the nest.

Another bird, near whose ground-nest I had erected a blind, showed a similar inability to count above one. If one of two persons went away, leaving the other in the blind, the bird was apparently satisfied that all was well. If, however, I entered the blind alone, an hour or more would pass before the bird's confidence in the situation was sufficiently restored to permit a return to her young.

This bird's nest was on the beach at the south end of the island, and, while studying her from my blind, I had an excellent opportunity to observe the Terns which were nesting there in numbers. At this time (July 5) the first-born young were several days old, and the little fellows were running about, apparently, wherever they pleased, attended by their parents. Several were seen to enter an inflowing creek, drink repeatedly of the salt-water and swim actively, in evident enjoyment of their natatorial powers, while the parents, who rarely if ever alight on the water, watched them from the shore. Possibly here was an explanation of the value to Terns of webbed toes. Functionless in the adult, they are of service to the young before the power of flight is acquired.

Terns have ceased to nest on the once teeming sand-bars of Long Island, but two good-sized colonies of these beautiful birds inhabit Gardiner's Island, and their presence adds immeasurably to the attractiveness of the beach-life. On the beach I also found the plaintive-voiced Piping Plover, a bird now so rare that in all my wanderings I have never encountered it before. Only ten or twelve of these birds were seen, and search failed to reveal the eggs or young which they gave evidence of possessing. Let us hope this little band of survivors may escape the dangers of the migratory season, and with ever-increasing progeny return each year to the sheltering beaches of Gardiner's Island.

THE SIGNAL AT THE FIRE-PLACE



A GALAPAGOS MOCKINGBIRD ABOUT TO EAT A YELLOW-CROWNED NIGHT HERON'S EGGS. Photographed by R. H. Beck

This picture shows two characteristic traits of the Galapagos Island birds; first, their extreme tameness, and second, the habit of the Mockingbird of destroying other birds' eggs. This picture was taken in thick brush; the camera straddling a deep crack two feet wide in the lava.—R. H. Beck.

The Turkey Vulture and Its Young

BY THOMAS H. JACKSON, West Chester, Pa.

With photographs from nature by the author

HIGH in the air, soaring in graceful curves, often seemingly among the clouds, the Turkey Vulture is an object of beauty surpassing any of our native birds in its grace and majesty of flight. In this part of Pennsylvania it is very abundant during the summer months, and on any clear day numbers of them may be seen, hovering high in the air, making their wonderful evolutions without apparent effort or flapping of wing. Even during the coldest days of winter they are frequently seen, though at such times only as stragglers from the milder climate to the south; for to obtain food here in zero weather, with deep snow covering everything, would seem for them an impossibility.

Beautiful as Turkey Vultures appear when soaring in air, all cause for admiration vanishes at once when we see them on the ground and at close quarters. Still, there is much in their habits and peculiarities to interest the bird student, especially so in connection with their nesting and the rearing of young. Early in April, with the advent of settled weather, they become quite numerous, and at once show an attachment for the old nesting sites, to which they seem to return for many years, if not too frequently disturbed. I have often noticed, when passing near the old nesting places, that the birds watch the intruder very closely and hover near, although no eggs or young are yet in the nest. These nests, or rather nesting places (for they build no nest), in my experience have most frequently been under overhanging rocks, or in caves formed by large rocks. A hollow stump, or a large log from which the center has rotted, is frequently used for a nesting place, and the present season I found a pair that had taken possession of an abandoned pig-sty in the woods, which furnished them an admirable place to set up housekeeping. Unfortunately, the smooth board floor had allowed one of their two eggs to roll away, and only one was hatched. Here they were safe from the attack of foxes, raccoons or other night prowlers that are responsible for so many empty bird-homes.

The period of incubation is very close to thirty days, possibly a day more or less. Many Turkey Vultures' eggs are very handsomely marked with spots and blotches of varying shades of brown, and the temptation to take them for curiosities is hard for many boys to resist; this, together with many other natural enemies, leaves, I am inclined to think, but a small percentage of nests that yield mature birds. The nests, however, seem to be more numerous in this vicinity than formerly, and it is not unusual to find five or six now in a single season.

When hatched, the young Vulture is covered with perfectly white down, excepting the face, sides of the head and the legs below the knees. Over these parts the skin is of a dull leathery black. The eyes are almost black, with a slight tinge of gray.

Young Turkey Vultures at a very early age display more intelligence than the young of any other raptores with which I am familiar. Their eyes are open from the first, and in less than a week they move about in their home, hiss vigorously, and show considerable alertness, but

TURKEY VULTURE, FOUR WEEKS OLD

do not seem to have any fear at that age. At two weeks they show a great increase in size and weight, but otherwise have changed but little in appearance. They now resent being disturbed and snap at the intruder, and as they get older become quite pugnacious, rushing at one with extended wings, uttering continually their loud hissing sound, which comes the nearest to any vocal performance I have ever heard from these birds. Their beaks are quite sharp and capable of injuring an unprotected hand.

On being approached they retire to the farthest corner of their den and there disgorge the contents of the stomach or crop. This seems to be an easy matter with this bird, and by this means I think the young are fed by the parents. None of their food seems to be left about the nest, though as the young become larger the odor of the place becomes very offensive.

At the age of four weeks the young Vultures begin to show signs of

black feathers coming through the down, which has become very long and fluffy. At this age they are very plump and heavy. The color of the eyes and head have not changed perceptibly, but the feet and legs have become rough and covered with whitish scales, as in the adult birds.

Their manner of moving with head close to the ground, their bright

TURKEY VULTURE, FOUR WEEKS OLD

eyes always on the intruder, and head inclined with a vigilant pose, gives them an appearance of great cunning.

By the fifth week (July 25), the greatest change to be noted in the young Vulture under observation was in the increased length of wing and tail feathers, as well as the greater area showing black. This, in sharp contrast to the snowy down still covering the greater part of the body, renders the young Turkey Vulture a very peculiar, if not an attractive object.

My last visit to this nest was on August 9, and I found the young bird well covered with black feathers and almost fully grown. The neck and head were still covered with a thin coating of down, and none of the livid color seen on these parts of the adult bird had made an appearance. At this time it was about seven weeks old, and I should think a week or ten

days more would have elapsed before it would take final leave of its native place, making the period between hatching and flight eight or nine weeks.

This ended a series of visits to this interesting bird, during which a good opportunity was afforded of watching its growth from the egg to maturity, and also of obtaining a number of records with the camera, which, by the way, were secured only under strong protest on the part of the subject.

'NEST' AND EGGS OF TURKEY VULTURE
About one-third natural size

Questions for Bird Students

In beginning a series of 'Questions for Bird Students' in our issue for December, 1902, we announced that they would be continued throughout the year, and that in our issue for December, 1903, we should have an interesting statement to make concerning them.

The questions have covered a wide range of subjects relating to birds, and while it may have been fancied that access to an extensive ornithological library would be needed to reply to them all, the truth is that the answer to every question may be found in BIRD-LORE! At least two of our readers seem to have discovered this fact, and we have received correct replies to the whole thirty-one questions from Ruth Galpin and Frederick J. Stupp.

For Teachers and Students

The Migration of Warblers

FIRST PAPER

Compiled by Professor W. W. Cooke, Chiefly from Data in the Biological Survey

With drawings by Louis Agassiz Fuertes and Bruce Horsfall

EDITORIAL NOTE

THE series of papers of which this is the first will, we believe, prove one of the most helpful to field students of bird migration which has ever appeared in a periodical. Migrants in the truest sense of the word, most of our Warblers winter in the tropics, and many of them breed in the Canadian zone. Twice a year, therefore, in surprising numbers, they sweep by us journeying northward in the spring, after the weather is comparatively settled, and with, consequently, remarkable regularity; and returning on their "due dates" in the fall in even greater abundance. In short, without the Warblers a study of bird migration in the field would lose half its charm.

It is well known that for many years the Biological Survey in Washington, under the direction of Dr. C. Hart Merriam, has been gathering data in relation to bird migration. Professor Cooke's 'Bird Migration in the Mississippi Valley' is based on data obtained in this manner, and is Bulletin No. 2 of the Survey. A second Bulletin by Professor Cooke on the routes of migration pursued by Warblers will be issued by the Survey during the coming year. In the meantime Professor Cooke has kindly prepared for Bird-Lore synopses of the migration dates of all the North American species of this family; and, in view of what has just been said, it will be readily understood how much more detailed and valuable this material will be than anything on the subject which has heretofore been published.

Of the Redstart, for example, Professor Cooke writes: "I believe that the enclosed notes on the Redstart include the largest number of records ever accumulated for one species on this continent. The figures given represent 395 records selected from about as many more." With these records for comparison, it is needless to say that one's own observations will become doubly interesting and significant.

In concluding the publication of these papers, we shall print a full list of all the observers whose work is cited, with their stations, enabling one readily to ascertain the authority for given dates.—F. M. C.

1. Blackburnian Warbler, Adult Male.
2. Blackburnian Warbler, Female.
3. Prothonotary Warbler, Adult Male.
4. Prothonotary Warbler, Female.

AMERICAN REDSTART

SPRING MIGRATION

Atlantic Coast—

PLACE	No. of years' record	Average date of spring arrival	Earliest date of spring arrival
Southern Florida Lighthouses	4	April 12	April 3, 1889
Northern Florida	5	April 7	March 20, 1890
Atlanta, Ga. (near)	7	April 23	April 6, 1894
Raleigh, N. C.	16	April 10	April 2, 1888
Asheville, N. C. (near)	4	April 29	April 19, 1902
Washington, D. C.	12	April 23	April 19, 1891, 1896,
Renova, Pa.	6	May 2	May 1, 1897 [1903
Beaver, Pa.	4	April 29	April 26, 1889
Berwyn, Pa.	8	May 15	May 6, 1896
Englewood, N. J.	7	May 4	April 26, 1899
Alfred, N. Y.	8	May 14	May 9, 1885
Ballston, N. Y.	11	May 14	May 8, 1894
Portland, Conn.	5	May 6	May 3, 1888
Jewett City, Conn.	15	May 12	May 4, 1896, 1902
Eastern Massachusetts	15	May 6	April 30, 1897, 1900
Randolph, Vt.	8	May 11	May 9, 1890, 1891
St. Johnsbury, Vt.	9	May 13	May 8, 1888, 1902
Durham, N. H.	4	May 12	May 10, 1901
Southwestern Maine	16	May 14	May 6, 1900
Montreal, Que.	8	May 16	May 11, 1887, 1889
Quebec, Que.	13	May 15	May 6, 1902
St. John, N. B.	10	May 20	May 17, 1895
Pictou, N. S.	7	May 27	May 21, 1894
P. E. Island, North River	5	May 26	May 19, 1889

Mississippi Valley—

PLACE	No. of years' record	Average date of spring arrival	Earliest date of spring arrival
New Orleans, La.	4	April 7	April 5, 1902
Southern Texas	5	April 15	April 10, 1886
Helena, Ark.	8	April 13	April 9, 1898
Eubank, Ky.	8	April 16	April 12, 1890
St. Louis, Mo.	4	April 18	April 17, 1888
Onaga, Kans.	7	May 5	May 1, 1892
Brookville, Ind.	7	April 29	April 20, 1896
Waterloo, Ind. (near)	8	April 29	April 27, 1888
Wauseon, Ohio	10	May 1	April 25, 1886
Keokuk, Iowa	10	May 3	April 26, 1896
Iowa City, Iowa	7	May 5	May 3, 1885, 1889
Grinnell, Iowa	6	May 4	May 1, 1887
Chicago, Ill.	14	May 8	May 2, 1896
Rockford, Ill.	7	May 7	May 5, 1886, 1890
Milwaukee, Wis.	6	May 11	May 9, 1897
Locke, Mich.	24	May 7	April 30, 1878
Petersburg, Mich.	9	April 30	April 23, 1885
Livonia, Mich.	6	May 4	May 1, 1892
Southwestern Ontario	10	May 5	May 2, 1890
Listowel, Ont.	12	May 12	May 2, 1896
Ottawa, Ont.	17	May 16	May 3, 1887
Parry Sound District, Ont.	10	May 19	May 13, 1897
Lanesboro, Minn.	7	May 11	May 2, 1887
Aweme, Man.	6	May 13	May 8, 1899
Great Falls, Mont.	3	May 21	May 18, 1889
Columbia Falls, Mont.	3	May 24	May 20, 1895
Fort Simpson, Mont.	2	May 24	May 20, 1860

FALL MIGRATION

Since the Redstart breeds over most of the eastern United States, it is not possible to determine the beginning of its fall migration in that portion of its range from which were received the fullest records of spring arrival. Just south of the breeding range, in the South Atlantic and Gulf states, the dates show that the Redstart is one of the earliest of fall migrants. The earliest migrant in Chester county, South Carolina, was seen July 10; at Key West, Fla., July 22, 1889, and near there, at Sombrero Key lighthouse, July 28 and 29, 1886. It has been taken in Jamaica by August 10; in Costa Rica, August 13; Columbia, South America, September 2, and on the island of Antigua, Lesser Antilles, September 6. These dates are especially interesting because they prove so conclusively that the southernmost breeding birds start first in their migration, and pass at once to the southern portion of the winter range. The date of September 6, at Antigua, is interesting because the Redstart is one of the very few migrant land-birds from the United States that range throughout the West Indies, even to the Windward Islands and Trinidad; and the early date shows that the flights from island to island are interspersed with but few and short intervals of rest.

Fall migration in the Mississippi valley is not quite so early; still the first were seen at New Orleans, La., July 21, 1899, July 29, 1900, and July 30, 1897. The earliest migrants reach central Texas the last of August and have been noted the first of September in Mexico, nearly at the southern limit of the bird's winter range in that country.

The regular tide of migration in southeastern United States sets in early in August, and the striking of the Redstart against the Florida lighthouses has been reported on nineteen nights in that month. The largest flocks pass through the Middle Atlantic states about the middle of September, and the greatest number strike the Florida lighthouses the first half of October.

The species deserts eastern Massachusetts September 20, and southeastern New York the first week in October. The average for eight years of the last one seen at Raleigh, N. C., is October 9; the latest, October 13, 1886 and 1891. Some other late dates are at Asheville, N. C., October 28, 1894; Tarpon Springs, Fla., November 1, and at the Florida lighthouses, October 13, 1885, October 25, 1886, October 17, 1887, and November 4, 1888. The southward migration in southern Florida lasts for more than a hundred days, as compared with barely fifty days in the spring.

The dates west of the Alleghanies are much the same; the last is noted in southern Minnesota about September 20, and central Illinois about the first of October.

The latest dates at New Orleans are October 9, 1894, October 19, 1895, October 16, 1896, and October 27, 1899.

PAINTED REDSTART

I have no notes whatever on the migration of this species and can add to the information given in Mrs. Bailey's 'Handbook' only the statement that it extends its range to Guatemala and Honduras, and is found from 3,000 to 9,000 feet, while the lower districts and the coasts are occupied in the winter by the American Redstart.

BLACKBURNIAN WARBLER

SPRING MIGRATION

Atlantic Coast—Our only spring record from Florida is April 10, 1902. We have no spring records, outside of the plateau region, from Georgia, South Carolina and North Carolina. The species arrives near Atlanta, Ga., average, April 17; near Asheville, N. C., average, April 14; earliest, April 10, 1893. These are undoubtedly breeding birds, and, consequently, earlier, relatively, than those from the lower grounds east or west.

Additional average records are: White Sulphur Springs, W. Va., April 22, earliest April 17; French Creek, W. Va., April 28, earliest April 23; Lynchburg, Va., May 2; Washington, D. C., May 5; Eastern Pennsylvania, May 5; Sing Sing, N. Y., May 10; Cambridge, Mass., May 12; Southern Maine, May 19, earliest May 8, 1900; New Brunswick, May 21, earliest May 20, 1902; Pictou, N. S., May 30, 1894; Montreal, May 19; Quebec, May 18, 1901.

Mississippi Valley.—New Orleans, La., rare in spring, April 8, 1900, April 8, 1902; Southern Texas, rare, average April 15, earliest April 1, 1890; Central Mississippi, average April 14; Central Kentucky, April 29, 1893, April 29, 1899; St. Louis, Mo., average May 13, earliest May 6; Brookville, Ind., earliest April 15, average early in May; Southwestern Ontario, average May 6, earliest May 3, 1890; Parry Sound District, Ont., average May 11, earliest May 6, 1889; Ottawa, Ont., average May 13, earliest May 8, 1885 and 1896; Lanesboro, Minn., average May 15, earliest May 3, 1888 (this is probably accidental, the next earliest record being May 12, 1891); Carberry, Man., June 3, 1883. The most northern records are Trout Lake and Severn House, Keewatin.

FALL MIGRATION

Atlantic Coast.—Early records are Chester county, S. C., August 8; Bay St. Louis, Miss., August 11, 1898; San José, Costa Rica, August 17, 1890. Northern breeding birds reach Sing Sing, N. Y., August 15. The bulk is passing the southern end of the Alleghanies September 25 to October 5, is present in Costa Rica the first two weeks of October, and early in November is settled in its Peruvian winter home.

Some late records in eastern United States are: Eastern Massachusetts, September 30; Sing Sing, N. Y., October 15 (abnormally late); Washington, D. C., October 5; Raleigh, N. C., October 8, 1887, October 4, 1888, October 13, 1891; Asheville, N. C., September 15, 1890, September 20, 1894; Chester county, S. C., October 22; Tarpon Springs, Fla., October 15, 1886; Key West, Fla., October 21, 1887.

Mississippi Valley.—The last Blackburnian Warblers leave the region of Lake Michigan about the first of October. Late records are: St. Louis, Mo., October 2, 1896; New Orleans, La., October 9, 1896, October 18, 1897 and 1901.

A few birds winter as far north as Yucatan and Orizaba, Mexico, but the bulk winter in Ecuador and Peru, or from central Colombia to central Peru. This species, therefore, spends five months in its winter home in South America, three months in its summer home in Canada, and averages over fifty miles a day travel for the rest of the year.

PROTHONOTARY WARBLER

SPRING MIGRATION

Atlantic Coast.—The earliest record in the United States for this species is Sombrero Key Light, Florida, March 11, 1888; the average in northern Florida is the first week in April, the earliest being Suwanee river, March 22, 1890, and Perdido Lighthouse, March 22, 1885. At Charleston, S. C., eight struck the light April 8, 1902. At Cumberland, Ga., the earliest record is April 10, 1902; on April 15, 1902, this was the most common among the birds that swarmed about the light; it was again abundant the next night. The average at Raleigh, N. C., is April 18.

Mississippi Valley.—At New Orleans, La., the earliest record is March 13, 1888, the average being March 18. Additional records are: Central Mississippi, average April 6, earliest April 3, 1889; Lomita, Texas, March 26, 1880; Matagorda Island, Texas, March 31, 1900; Dallas, Texas, April 8, 1898, April 6, 1899; Manhattan, Kans., April 25, 1891, April 26, 1894, April 26, 1895; St. Louis, Mo., April 18, 1884, April 20, 1885; Wabash county, Illinois, April 19, 1878; Knox county, Indiana, April 18, 1881; Vigo county, Indiana, April 10, 1896; Elkhart county, Indiana, April 27, 1891, and Shiocton, Wis., May 4, 1882.

FALL MIGRATION

The earliest records of fall migration are at Raleigh, N. C., July 14, 1893 and 1894, and at Key West, Fla., July 28, 1888, and August 8, 1889. The earliest records south of the United States are on the coast of southeastern Nicaraugua, September 2, 1892, and in Northern Colombia, South America, September 25. The latest date at Raleigh, N. C., is August 26,

and at Omaha, Nebr., August 25 to September 10. The latest Florida record is of a bird that struck the light at Sombrero Key, September 25, 1888, and the latest from New Orleans is September 24, 1893. The only fall record for the West Indies is of one taken at New Providence, Bahamas, August 28, 1898.

The route of the Prothonotary Warbler in fall migration is interesting, because apparently the breeders of the Middle Atlantic states pass southwest to northwestern Florida and then take a seven-hundred-mile flight directly across the Gulf of Mexico to southern Yucatan, instead of crossing to Cuba and thence to Yucatan.

What Bird is This?

Field description.— Length, about 7.00 inches. Above brownish, edged with buffy on back and wings; below much paler, streaked with buffy and grayish; throat white or whitish.

NOTE.— Each number of BIRD-LORE contains a photograph, from specimens in the American Museum of Natural History, of some comparatively little-known bird, or bird in obscure plumage, the name of which will be withheld until the succeeding number of the magazine. It being believed that this method of arousing the student's curiosity will result in impressing the bird's characters on his mind far more strongly than if its name were given with the picture.

The species figured in October is the male Mourning Warbler.

Bird-Lore's Fourth Christmas Bird Census

There is every prospect that BIRD-LORE'S Fourth Christmas Bird Census will exceed in interest any of the three that have preceded it. The more northern birds have appeared in unusual numbers, and the cause or causes accountable for their presence may induce the rarest of winter birds to visit us. Already we have had reports of the occurrence of Evening Grosbeaks, and we await their confirmation by other observers.

Reference to the February, 1901, 1902, or 1903, numbers of BIRD-LORE will acquaint one with the nature of the report of the day's hunt which we desire; but to those to whom none of these issues are available we may explain that such reports should be headed by a brief statement of the character of the weather, whether clear, cloudy, raining, etc., whether the ground is bare or snow-covered, the direction and force of the wind, the temperature at the time of starting, the hour of starting and of returning. Then should be given, in the order of the A. O. U. 'Check-List,' a list of the species seen, with exactly, or approximately, the number of *individuals* of each species recorded. A record should read, therefore, as follows:

> Yonkers, N. Y., Time 8 A. M. to 12 M. Clear; ground bare; wind west, light; temperature 38°. Herring Gull, 75; etc. Total, — species, — individuals. — JAMES GATES.

These records will be published in the February issue of BIRD-LORE, and it is particularly requested that they be sent the editor (at Englewood, N. J.) not later than December 28.

A Book Exchange

For the convenience of our readers we open BIRD-LORE'S pages, when space permits, to announcements of nature books desired or offered for exchange or sale. It is requested that all such announcements be typewritten and expressed in form similar to that given below.

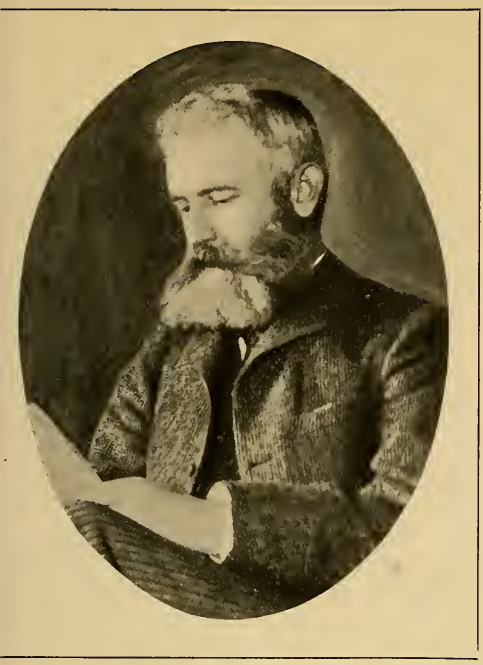
WANTED

Bendire, 'Life-Histories of North American Birds,' Part II. Langille, 'Birds in their Haunts.' Goss, 'Birds of Kansas.'

FOR SALE OR EXCHANGE

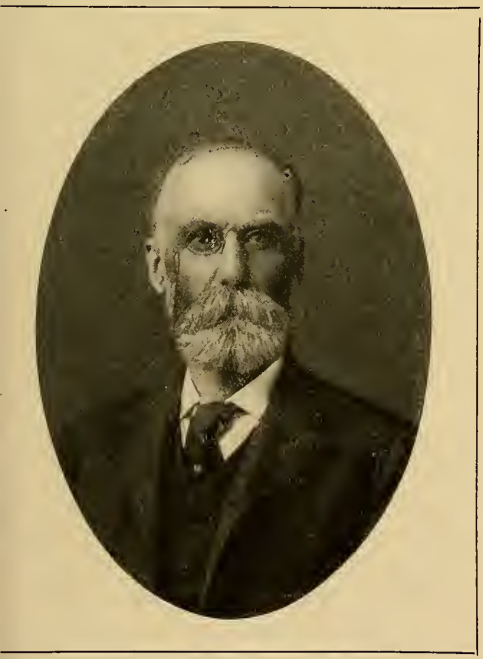
Bendire, 'Life-Histories of North American Birds,' Part I, Newton, Dictionary of Birds (unabridged edition). Wilson, American Ornitholgy, Jardine edition, 1839. Coues, 'Key to North American Birds,' 1884 edition.

RALPH HOFFMANN, Belmont, Mass.



WILLIAM BREWSTER, *Massachusetts*

ERNEST THOMPSON SETON, *Manitoba*



MONTAGUE CHAMBERLAIN, *New Brunswick*

DR. W. H. BERGTOLD, *Colorado*

BIRD-LORE'S ADVISORY COUNCILORS

SEVENTH SERIES

(The names and addresses of all the members of the Council will be published in the next issue of BIRD-LORE)

For Young Observers

A Nuthatch's Nest

BY FRANK I. ANTES, Canandaigua, N. Y.

STROLLING through the woods one day early last April, my attention was attracted by a pair of White-breasted Nuthatches which had nesting material in their bills. As I watched them, one of the pair flew to a dead tree and disappeared in a hole about twenty-five or thirty feet from the ground. In a moment the bird reappeared but without the nesting material, and I knew I had found the nest. I resolved on the spot to come two or three times a week and watch the birds at their nesting, but I was unavoidably detained and was not able to visit the nest again for about two weeks; by this time the incubation was well under way, and, although the male Nuthatch did not brood the eggs, he brought food to the female twice during the fifteen minutes that I remained near.

As far as I know, the eggs did not hatch until the 8th of May, when I discovered both birds carrying food into the nest. The female continued to brood them, however, until May 11. By the last week in May they were old enough to climb to the edge of the nest for food, and from that time on I kept close watch of them, expecting almost every day to find that they had gone; but it looked as though they had taken up permanent quarters in that tree. I would go quietly into the woods and level my glass on the nest-hole; all would appear quiet and I would say to myself, "They have gone at last," when one of the parent birds would alight near the nest-hole and instantly up would come five or six hungry mouths ready for food. The day came at length for their departure, but I am sorry to say I was not on hand. Everything was as usual on the 30th of May, but when I visited the nest on June 3, the young had flown and the home in the wood was deserted.

A Prize Offered

BIRD-LORE offers to its Young Observers of fourteen years and under a prize of a book or books, to the value of two dollars, for the best article on winter bird-life. This article must be based on personal observation and tell not only of the birds seen but something of what they were seen to do. It may contain from 400 to 700 words and should be sent to the editor at Englewood, N. J., not later than January 10, 1904.

A Winter Cardinal

BY ROWLAND EVANS, JR. AND ALLEN EVANS, JR.

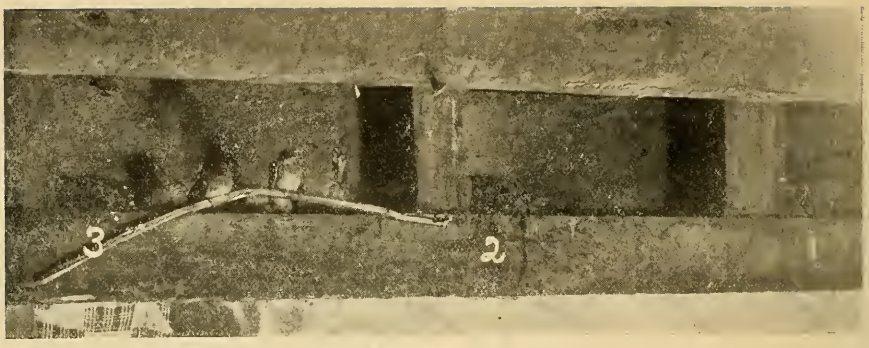
YOU may be interested to hear of a beautiful Cardinal-bird seen at our place at Haverford, a few miles outside Philadelphia, February 18, 19 and 20, 1903. He would appear on our piazza roof on every one of these mornings to get the seed and bread we threw out for the snowbirds. He would stay under our window for several minutes. He was bigger than a good-sized Robin Redbreast. He was only seen while the snow was on the ground. He was all a bright red, with a black ring round his throat and at the base of his bill. He made a chirpy sound like *tsip*. His bill was a bright red.

We enclose a photograph of him, which we took of him through the window.

The Brown Creeper

BY EARLE STAFFORD (Aged 14 years)

Cloaked in brown is he,
That mite on yonder tree—
His cheerful cry, as he climbs on high,
Comes from the pines to me.
Not once in his busy course stops he,
To talk with Nuthatch or Chickadee,
But continues his searching midst wind and snow,
Till the sharp cold days of winter go;
Then back to the northland—back to his home—
To the range of the bears, where the caribou roam;
And there with his mate—the one he loves best—
Behind some strip of bark they'll build them a nest.
He'll help feed the young birds and keep away thieves,
Till the rich gold of fall comes and warm summer leaves.



A PHŒBE'S NESTS AND YOUNG

Notes from Field and Study

A Phœbe With Three Nests

In BIRD-LORE Vol. III, pp. 85–87, John Burroughs has contributed an article entitled 'A Bewildered Phœbe,' in which he shows that this bird evidently became confused in the selection of a nesting site in an environment to which it was likely unaccustomed. As Mr. Burroughs saw fit to interfere with the bird's labor in completing the five nests, the foundations of which she had begun, the reader can only conjecture as to what the results might have been in this case had she been left undisturbed. I, fortunately, had the opportunity of observing the Phœbe nest under conditions similar to those described by Mr. Burroughs; and, as the birds were left to carry on their work, I thought the results might prove interesting in connection with those given by him.

The site selected for nest-building was upon a horizontal beam over the entrance to a wood-shed. Upon this beam were three pieces of studding, at distances of fifteen inches apart and extending perpendicular to a floor above. At each end of the beam a piece of studding formed an acute angle with the beam, presenting a quite different appearance from those where the three nests were built. It may be seen by the accompanying picture that the three nesting sites are exactly similar. The nest-building was begun May 5, both birds taking part in the work, and ended May 20. Nests numbers 1 and 2 were completed about the same time and the foundation for number 3 laid. Number 3 was then about three-fourths completed, after which two eggs were laid in number 2; one egg in number 1, and two eggs in number 3, upon which the bird began sitting May 26, and June 10 hatched the two young shown in the picture. June 23, they left the nest.

The parent birds are seen about these nests occasionally, but have shown no tendency to build again this season.—A. C. DIKE, *Bristol, Vt.*

Swallow's Nest on Board Boat*

I recently wrote to Captain Harris, formerly of the steamer Horicon, on Lake George, New York, inquiring if the Swallows which, in the summer of 1900, nested beneath the guard-rails of his steamer had, in the three succeeding years, nested in similar places. His prompt reply was to the effect that "the Swallows have built their nests under the guard-rails of the various steamers which I have been running [I judge upon Lake George] for the past fifty-five years." The Captain is now retired from duty, but inquired of his son, the pilot of the new steamer Sagamore, regarding the habits of the birds in the past two sea-

* In BIRD-LORE, Vol. III, p. 110, Mr. Gates recorded the strange habit of Swallows which built their nests on a steamer and apparently accompanied her on her daily trips of eighty miles.

sons. To this, the Captain further wrote: "My son says that the Swallows were still with him this summer." Thus it would seem that the Swallows of Caldwell, New York, have, for generations, had a nesting habit peculiar to that locality.—BURTON W. GATES, *Worcester, Mass.*

A LARGE PHŒBE'S NEST

A Large Phœbe's Nest

The accompanying photograph shows a Phœbe's nest which was built on the stone wall of a bridge two feet wide and three feet high, under which the water from a small ravine passes. The nest, which was within two feet of the mouth of the bridge, measures ten inches high and six inches wide, and gradually tapers from the center to the bottom.—C. F. STONE, *Branchport, N. Y.*

The Palm Warbler in New Jersey

The Palm Warbler (*Dendroica palmarum*), usually one of our rarest fall migrants, was rather common during the past season in the vicinity of Plainfield, New Jersey. I noted six individuals, four in one flock, on September 22, two on the following day and one on October 4. The Yellow Palm Warbler, on the other hand, was scarcer than usual, a single bird met with on October 4 being the only one observed. —W. DEW. MILLER, *Plainfield, N. J.*

The Pine Grosbeak at Englewood, N. J.

It is not often, now-a-days, that I have the pleasure of adding a new name to my list of Englewood birds, and a Pine Grosbeak which visited me October 25 of this year received a correspondingly cordial welcome. The bird's clearly whistled *whee-whee-yer*, or *whee-whee-whee*, at once announced the presence of a stranger; and an imitation of the calls met with a quick response, the bird eventually drinking from a pool of water within ten feet of me.

Not only is this the first bird of the species which I have seen at Englewood, but the date of the bird's occurrence is surprisingly early. Dr. L. B. Bishop writes me that three individuals of this species were seen at New Haven, Connecticut, October 30, and other reports from Brattleboro, Vermont, by Mrs. E. B. Davenport, and Monadnock, New Hampshire, by Gerald H. Thayer, indicate an unusual southward movement of Pine Grosbeaks.—FRANK M. CHAPMAN, *Englewood, N. J.*

The Twenty-first Congress of the American Ornithologists' Union

The twenty-first congress of the American Ornithologists' Union was held at the Academy of Natural Sciences in Philadelphia, November 17-19, 1903. The attendance was large, the papers presented were of a high order, and the congress was one of the most successful ever held by the Union.

The election for officers and members resulted as follows: President, Charles B. Cory; vice-presidents, Charles F. Batchelder, E. W. Nelson; secretary, John H. Sage; treasurer, J. Dwight, Jr.; councilors, Frank M. Chapman, Ruthven Deane, William Dutcher, A. K. Fisher, Charles W. Richmond, Thomas S. Roberts, Witmer Stone; corresponding fellows, Dr. Emil A. Goeldi, Para, Brazil; Dr. E. C. Hellmayr, Münich; Dr. Peter Sushkin.

Moscow; Dr. Herluf Winge, Copenhagen; Dr. Samuel W. Woodhouse, Philadelphia; Prof. Dean C. Worcester, Manila, P. I. Members, C. William Beebe, Prof. E. H. Barbour, Benjamin T. Gault. E. H. Forbush, George Spencer Morris, Robert E. Snodgrass, Dr. Reuben M. Strong, Dr. Robert H. Walcott. Ninety-eight associate members were elected.

A list of the papers included in the program is appended: In Memoriam: Thomas McIlwraith, A. K. Fisher, Washington, D. C.; Notes on the Bird Colonies of the California and Oregon Coasts, T. S. Palmer, Washington, D. C.; Nesting Habits of Florida Herons, A. C. Bent, Taunton, Mass.; New Bird Studies in Old Delaware, Samuel N. Rhoads, Audubon, N. J., and Chas. J. Pennock, Kennett Square, Pa.; The Æsthetic Sense in Birds, Henry Oldys, Washington, D. C.; Notes on the Protected Birds on the Maine Coast, with Relation to Certain Economic Questions, A. H. Norton, Westbrooke, Me.; Exhibition of Lantern Slides of Young Raptorial Birds, photographed by Thos. H. Jackson, near West Chester, Pa., Witmer Stone, Philadelphia, Pa.; Views of Farallone Bird Life, Frank M. Chapman, New York City; The Bird Rookeries of Cape Sable and the Florida Keys, illustrated with lantern slides, Herbert K. Job, Kent, Conn.; A Winter Trip in Mexico, illustrated with lantern slides, E. W. Nelson, Washington, D. C.; Some Nova Scotia Birds, Spencer Trotter, Swarthmore, Pa.; Nesting Habits of the Whip-poor-will, Mary Mann Miller, Brooklyn, N. Y.; Some Variations among North American Thrushes, J. Dwight, Jr., New York City; The Spring Migration of 1903 at Rochester, N. Y., E. H. Eaton, Rochester, N. Y.; Warbler Migration in the Spring of 1903, W. W. Cooke, Washington, D. C.; Some Birds of Northern Chihuahua, Wm. E. Hughes, Philadelphia, Pa.; A Reply to Recent Strictures on American Biologists, Leonhard Stejneger, Washington, D. C.; The Exaltation of the Subspecies, J. Dwight, Jr., New York City; Variations in the Speed of Migration, W. W. Cooke, Washington, D. C.; An Ornithological Excursion to the Pacific, Frank M. Chapman, New York City; Bird Life on Laysan Island, illustrated with lantern slides taken by Walter K. Fisher, A. K. Fisher, Washington, D. C.; Ten Days in North Dakota, illustrated with lantern slides, W. L. Baily, Philadelphia, Pa.; Two Neglected Ornithologists — John K. Townsend and William Gambel, Witmer Stone, Philadelphia, Pa.; Bird Life at Cape Charles, Virginia, George Spencer Morris, Philadelphia, Pa.; San Clemente Island and its Birds, Geo. F. Breninger, Phœnix, Arizona; Yosemite Valley Birds, O. Widmann, St. Louis, Mo.; The Origin of Migration, P. A. Tavernier, Chicago, Ill.; Comparison of the Provisional Schemes of the Classification of Birds, R. W. Shufeldt, New York City; A Contribution to the Natural History of the Cuckoo, M. R. Leverson, Brooklyn, N.Y.; Mortality among Young Birds due to Excessive Rains, B. S. Bowdish, New York City. In conjunction with the Audubon Societies: Bird Protection by Agriculturists in Pennsylvania, H. A. Surface, Harrisburg, Pa.; Collecting Permits: Their History, Objects and Restrictions, T. S. Palmer, Washington, D. C.; Report of the Chairman of the Committee on the Protection of North American Birds, Wm. Dutcher, New York City.

A Piazza Bird List

On October 3, 1903, I saw the following birds from the piazza of my home in Summit, New Jersey: A large flock of Golden-crowned Kinglets, Juncos, Chickadees, Tufted Titmouse, Wood Thrushes, a large number of Veeries, a few Hermit Thrushes (I think), six Catbirds, four Brown Thrashers, one Maryland Yellow-throat, two Scarlet Tanagers, a Goldfinch, a Brown Creeper, Robins innumerable, Blue Jays galore, and the inevitable English Sparrow.

Can any other reader of BIRD-LORE beat that record? I was not looking for birds and I did not go off the piazza except to trace and identify one Brown Thrasher.— BERTHA B. WATSON, *Summit, N. J.*

Book News and Reviews

A Hermit's Wild Friends, or Eighteen Years in the Woods. By Mason A. Walton. Dana Estes & Co., Boston. 12mo. xii + 304 pp., numerous illustrations.

It is one thing to have opportunity, but quite another to take advantage of it. The author of this book, for example, during his eighteen years' residence in the woods, had rare opportunity to learn much of his wild neighbors; but lack of proper scientific training, combined with an ignorance of, or disregard for, the studies of other observers, has made the record he here presents not only a worthless but a positively harmful addition to the list of books on the habits of animals.

The book is filled with unwarranted conclusions. Crows and Chickadees and, finally, all birds from "Eagles down to Hummingbirds," are said to mate for life; but not a shred of evidence is given to support this sweeping assertion. Crows were seen to "talk" to a Hawk in a "low tone," and "it was evident that they were telling him that his loud screams would bring all the hunters of Cape Ann to the spot"!

The sex of birds which differ neither in size nor plumage is determined in some unexplained way without question, and individual birds are recognized year after year without evident consideration of the possibility of error. Nevertheless, for a Cowbird to know one of its own kind without instruction is considered a "miracle." Consequently it is essential, according to our author, that the young Cowbird be tutored by "its own mother" (that is, the bird that laid the egg from which it was hatched). The manner of reasoning pursued in reaching this conclusion, and, indeed, throughout the book, is well illustrated by the incident of the Cowbird and Yellow Warblers (pages 211–216). A Cowbird was seen to "flutter" on to the nest of a pair of Yellow Warblers and "add her parasite egg" to the two Yellow Warbler eggs already in the nest. The Yellow Warblers on returning discussed the matter, and it was decided that the female lay no more eggs, since, it is stated, they "intelligently understood that they must sacrifice their first brood in order to raise a second brood unmolested." "After the egg was laid" it was *thought* that the female Cowbird "visited the nest several times a day," but the statement that "her frequent visits had accustomed the young birds to her presence" is made without the qualifying "think." The two young Yellow Warblers were crowded out of the nest at the age of one day by the young Cowbird when he was two days old, but whether the act was seen or inferred is not stated. "One day," some time after the young Cowbird had left the nest, the female Yellowbird was missed, and "after a long search," was found "engaged in building a new nest." The young Cowbird was now "looked up" and found under the care of the male Yellow Warbler, assisted by "the old Cowbird," and several days later the Warbler deserted his charge to return and help his mate with her second brood.

After these observations the question is asked, "Why do young Cowbirds lay eggs in other birds' nests, instead of building nests for themselves?" and it is answered in the following remarkable paragraph: "When the Cowbird was out of the shell it was big and black. It was my first young Cowbird, and I thought it was a male. I made it a male in my note-book. While the bird was on the nest I fastened a bit of copper wire to its leg, and the next spring, when it returned, I found that the bird was a female. I saw her with another female, I think it was the mother, visiting birds' nests. So the young Cowbird was educated to lay its eggs in other birds' nests. Nest-building is educational and not instinctive."

Further quotations would only furnish additional illustrations of the author's assumption and dogmatism. Indeed, we should not consider the book at this length were it not to protest against the publication

of what Mrs. Wright has well called this literature of the "Long Bow" ('The Critic,' April, 1903).

Unfortunately, members of this school take themselves seriously and evidently believe that their crude observations and absurd deductions are as worthy of consideration as those of the trained naturalist and animal psychologist. Experience shows that we cannot look to the publishers for protection from the growing flood of books of this kind, and we can only hope that, in time, the interested public will have acquired enough first-hand information from personal observation to detect and reject these *un*natural histories of animal life.

As a more tangible evidence of carelessness on the part of the publishers of the present volume, we would call their attention to the fact that the "Pigeon Hawk" facing page 68 is a Sharp-shinned Hawk; that the "Belted Kingfisher" on page 109 is not that species, but apparently the European bird; that a cut of *Fulica* is made to illustrate text relating to *Oidemia*; that the "Chickadee" on page 173 is the Mountain Chickadee, a species of the western United States, and that the Blue-winged Warbler on page 211 should have no place in the book at all.—F. M. C.

Birds of Laysan and the Leeward Islands, Hawaiian Group. By Walter K. Fisher. Pages 1-39, plates i-x of the U. S. Fish Commission Bulletin for 1903.

It is a long time since Bird-Lore has received a more interesting publication than this record of Mr. Fisher's studies on Laysan and the neighboring islands, which he visited on the U. S. Fish Commission steamer Albatross between May and August, 1902.

Thoroughly prepared to make the most of the unusual opportunities afforded a naturalist in these densely inhabited bird islands, Mr. Fisher evidently used his eyes, pen, and camera to the best advantage, and gives us a series of exceptionally valuable observations and photographs. Although his time on Laysan was limited, birds were found to be so abundant and so tame that no difficulty was experienced in securing a set of pictures admirably illustrating general conditions of the island bird-life and characteristic habits of its birds.

Incidentally it is stated that the widely published photograph showing car-loads of eggs of the Laysan Albatross was made to order by a photographer who gathered the eggs for the purpose of taking "a spectacular picture"; an explanation which allays our fears for the present safety of Laysan birds, and explodes more or less indefinite stories concerning the "dried albumen," etc., for which it was said these eggs were shipped in vast quantities to Honolulu! So easy is it, in the lack of exact information, for false ideas to take root and flourish.

Space forbids quotation from this valuable contribution to the study of island bird-life, but we can commend it to our readers as an unusually interesting recountal of a naturalist's experience in one of the most remarkable of known bird islands.—F. M. C.

The Ornithological Magazines

The Auk.—The October 'Auk' opens with one of William Brewster's pleasant sketches, this time recording the discovery of a nest of the Philadelphia Vireo. Hitherto only one nest and no authentic eggs have been preserved, and, as Mr. Brewster was the first, years ago, to make known the life-history of this rare little bird, it is peculiarly appropriate that the discovery of a nest should finally fall to his lot. A half-tone of the nest and eggs is shown. 'A Contribution to the Life-History of the Herring Gull ***' by William Dutcher and W. B. Baily, who visited a large colony on the Maine coast, proves that even a common species still affords opportunities for discoveries of habits and traits in its home-life. The accompanying half-tones are well chosen.

Robert E. Snodgrass is following a comparatively unbeaten path in 'Notes on the Anatomy of *Geospiza*, *Cocornis* and *Certhidia*,' birds of the Galapagos Islands, his paper being illustrated by original drawings. A harvest awaits the reaper in the field of avian anatomy. The birds of another mid-ocean island, Laysan, were found at home and ridiculously tame by W. K. Fisher,

whose camera gives us an insight into their daily doings. Isolation has hitherto protected the few species of land-birds and many sea-birds found on Laysan, but now that man has a foothold on the island, there may be work cut out for the Audubon Societies in the near future.

Three letters of Audubon are brought to light by S. N. Rhoads. The Black-winged Tanager of South America is discussed by A. H. Clark, and a new species of Nighthawk from the Bahamas, *Chordeiles virginianus vicinus*, is named by J. H. Riley.

Reviews, notes, etc., together with index and list of members, complete the number. The current volume, containing 480 pages, is the largest ever offered to the readers of 'The Auk,' with the one exception of 1886. —J. D., Jr.

The Condor.— The September number of 'The Condor' contains four main articles. The first, entitled 'With the Mearns Quail in Southwestern Texas,' by Fuertes, is illustrated with three text figures and a striking frontispiece showing the different positions assumed by the bird's crest. Notwithstanding the conspicuous plumage of this quail, it is shown that the peculiar markings are in some measure, at least, protective, when considered in connection with the bird's habit and habitat. "The very contrasts which look so conspicuous when seen in the hand, isolated from the sharp lights and shadows of the natural environment, serve to so 'cut up' the creature that in nature all semblance of a bird is lost."

Under the heading 'Some Observations on the Nesting Habits of the Prairie Falcon,' Cohen gives a summary of his notes on *Falco mexicanus* in the San Francisco Bay region, where the bird is now very rare. 'Bird Life on the Farallone Islands,' by Kaeding, is the first published account of the visit made to the Islands by the A. O. U. party in June, 1903. The paper is illustrated with six half-tones, and concludes with a list of seventeen species of birds observed. Illustrations and descriptions, however, no matter how elaborate, give but little idea of the real conditions existing on this wonderful bird colony. It must be seen to be fully appreciated, and, as the author truthfully says, "a trip to the Farallones is a liberal education." The first instalment of 'A List of the Birds Observed in Cochise county, Arizona,' from November 1, 1894, to June 1, 1895, is contributed by Osgood.

Wilson Bulletin.—Number 44 of 'The Wilson Bulletin' contains four communications of interest. The opening one, by Mrs. Elizabeth B. Davenport, relates to the 'Birds Observed on Mt. Mansfield [Vermont] and the West End of Stowe Valley at the base of the Mountains, in the Summer of 1902.' The titles of the three other papers are as follows: 'A Nest of the Western Horned Owl,' by E. R. Warren; 'Winter Birds of Central Park, New York City,' by C. H. Rogers; and 'The Terns of the Weepecket Islands, Massachusetts,' by Lynds Jones.

With the exception of four days, Mrs. Davenport devoted a considerable part of the time between June 6 and July 31 to collecting data for her paper, and was fortunate enough to secure notes on seventy-four species of birds, all of which, with the exception of the Spotted Sandpiper, were land-birds.

Charles H. Rogers has given a summary of his observations covering three seasons, on the winter birds of Central Park. The thirty-three species noted are divided into 'Winter Visitors,' 'Permanent Residents,' 'Occasional Stragglers from the Country,' and winter birds that have been observed, but not during the winter months. In 1881 Dr. E. A. Mearns published a series of articles in the New York 'Observer,' giving an annotated list of the birds found in the park, which, if we remember correctly, include observations on the winter visitors. It might be instructive to compare the two lists, which were prepared twenty-five years apart. Lynds Jones gives an interesting paper covering his observations made during the past summer among the Common Terns and Roseate Terns on the Weepecket Islands. He had a good opportunity to study these birds on their nesting grounds, and was able to gather some valuable information concerning their life histories.—A. K. F.

Bird-Lore

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Devoted to the Study and Protection of Birds
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES
Edited by FRANK M. CHAPMAN
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Bird-Lore's Motto:
A Bird in the Bush is Worth Two in the Hand

EVER since the establishment of BIRD-LORE it has been our desire to present our readers with accurately colored illustrations of birds, which would not only be attractive in themselves but would also be of assistance in identifying birds in nature. Various methods of color printing have been investigated, but those that were desirable were too expensive, while those that were cheap were painfully unsatisfactory.

Recent developments in reproductive processes, however, have made it possible for us to gratify our ambition, and BIRD-LORE celebrates the completion of its fifth year by publishing the first plates of a series designed to illustrate the Warblers of North America in color, from drawings by Louis Agassiz Fuertes and Bruce Horsfall.

In these illustrations especial attention will be paid to the plumage of the female and young (when they differ from that of the adult male), a plan which we are sure will meet with the approval of the many bird students who have been puzzled by birds in immature dress.

Of the value of the text, by Professor Cooke, which will accompany these plates, we have spoken on another page. Later it is proposed to publish in book-form full biographical matter concerning the songs, nests and eggs, and general habits of Warblers, and in carrying out this plan we most earnestly request the coöperation of BIRD-LORE's readers.

The day has long passed when one man can write a life-history of even a single bird which will adequately reflect our knowledge of it. The migration dates presented by Professor Cooke in this issue admirably illustrate the necessity for many observers if we are properly to comprehend the subject of bird migration; and in every other phase of the study of bird-life there is need for a great number of independent observations.

BIRD-LORE's editor, therefore, will appear not as the author, but as the editor of the projected volume on North American Warblers, and he sincerely hopes that during the coming season bird students throughout the country will pay especial attention to the habits of these birds, and will contribute the results of their work to this proposed joint production of American ornithologists. A plan for study will be announced in a later number.

With this issue of BIRD-LORE Mr. Dutcher joins Mrs. Wright in editing the Audubon Department. Mrs. Wright will continue her helpful and suggestive editorials on various phases of educational and protective bird work, and Mr. Dutcher will contribute news of the activities of the National Committee and continue in BIRD-LORE his useful series of Educational Leaflets.

To make room for this additional material, BIRD-LORE will be permanently enlarged.

Other features for the coming year will be announced in due season, but we already have enough material on hand to assure our readers a volume of exceptional interest and value.

As we go to press we learn with much pleasure that Mrs. Florence Merriam Bailey's 'Handbook of Birds of the Western United States' has already reached its second edition.

It is also good news to hear that the long-delayed revised edition of Coues' Key will be published in December. In our next issue, therefore, we shall present the promised reproductions of proof pages of the 1872 edition of this classic work.

The Audubon Societies

"You cannot with a scalpel find the poet's soul,
Nor yet the wild bird's song."

Edited by MRS. MABEL OSGOOD WRIGHT and WILLIAM DUTCHER

Communications relating to the work of the Audubon and other Bird Protective Societies should be addressed to Mrs. Wright, at Fairfield, Conn. Reports, etc., designed for this department should be sent at least one month prior to the date of publication.

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Meditations on the Posting of Bird Laws

Those of us who live in states having fairly satisfactory laws for bird protection are wont to ponder every fall as to whether it will ever be possible to have them satisfactorily enacted. Not only are the game-wardens few and far between and the constables curiously near-sighted, but otherwise conservative citizens frequently maintain that to prosecute offenders too vigorously is both impolitic and inexpedient, as very many of the violators are wholly unaware of the existence of the statutes, or, if they are vaguely aware that there is some sort of prohibition, think that it applies only to visibly private grounds,—they do not understand that it is a state fiat. Certain it is that while the more intelligent class of the community are usually cognizant of the laws, it is even for them no easy matter to keep abreast of the various changes that are likely to follow each legislative session, while to the newly arrived foreign element unable to read English who, together with cats, are the birds' worst enemies, how can we expect them to give heed to that they have never heard? The first step is to render each community thoroughly informed.

Of course, ignorance of the law is held to be no excuse for breaking it, but this is one of many cases of legal injustice. Various societies have tried posting the game-laws broadcast on trees, fences and in country stores, usually printed in English, occasionally in Italian, the most frequent result being that in a few weeks they are either torn down or overshadowed by the latest poster advertising a county fair or a political rally. I am fully convinced that individual effort in this matter will do much more than indiscriminate posting.

Here in Connecticut we now have a law constituting every man his own constable where trespass on his land is concerned, thus rendering practical the ancient law against general trespass, which was perforce a dead letter. All states do not have this law, but equal results could be attained, as far as bird protection is concerned, if every owner of either a garden plot or an extensive farm alike would not only keep their grounds thoroughly posted on the roadside inside of the fence, where to remove the poster would be a trespass in itself, but also scatter the posters through remoter parts of wood lots and private lanes, where they would be seen by those avoiding highway publicity. Then, after this is done, offenders may be brought justly to justice. I am convinced that if half a dozen land-owners in every community would do this, a chain could be formed that would soon bind an entire state.

An Audubon Society may print a thousand or two copies of the game-laws on stout muslin and see that they are distributed and tacked up along highways, but if they are pulled down almost immediately they have merely their labor for their pains. If, however, individuals could have these posters on application and take personal interest in their preservation and renewal, the result would be very different. Also, it has been recently suggested by one high in authority, as well as in the knowledge of bird protection, that it may be sometimes possible to persuade a general contractor or section foreman of a railroad to read and emphasize the bird-laws to the gangs of foreigners hey employ. Given a poster printed in scholastic Italian, how much does it mean to those accustomed to a local patois, and when the unfamiliar names of our birds are added, what can Giaomo of the railway ditch make of the thing?

A few days ago an intelligent woman who has traveled much said to me: "I know that the Italian and Slavs seem lawless and kill birds indiscriminately, but for this we are responsible, not they. In the first place, they are not thoroughly informed, and, in the second, to get out to the woods for amusement is one of the few cheap pleasures this country offers foreigners who come from lands where, if bread is scarcer, amusement is more plentiful. We must teach them, and do it tactfully, for I have this season seen almost a race-riot started by the arrest of an alien for taking shore-birds' eggs from nests in a sand-barren, when the whole outraged attitude of the man showed that he was unconscious of wrongdoing."

Truly it is not enough to make the laws, or to enforce them. The illiterate foreign public are our charge for instruction in this, as in the matter of general education; and, while we are sending out free libraries to interest school children in the birds themselves, it would be well—since posters are often forbidden in school buildings—to send to each school teacher who circulates a library a pocket copy of the Bird Laws, with a request to read the same intelligently to her class. In our winter meditations and heartfelt dreams of what we will do for bird protection "when the nesting season opens," let us remember that for the protectionist there is no closed season when he has to thresh out the problem of informing the stranger within his country's gates.—M. O. W.

Reports of Societies

Report of the Audubon Society of the District of Columbia for 1903

This society was organized for the study and protection of birds. Under the heading of study, the work accomplished has been through lectures, meetings for members, held monthly, field meetings, and classes for the instruction of teachers, conducted by

different ornithologists, members of this society, for which no charge is made. Fifty or sixty teachers comprise the members of these classes. Illustrations are given by means of two hundred bird-skins owned by the society. These are also available for use in private schools and for lectures.

Classes for popular instruction were held through April and May, and created great enthusiasm, especially the outdoor classes, realizing for the treasury a neat little sum. Field meetings were held through April and May for members and their friends, each personally conducted by two or more trained ornithologists. Leading, as they did, through the beautiful woods, so easy of access around Washington, to which was added one water excursion, these meetings are said to be the crowning pleasure of the year's work.

For the protection of birds there has been examination of millinery stores by officers of the society; coöperation with the Audubon Society of the state of Virginia to secure enactment of adequate laws for that state; coöperation with the game-wardens of Montgomery county, Maryland, copies of our game-laws being sent to all wardens in the county. Occasional examinations of markets and commission houses have revealed no flagrant violation of game-laws, no song-birds offered for sale.

Protection has been given to two breeding colonies of Night Herons near the eastern branch of the Potomac. The existence of breeding colonies so near the city of Washington is of great interest.

All sale of Grebes and "Water Witches" in the markets has been effectively stopped. The sale of live native birds has been reduced to a minimum, and the trapping of song-birds near the city has been practically stopped.

The laws for the protection of birds and game have been generally well observed.

The society numbers about three hundred members, and some of its officers have been told that "more good is accomplished with less money expenditure than would ever have been thought possible." — JEANIE MAURY PATTEN, *Secretary*.

Report of the Audubon Society of Vermont for 1903

The year 1903 has brought much encouragement to those interested in Audubon work in Vermont. Membership has not increased rapidly, but sustained effort has been made to create a public sentiment which will secure to our agricultural interests the protection of bird-life, and to encourage among all our people that interest in living birds which makes for the enlargement and enrichment of life from the esthetic side.

We have had the hearty coöperation of our state superintendent of education, Mr. Walter E. Ranger, who has furnished us with much valuable printed matter, published under his direction, by the State Board. He has also invited members of our society to present methods of bird study at the summer schools for teachers, held under state authority. We have endeavored to avail ourselves of these opportunities, and find a lively interest in the subject among all the teachers with whom we have been able to communicate. Nature work in its largest sense—man's true relation to the world about him—is the growing idea underlying the work of our educators. We now have Audubon members among the instructors in two of our State Normal Schools, which insures aid to those soon to be enrolled among the teachers of the state.

The subject of bird protection by the farmer, not legal protection, but such individual protection as can result only from an intelligent comprehension of the economic value of birds to our agricultural interests, was ably presented by Amos J. Eaton at the Dairymen's Meeting held under the auspices of our State Board of Agriculture. No topic discussed awakened keener interest. We hope to extend this feature of our work through the granges of the state.

A lantern and slides would be of material help, but our finances will not admit of purchase at present. Mr. Eaton had only the Massachusetts charts for illustration.

We have added another circulating library during the year. These books reach the homes through the children. Parents become interested in the topics which absorb

their children, and our children thus have a definite field of usefulness all their own. They are an irresistible missionary host storming the citadel of indifference among their elders. And somewhere among this little band lie the scattered forces which must move on the world's best work before many years are added to the past. Hundreds of pamphlets and leaflets have been distributed through our state.

We wish that every Audubon member could be encouraged to read BIRD-LORE. This is the only means by which one can be fully informed of the progress of the work in general, and the only means by which a thorough union in spirit and effort can be attained. We are also under an individual obligation to sustain our accredited organ.

The same responsibility rests upon us in our corporate capacity toward the interests of the National Committee. We feel there should be a liberal use of the leaflets published by our national secretary, and such subscriptions be made to the fund as may be necessary for the development of the work. —ELIZABETH B. DAVENPORT, *Corresponding Secretary;* STELLA M. BARROWS, *State Secretary*.

Annual Conference of Audubon Societies

The third Annual Conference of Audubon Societies, through the National Committee of Audubon Societies, was held at the residence of Mrs. Edward Robins, secretary of the Pennsylvania Audubon Society, 114 South Twenty-first street, Philadelphia, on the evening of November 18, 1903.

The following societies were represented by the delegates, whose names are given below: Connecticut, Mrs. William Brown Glover; Delaware, Mr. A. D. Poole; District of Columbia, Dr. T. S. Palmer; Florida, Mrs. Kingsmill Marrs; Georgia, Dr. Eugene Murphy; Massachusetts, Miss Harriet E. Richards; New Jersey, Miss Julia Scribner; New York, Mr. Frank M. Chapman; North Carolina, Professor T. Gilbert Pearson; Oregon, Mr. William R. Lord; Pennsylvania, Mr. Witmer Stone; Vermont, Mrs. E. B. Davenport; Virginia, Dr. T. S. Palmer.

Mr. Dutcher, who was unanimously re-elected to the office of chairman, presented an outline report of his year's work, which will later be printed in full and distributed to the societies. He stated that $3,915 had been expended under the Thayer Fund, and $575 under the special fund contributed by the Audubon Societies for clerical assistance. Among noteworthy contributions was a naphtha launch given by the Florida Audubon Society and now in active service among the Florida Keys.

The A. O. U. model law has been passed in nine additional states, new Audubon Societies have been started in Colorado and Georgia, and weaker societies have been assisted. Over one hundred thousand educational leaflets have been distributed, and the demand was for many more; thousands of letters have been answered, an exceedingly important agreement has been entered into with the Millinery Merchants' Protective Association, and steps have been taken to secure protection for birds in the Philippines and other American islands in the Pacific.

A sufficient sum was at once subscribed to ensure a continuance of clerical assistance and it was said that there was every reason to believe that the Thayer Fund would reach or even exceed the sum contributed last year.

The work for the coming year will include renewed efforts to secure the passage of the A. O. U. law in states which have not effective bird-laws, an extension of the warden system, publication of additional educational leaflets, and systematic attempts to encourage bird study in the schools.

To supply the urgent need of lantern slides, it is hoped that bird photographers throughout the country will contribute duplicate negatives to the National Committee, which will act as a central distributing bureau of the slides made from them.

The chairman of the committee was authorized to appoint a sub-committee to assist him in preparing an exhibit of Audubon Society material for the St. Louis Exposition. This exhibit is designed to include specimens of the literature and bird charts issued by the societies, a map showing the states which have Audubon Societies, enlarged photographs of protected bird colonies, etc.

NATIONAL COMMITTEE OF AUDUBON SOCIETIES

EDUCATIONAL LEAFLET, NO. 6

Drawn from life oy Charles R. Knight

PASSENGER or WILD PIGEON

(Length, 15–17 inches)

Order—*Columbæ*

Family—*Columbidæ*

Genus—*Ectopistes*

Species—*Ectopistes migratorius*

The Passenger or Wild Pigeon

BY WILLIAM DUTCHER

Chairman, Protection Committee of the American Ornithologists' Union

DESCRIPTION

Distinguishing Characters.—Size large, length 15 to 17 inches; tail long and pointed, length, 8.50 inches; resembling in general appearance the Mourning or Carolina Dove, but much larger, and flight said not to be accompanied by a whistling sound.

Adult Male.—Upper parts bluish slate color, middle of the back browner; sides of the head bluish slate-color of the same shade as the crown, chin somewhat paler; *no black mark behind the ears;* wing-coverts slaty-blue like the rump, the tertials and their coverts browner and with black spots; primaries blackish and externally margined with *brownish;* central pair of tail-feathers blackish, *all* the others *white* or *pearly white* at end half, becoming grayer toward the base, where they are marked with black and often chestnut; underparts rich brownish pink, becoming white on the lower abdomen and under tail-coverts; chin, upper throat and sides of the throat bluish slate-color, sides of the neck like breast but with iridescent reflections spreading to the hindneck; bill black, feet reddish.

Adult Female.—Differs from the male in having the middle of the back, crown and wings brownish (*the rump, however, remaining bluish slate*), more black marks in the wings, the chin much whiter, the underparts paler, brownish with little or no pinkish tinge, the iridescence at the side of the neck less pronounced, the central pair of tail-feathers browner, the others somewhat grayer.

Young.—Young birds of both sexes resemble in plumage the adult female, but the feathers of the crown, foreback, sides of the breast and sides of the neck, the wing-coverts and tertials are tipped with whitish or brownish, the primaries are broadly edged and tipped with rusty brown, the outer tail-feathers are grayer.

Remarks.—The only other member of the order Columbæ for which the Passenger Pigeon could be mistaken is the Mourning or Carolina Dove. The Pigeon, however, is much larger, the adult male is much pinker below, and in both sexes of the Pigeon the rump is bluish slate instead of brownish as in the Dove, while the Pigeon's outer tail-feathers are broadly tipped with white and the Dove's more narrowly with gray. Furthermore, the small, black mark present behind the ear in the Dove is wanting in the Pigeon (see Educational Leaflet No. 2, The Mourning Dove).

Alexander Wilson, the "Father of American Ornithology," estimated that a flock of Wild Pigeons seen by him near Frankfort, Kentucky, about 1808, contained at least 2,230,272,000 individuals. Audubon writes that in 1805 he saw schooners at the wharves in New York City loaded in bulk with Wild Pigeons, caught up the Hudson river, which were sold at one cent each.

The late George N. Lawrence tells of the great flights of Pigeons that annually passed over New York City as late as 1850. He says, "We could see flocks consisting of from twenty-five to over a hundred Pigeons come sweeping down over the tree tops seemingly at a speed of 75 miles an hour. The flocks followed each other in quick succession. On the present sight of General Grant's tomb was an old country-seat known as 'Claremont.' From the top of this house, during one of these great flights of Pigeons,

the owner killed a hundred or more in one morning. The writer, during the past forty years, has studied the birds of the vicinity of New York, and in all that period has seen only one live Wild Pigeon. The writer's father, who lived at Tarrytown, N. Y., in his boyhood, has often told of the enormous flocks of Pigeons he saw there, so great that in passing overhead the sun was darkened as by a rain-cloud and the noise of their wings was like thunder.

Today the Wild Pigeon is so rare that the observation of a single individual is considered noteworthy.

The species continued abundant until about 1860, when, as a result of increasing slaughter for food, it began rapidly to diminish in numbers, and no large flock has been recorded since 1888. Frank M. Chapman tells me that as late as July, 1881, he saw Wild Pigeons used in large numbers at a trap-shooting tournament held near New York City. The birds had been netted in the West and were often so helpless from their confinement in foul cages that they were unable to fly. William Brewster writes that in 1876 or 1877 there was a Pigeon-nesting near Petosky, Michigan, which was twenty-eight miles long and averaged four miles in width. The disappearance of so abundant a creature in so comparatively short time is a surprising illustration of man's power in the animal world, when, for any reason, his forces are directed toward a certain end.

Wild Pigeons lived in flocks at all seasons, nesting, roosting and feeding in enormous bodies. Wilson mentions a nesting colony which was several miles in breadth and upwards of forty miles in extent! The birds chose preferably beech woods, and as many as ninety nests have been counted in a single tree. The flock previously mentioned, estimated to contain over two billion individuals, stretched from horizon to horizon, as far as the eye could reach in every direction, and was four hours in passing a given point. At all seasons, whether migrating, roosting or nesting, Pigeons were subject to attack by man. Their migrations were governed largely by the food supply, acorns and beech-nuts constituting their chief fare, and when they appeared at a certain place their destruction became the object of the day. Many were shot, but by far the larger number were netted with the aid of live decoys. Wilson tells of thirty dozen birds being captured at one spring of the net. Audubon states that he knew a man who, in Pennsylvania, netted 500 dozen Pigeons in one day.

When roosting, Pigeons were attacked by men armed with guns, poles, clubs, and even pots of sulphur, and wagon-loads of birds were killed nightly. Similar methods of destruction were employed when the birds were nesting. At this season the squabs were especially desired, and the trees were shaken or felled to obtain them. When the wants of the hunters had been supplied, droves of hogs were released beneath the nesting trees to feed on the birds remaining. At one of the last large known Pig-

eon 'nestings,' near Petosky, Michigan, in 1878, it is estimated that one billion birds were killed during the season.

This, in brief, is the story of the destruction of the Wild Pigeon, whose remarkably rapid extermination is paralleled only by that of the American bison. During the period of its abundance the Wild Pigeon was distributed throughout the greater part of eastern North America, from the Hudson Bay region southward to Florida, and casually westward to British Columbia. Today an occasional individual is observed at intervals in the Atlantic States, and in the middle and upper Mississippi Valley they are seen more frequently. Reports of their presence in large numbers on the Pacific coast or in various parts of the tropics prove to be based on other species of Pigeons.

STUDY POINTS FOR TEACHERS AND STUDENTS

What are the special characters of the Wild Pigeon? How does the male differ from the female? How do the young differ from the adults? In what respect does the Pigeon differ from the Mourning Dove? How many Pigeons were estimated by Wilson to be contained in one flock? How long a time was the flock in passing a given point? What is the estimated flight speed of the Pigeon? At what price does Audubon mention seeing Pigeons sold in New York City in 1805? How were these birds shipped? Where were they caught? What area was occupied by a Pigeon roost observed by Wilson? How many nests have been observed in a single tree? What governed the migrations of Pigeons? What was their principal food? When did wild Pigeons begin noticeably to decrease in numbers? What were the causes? When and where was the last known large Pigeon roost? What was the former range of the species? What is its present range? What conclusion may we draw from the history of the Pigeon's extinction?

Much information in regard to the Passenger Pigeon will be found in the works of Wilson, Audubon and Nuttall, in Baird, Brewer and Ridgeway's 'History of North American Birds,' Bendire's 'Life Histories of North American Birds,' Brewster's 'The Present Status of the Wild Pigeon *(Ectopistes migratorius)* as a Bird of the United States, with Some Notes of its Habits,' The Auk, VI, 1889, pp. 285-291.

Additional copies of this leaflet may be obtained from William Dutcher, Chairman National Committee of Audubon Societies, 525 Manhattan Ave., New York City.

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FRANK M. CHAPMAN

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R. Weber

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Bird-Lore

March-April, 1903

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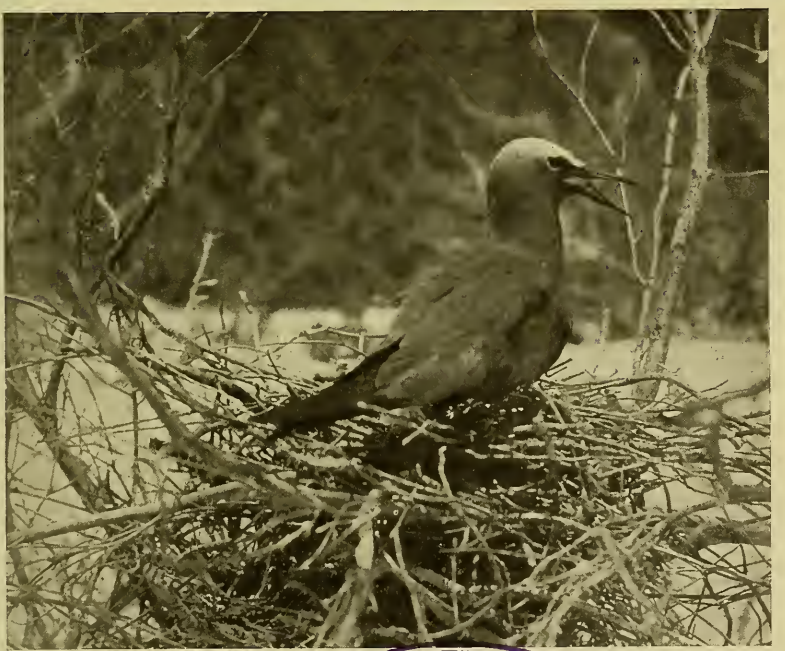

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